



Parts Manual

Mfg. No: 5902000
Rover XC w/ Briggs & Stratton Engine
(FS1200) Series Stand-On Spreader

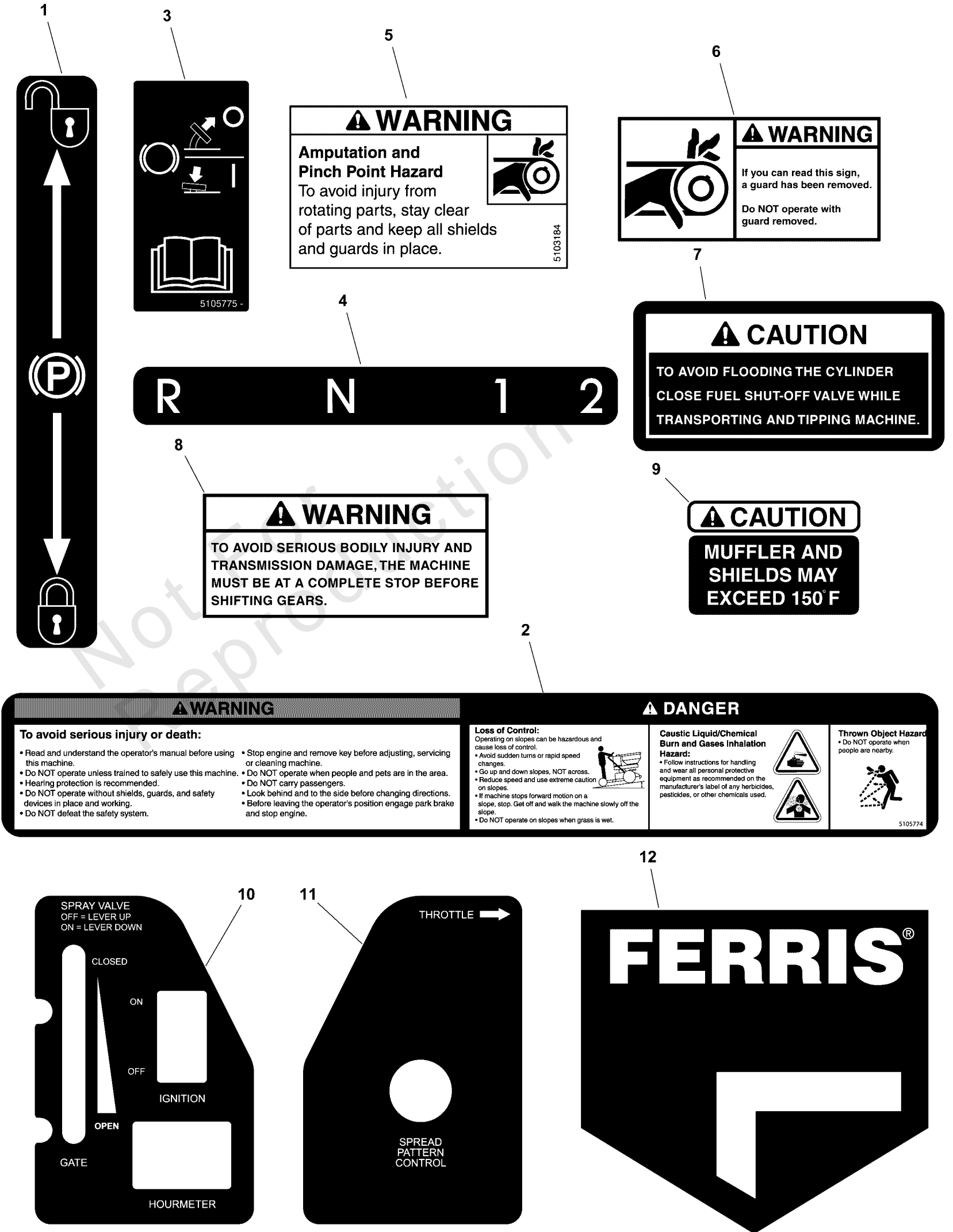


5106065 - Salt Spreader Baffle, 220# (SPB-220-2).....
5106232 - Rover XC Spare Parts Kit (SPK-400-2).....

Not For
Reproduction

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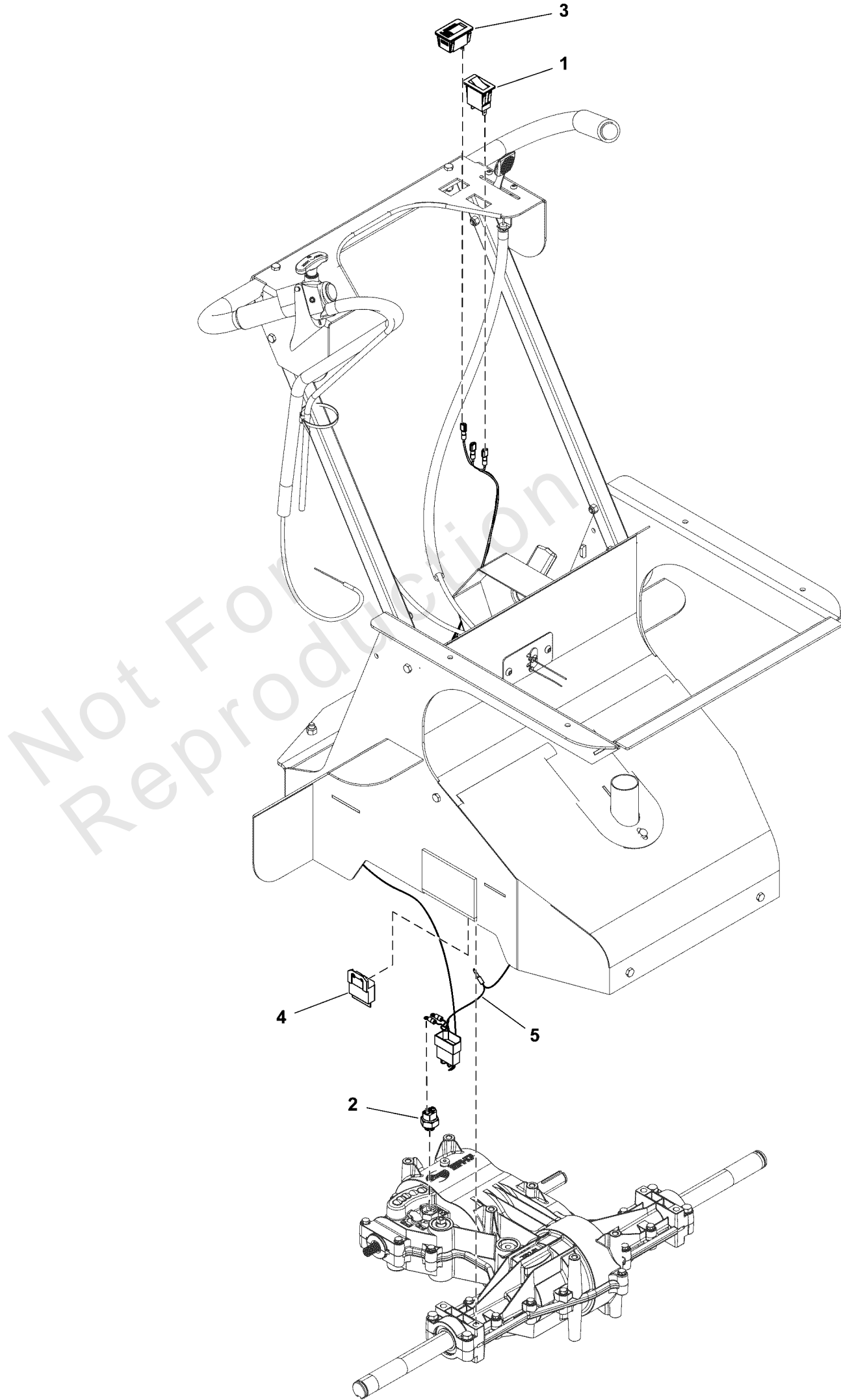
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Decal Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|---------|-----|--|
| 1 | 5102628 | 1 | DECAL, PARKING BRAKE SYMBOLS |
| 2 | 5105774 | 1 | DECAL, WARNING / DANGER |
| 3 | 5105775 | 1 | DECAL, BRAKE PEDAL |
| 4 | 5106500 | 1 | DECAL, GEAR SELECTOR |
| 5 | 5103184 | 3 | DECAL, WARNING, HAND IN BELT, ENG ONLY |
| 6 | 5106504 | 1 | DECAL, WARNING, GUARD |
| 7 | 5106505 | 1 | DECAL, CAUTION, FLOODING |
| 8 | 5106506 | 1 | DECAL, WARNING, INJURY & TRANS. DAMAGE |
| 9 | 5106507 | 1 | DECAL, CAUTION, MUFFLER TEMP. |
| 10 | 5106508 | 1 | DECAL, CONSOLE, LEFT ROVER |
| 11 | 5106509 | 1 | DECAL, CONSOLE, RIGHT ROVER |
| 12 | 5106542 | 1 | DECAL, 3.00" FERRIS SHIELD LOGO |

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Electrical Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|----------|-----|--|
| 1 | 5105945 | 1 | SWITCH, ROCKER ON/OFF |
| 2 | 5106017 | 1 | PEERLESS NEUTRAL START SWITCH |
| 3 | 5106145 | 1 | METER, TACH/HOUR INDUCTIVE PICKUP |
| 4 | 84008442 | 1 | MODULE |
| 5 | 5109867 | 1 | HARNESS, WIRING ROVER POSITIVE VOLTAGE |

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Electrical Schematic

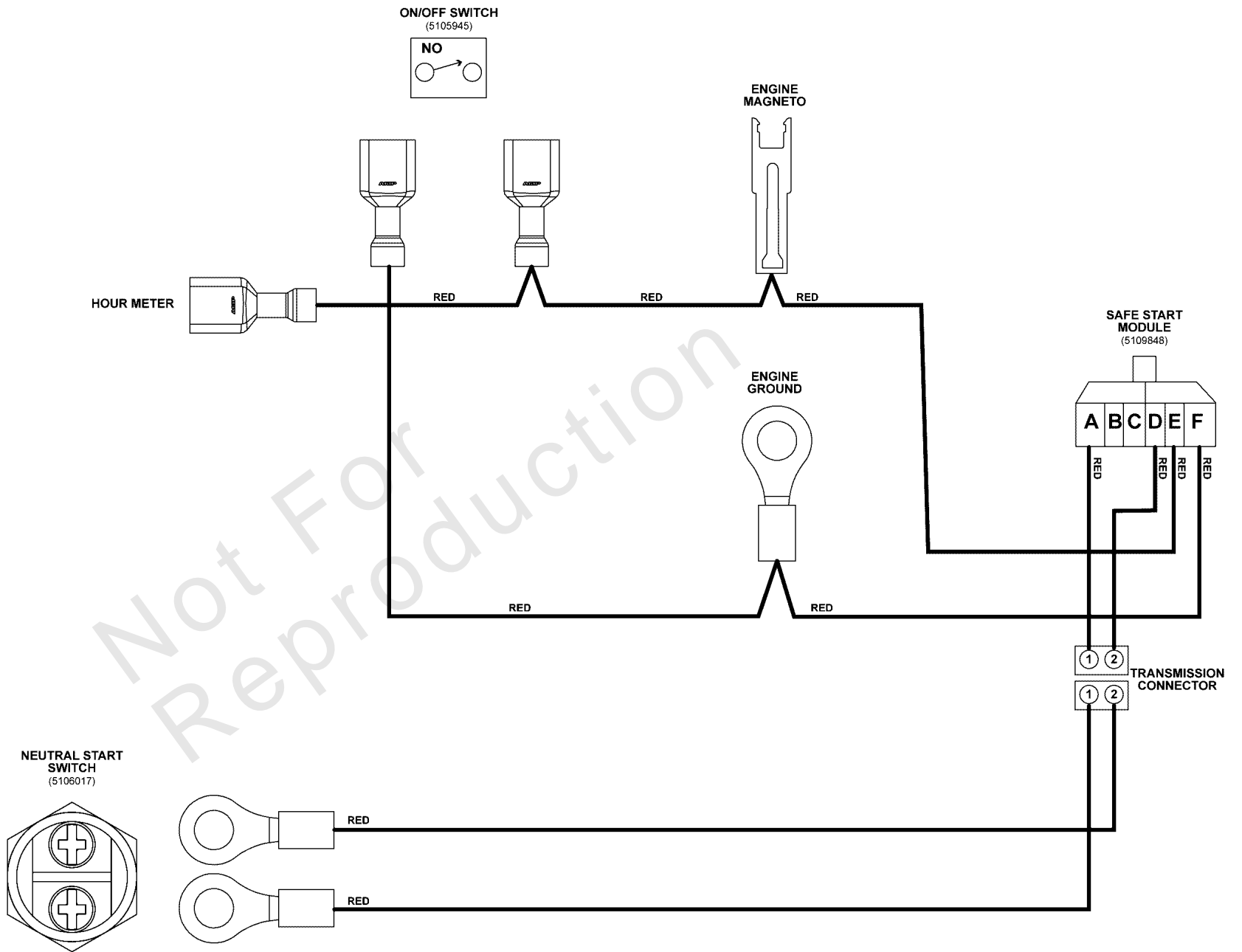
Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902000

5109867 MAIN WIRE HARNESS

5109867A

(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

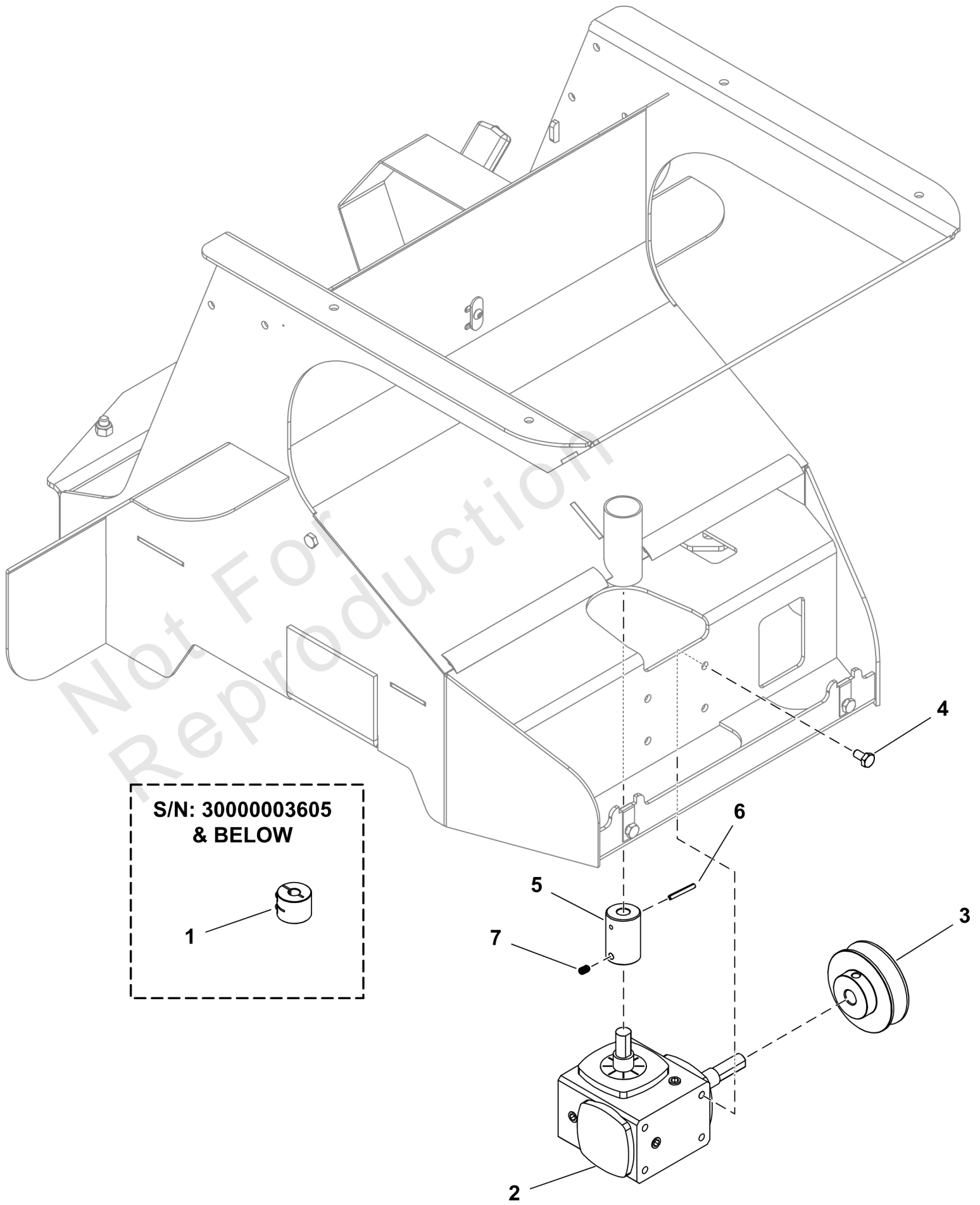
| REF NO | PART NO | QTY | DESCRIPTION |
|---------------|----------------|------------|--|
| 5109867 | 5109867 | 1 | HARNESS, WIRING ROVER POSITIVE VOLTAGE |
| 5105945 | 5105945 | 1 | SWITCH, ROCKER ON/OFF |
| 5109848 | 84008442 | 1 | MODULE |
| 5106017 | 5106017 | 1 | PEERLESS NEUTRAL START SWITCH |

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Gearbox Group

Note: Unless noted otherwise, use the standard torque specifications

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Gearbox Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|---------|-----|---|
| 1 | 5601317 | 1 | KIT, PLATTER SHAFT COUPLING -(S/N: 30000003605 and below)(Refer to Note: **) |
| 2 | 5108269 | 1 | GEAR REDUCER W/ Ø.375" SHAFT -(Refer to Note: *) |
| 2 | 5105931 | 1 | GEAR REDUCER W/ Ø.500" SHAFT -(Refer to Note: *) |
| 2 | 5106013 | 1 | GEAR REDUCER W/ 2.50" LONG Ø.500" SHAFT -(Refer to Note: *) |
| 3 | 5106041 | 1 | PULLEY, 2.95" O.D. x 0.500" I.D. V, A/B |
| 4 | 5105893 | 4 | SCR-CAP, HEX .250"-20 X .500" SS188 |
| 5 | 5109472 | 1 | COUPLING, SS, PLATTER SHAFT -(S/N: 30000003606 and above) |
| 6 | 5109473 | 1 | PIN, COILED SPG, SS, .125" DIA X 1.00"LG -(S/N: 30000003606 and above) |
| 7 | 5109474 | 1 | SCREW, SET, .190" DIA X .3125" LG. 18-8 -(S/N: 30000003606 and above) |

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Footnotes:

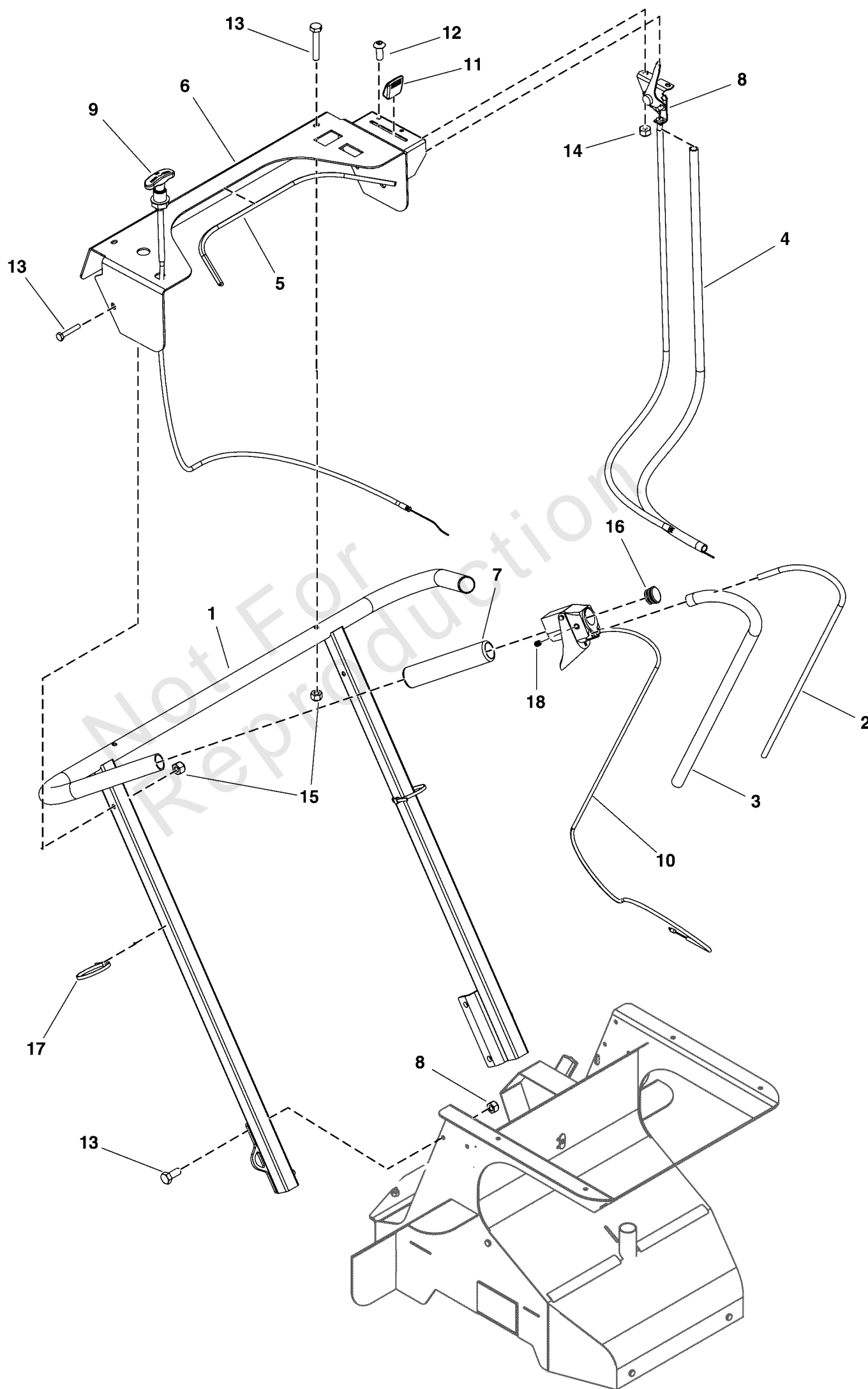
Note: *Measure the gearbox shafts prior to ordering.

Note: **Kit also includes shaft 5109483.

Handlebar Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902000



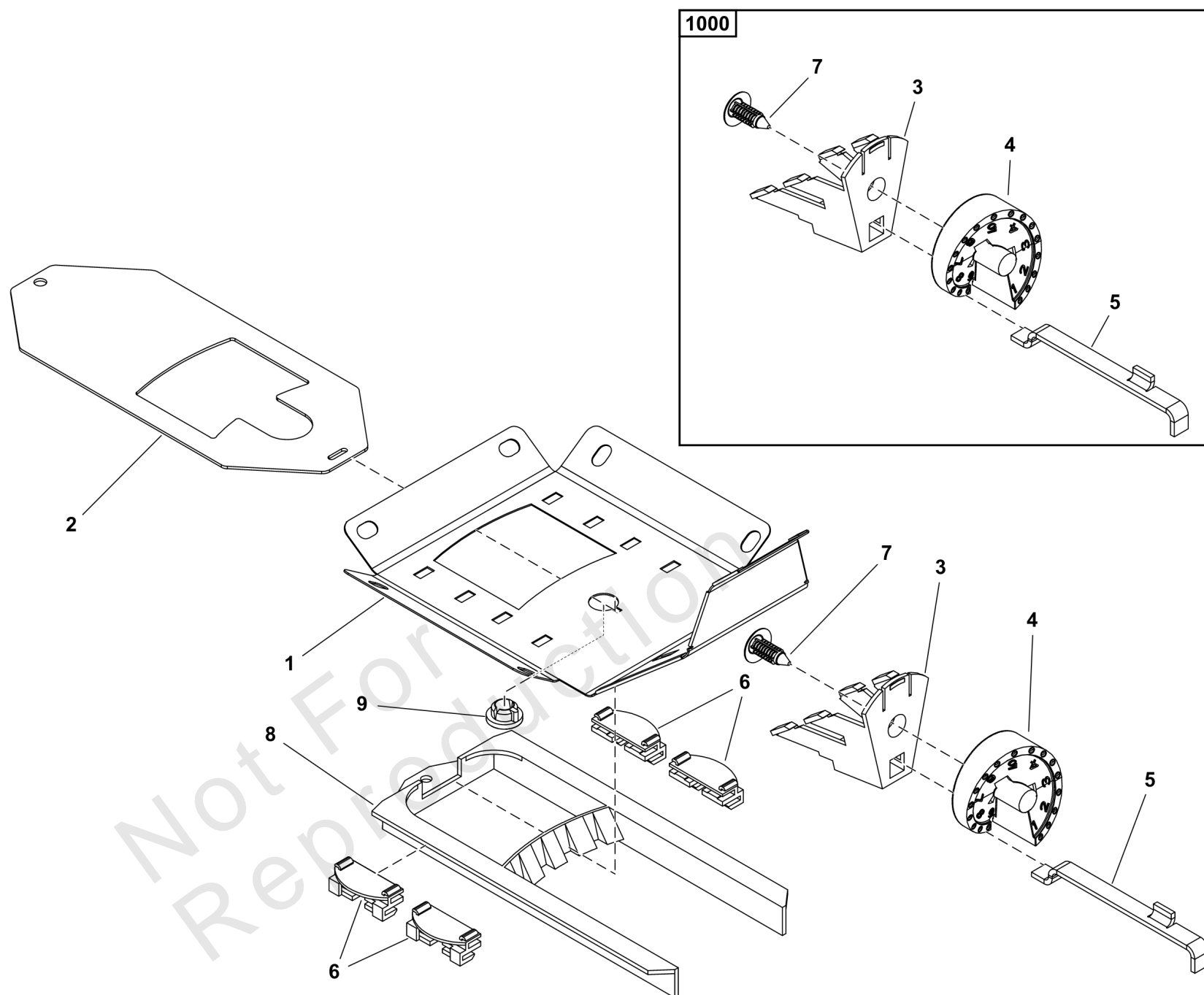
Handlebar Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|---------|-----|--|
| 1 | 5417973 | 1 | WELD, HANDLE BAR ROVER |
| 2 | 5106068 | 1 | ROD,CABLE SUPPORT |
| 3 | 5106204 | 1 | THROTTLE CABLE SPLIT LOOM, .500" ID |
| 4 | 5417981 | 1 | SPLIT LOOM, GATE CABLE, 28" |
| 5 | 5417980 | 1 | TRIM, U-CHANNEL 15.8125" LONG |
| 6 | 5418082 | 1 | PLATE,CONSOLE ROVER (SANDED) |
| 7 | 5105928 | 2 | GRIP, .94 ID X .155 THK X 5.75 LONG |
| 8 | 5109577 | 1 | CABLE, LEVER ACTION 34" -(Connects to gate assembly.) |
| 9 | 5109576 | 1 | CABLE, TURN TO LOCK, 35" -(Connects to gate assembly.) |
| 10 | 5601316 | 1 | KIT, ROVER/PATHFINDER THROTTLE CABLE -(Connects to engine.) |
| 11 | 5106000 | 1 | KNOB, GATE LEVER |
| 12 | 5105978 | 2 | SCR-CAP, BSH #10-24 X .500" SS188 |
| 13 | 5106021 | 8 | SCR-CAP, HEX .250"-20 X 1.500" SSF593C |
| 14 | 5105963 | 2 | NUT-HEX-NYLK, #10-24 SS188 |
| 15 | 5106040 | 8 | NUT-HEX-NYLK, .250"-20 SS188 |
| 16 | 5106028 | 2 | PLUG, 1" TUBE, ROUND |
| 17 | 5106297 | 2 | CABLE TIE, .188" W X 7.50" LNG |
| 18 | 5106185 | 1 | SCR-SH, SET .3125"-18 X .375" KCPT SS188 |

Hopper Gate Assembly Group (220 LBS)

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902000



Hopper Gate Assembly Group (220 LBS)

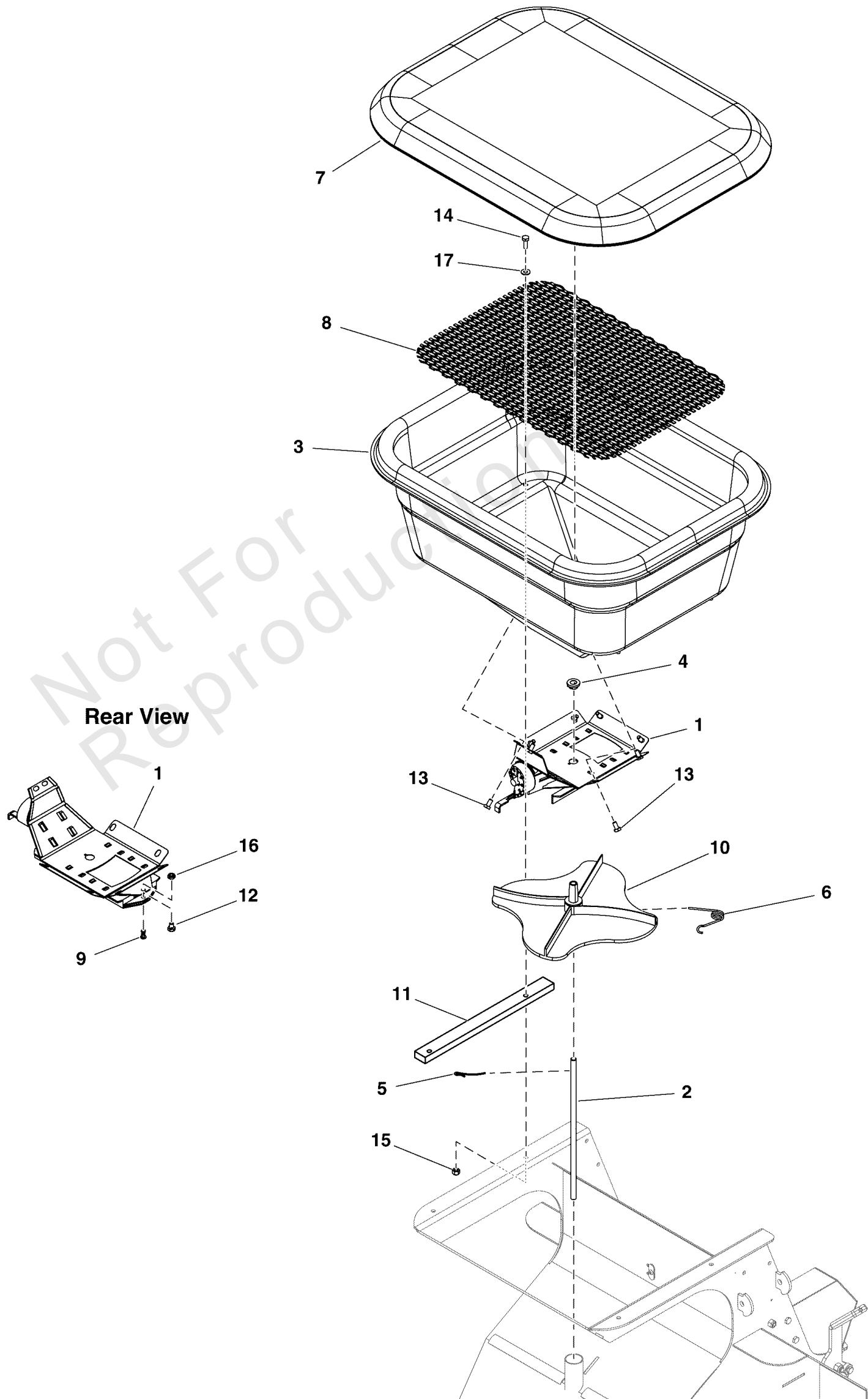
| REF NO | PART NO | QTY | DESCRIPTION |
|--------|---------|-----|--|
| 1 | 5106197 | 1 | PLATE, HOPPER BOTTOM 220 LBS |
| 2 | 5106199 | 1 | PLATE, RATE GATE |
| 3 | 5105888 | 1 | MOUNT, SPREADER DIAL |
| 4 | 5105913 | 1 | DIAL, CONTROLLER |
| 5 | 5105942 | 1 | PLATE, STOPPER, GATE OPENING |
| 6 | 5105933 | 4 | GUIDE, RATE GATE & DIFFUSER |
| 7 | 5105953 | 1 | PINE TREE CLIP, SPREADER FOR DIA .33" |
| 8 | 5106014 | 1 | BAFFLE, SPREADER DIFFUSER |
| 9 | 5105878 | 1 | BUSHING, HOPPER SPREADER |
| 1000 | 5105923 | 1 | AMMS, DIAL MOUNT (S0130) -(Includes items #3, #4, #5, and #7) |

Not For Reproduction

Hopper Group (220 LBS)

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902000



Hopper Group (220 LBS)

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|----------|-----|--|
| 1 | 5601137 | 1 | ASSEMBLY,GATE,COMPLET |
| 2 | 5601317 | 1 | KIT, PLATTER SHAFT COUPLING -(S/N: 30000003605 and below)(Refer to Note: *) |
| 2 | 84008078 | 1 | SHAFT, Platter -(S/N: 30000003606 and above) |
| 3 | 5106211 | 1 | HOPPER, 220 LBS |
| 4 | 5105878 | 1 | BUSHING, HOPPER SPREADER |
| 5 | 5105875 | 1 | CLIP, SPINNER AGITATOR |
| 6 | 5105879 | 1 | CLIP, SPREADER SPINNER |
| 7 | 5105887 | 1 | COVER, HOPPER, MODEL 220 |
| 8 | 5106157 | 1 | HOPPER, SCREEN, MODEL 220 LBS |
| 9 | 5105921 | 1 | FITTING, SWIVEL ACCUWAY |
| 10 | 84008796 | 1 | PLATTER, Spinner |
| 11 | 5106236 | 2 | SPACER, ROVER XC HOPPER |
| 12 | 5105894 | 1 | SCR-CAP, HEX .250"-20 X .375" SS188 SPC |
| 13 | 5105893 | 8 | SCR-CAP, HEX .250"-20 X .500" SS188 |
| 14 | 5106021 | 4 | SCR-CAP, HEX .250"-20 X 1.500" SSF593C |
| 15 | 5106040 | 4 | NUT-HEX-NYLK, .250"-20 SS188 |
| 16 | 5105915 | 1 | NUT-HEX-NYLK, .250"-20 TH SS188 |
| 17 | 5106067 | 4 | WSHR-STL, FLT .281" X .625" X .050" IS SS188 |

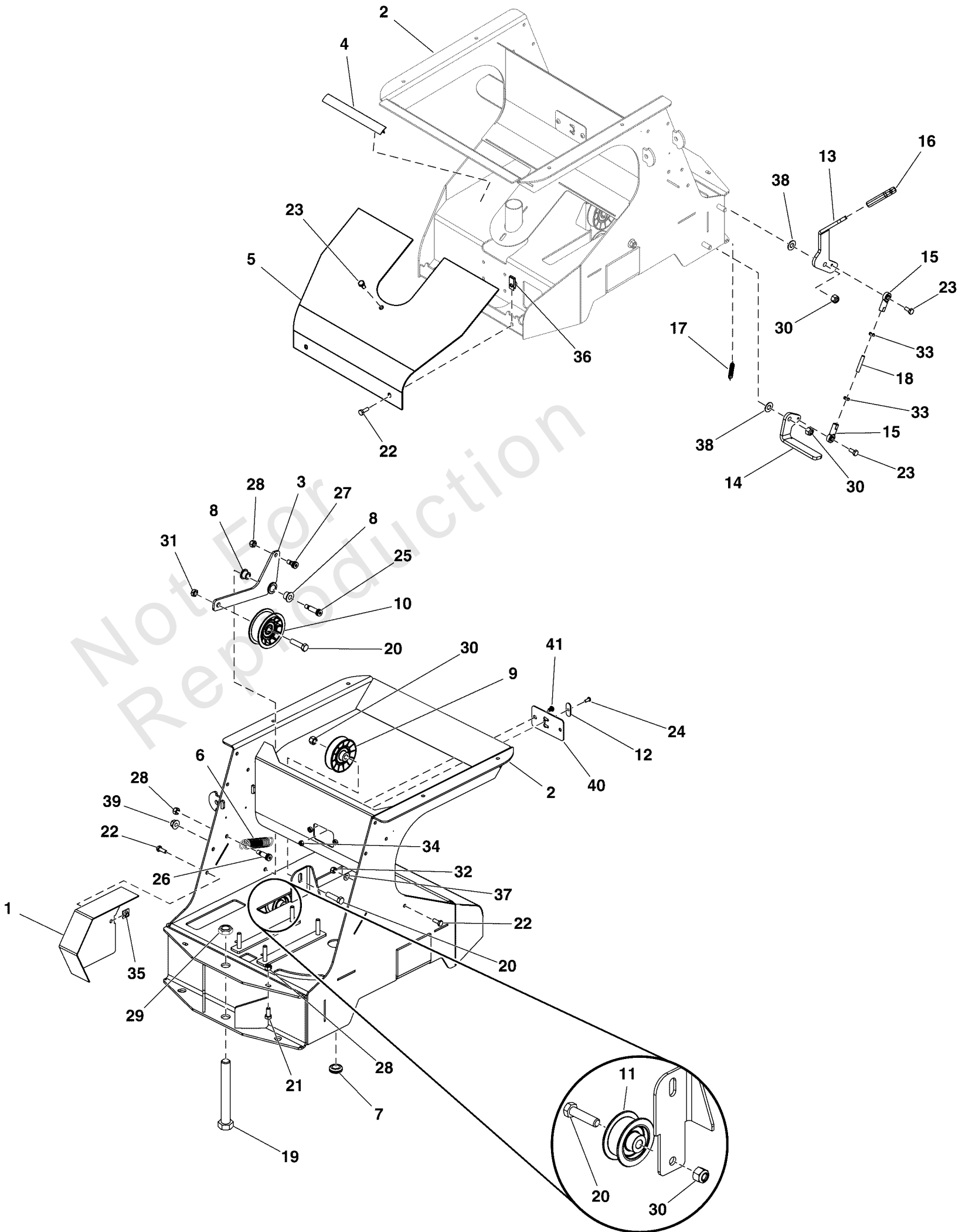
Footnotes:

Note: *Also includes 5109472, 5109473, and 5109474.

Main Frame Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902000



Main Frame Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|---------|-----|---|
| 1 | 5421498 | 1 | WELD, PULLEY GUARD, ROVER |
| 2 | 5421482 | 1 | WELD, FRAME ROVER |
| 3 | 5106139 | 1 | WELD, ARM IDLER ROVER |
| 4 | 5417982 | 2 | SEAL TRIM, FRONT COWL 7" LONG |
| 5 | 5418386 | 1 | FRONT COWL, ROVER (SANDED) |
| 6 | 5105946 | 1 | SPRING, EXTENSION .840" OD X 4.00" LONG SS |
| 7 | 5107562 | 1 | GROMMET 1.00" I.D. FIT 1.38"HOLE |
| 8 | 5108816 | 2 | BSHG-FL, .500" X .625" X .500", .875"x .062" IR |
| 9 | 5106169 | 1 | PULLEY V-BELT IDLER 1.79" OD X 3/8" BORE |
| 10 | 5106048 | 1 | PULLEY IDLER 2.75" OD X 3/8" BORE |
| 11 | 5105890 | 1 | PULLEY IDLER 1.75" OD X 3/8" BORE |
| 12 | 5105969 | 1 | PLATE, CABLE HOLDER |
| 13 | 5417966 | 1 | HANDLE, PARK BRAKE |
| 14 | 5106280 | 1 | BRACKET, BRAKE BAR |
| 15 | 5106173 | 2 | ROD END, FEMALE 1/4-28 RH SS PTFE RACE |
| 16 | 5105900 | 1 | GRIP, .188" X 1.00" ID X .150" THK CLSD CELL FOAM |
| 17 | 5105982 | 1 | SPRING, EXTENSION .375" OD X 2.500 LONG SS |
| 18 | 5106174 | 1 | ROD, THREADED .250"-28 X 1.500" SS188 |
| 19 | 5106215 | 1 | SCR-CAP, HEX .750"-10 X 6.000" SS188 |
| 20 | 5106069 | 3 | SCR-CAP, HEX .375"-16 X 1.500" SS188 |
| 21 | 5106024 | 1 | SCR-CAP, HEX .3125"-18 X .750" SS188 |
| 22 | 5106214 | 5 | SCR-CAP, HEX .250"-20 X .750" SS188 |
| 23 | 5106029 | 3 | SCR-CAP, HEX .250"-20 X .625" SS188 |
| 24 | 5105978 | 1 | SCR-CAP, BSH #10-24 X .500" SS188 |
| 25 | 5107641 | 1 | BLT-SLDR, SH.50"X1.25", .375"-16X.63"SS188 |
| 26 | 5106172 | 1 | BLT-SLDR, SH .38"X0.75,.313-18 X.50 SS |
| 27 | 5106171 | 1 | BLT-SLDR, SH .375" X 0.250", .3125"-18 X.500" SS188 |
| 28 | 5105992 | 4 | NUT-HEX-NYLK, 0.3125"-18 SS188 |
| 29 | 5106184 | 1 | NUT-HEX-NYLK, .750"-10 TH GA ZP |
| 30 | 5106006 | 4 | NUT-HEX-NYLK, .375"-16 SS188 |
| 31 | 5106579 | 1 | NUT-HEX-NYLK, .375"-16 TH SS188 |
| 32 | 5106040 | 1 | NUT-HEX-NYLK, .250"-20 SS188 |
| 33 | 5106016 | 2 | NUT-HEX, JAM .250"-28 SS188 |
| 34 | 5105963 | 1 | NUT-HEX-NYLK, #10-24 SS188 |
| 35 | 5105973 | 2 | NUT-CLIP, .250"-20 X .375" EDGE DISTANCE |
| 36 | 5105898 | 2 | NUT-CLIP .250"-20 X .781" EDGE DISTANCE |
| 37 | 5106067 | 1 | WSHR-STL, FLT .281" X .625" X .050" IS SS188 |
| 38 | 5106168 | 2 | WSHR-STL, FLT .406" X .875" X .050" IS SS188 |
| 39 | 5107638 | 1 | NUT-HEX-NYLK, FLG .375"-16 SS188 |
| 40 | 5419900 | 1 | PLATE, HOPPER CABLES |
| 41 | 5108320 | 2 | SCR-CAP, SBH .250"-20 X .375" SS188 |

Operator Platform Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|-----------|-----|--|
| 1 | ----- | 1 | ASSM, TIE, PLATFORM (S0104) |
| 1-1 | 5417983 | 1 | WELD, HINGE SULKY |
| 1-2 | 5106004 | 2 | BUSHING, FLANGE 7/8 ID X 1 1/8 OD X 1 LG |
| 1-3 | 5105967 | 2 | CONE, TPR-ROL Ø.750" ID X Ø1.521" OD x .655" TH |
| 1-4 | 5105975 | 2 | SEAL, 1.125" BORE X 1.784" OD X 0.469 THK |
| 1-5 | 5106119 | 1 | ZERK, GREASE .250"-28 SS |
| 2 | 5106254 | 1 | WELD, BRAKE PEDAL |
| 3 | 5106270 | 1 | BRAKE SHAFT ASSY, ROVER (S0301) |
| 4 | 5417972 | 1 | WELD, SULKY FRAME |
| 5 | 5106759 | 2 | ASM, WHEEL & TIRE 13" X 6.50" - 6 TURF |
| 5-1 | 5106759X2 | 2 | WHEEL FOR 13X6.50-6 TIRE ASSM -(One per tire) |
| 5-2 | 5106759X1 | 2 | TIRE, 13 X 6.50 - 6 -(One per tire) |
| 5-3 | 5105907 | 2 | BEARING, ROLLER (C0147) -(One per tire) |
| 5-4 | 5105901 | 4 | RETAINER, BEARING (C0148) -(Two per tire) |
| 6 | 5105929 | 1 | PADS, NON-SLIP PLATFORM |
| 7 | 5417967 | 1 | PAD, NON-SLIP ROUND BRAKE |
| 8 | 5105910 | 2 | BRAKE, BAND 4.00 INCH |
| 9 | 5105986 | 2 | SPCR-SS, 303 .750" X 1.125" X .375 |
| 10 | 5105995 | 2 | NUT-EYE .250" 20 X 1.500 OAL ZP |
| 11 | 5106605 | 2 | E-RING, 0.250" SHAFT SSPH |
| 12 | 5106047 | 2 | E-RING, 0.375" SHAFT YZ |
| 13 | 5105882 | 4 | E-RING, .750" SHAFT YZ |
| 14 | 5105984 | 2 | PIN, CVS .250" X 1.125" SS188 |
| 15 | 5106163 | 1 | PIN-CTR, .156" X 1.500" SS188 |
| 16 | 5105965 | 2 | SCR-CAP, HEX .250"-20 X 2.750" SS188 |
| 17 | 5106024 | 4 | SCR-CAP, HEX .3125"-18 X .750" SS188 |
| 18 | 5106159 | 1 | NUT-HEX, .3125"-18 SS188 |
| 19 | 5106203 | 1 | NUT-HEX, CSTL .750"-16 GR2 ZP |
| 20 | 5105977 | 2 | NUT-HEX, JAM .250"-20 SS188 |
| 21 | 5105992 | 5 | NUT-HEX-NYLK, 0.3125"-18 SS188 |
| 22 | 5105957 | 4 | WSHR-STL, FLT .750"X1.250" X .075" MAB ZP |
| 23 | 5106067 | 2 | WSHR-STL, FLT .281" X .625" X .050" IS SS188 |
| 24 | 5601299 | 1 | KIT, SULKY WHEEL SPACER -(Includes item #22.)(Refer to Note: *) |

Footnotes:

Note: *This kit contains parts to do both sides of the unit.

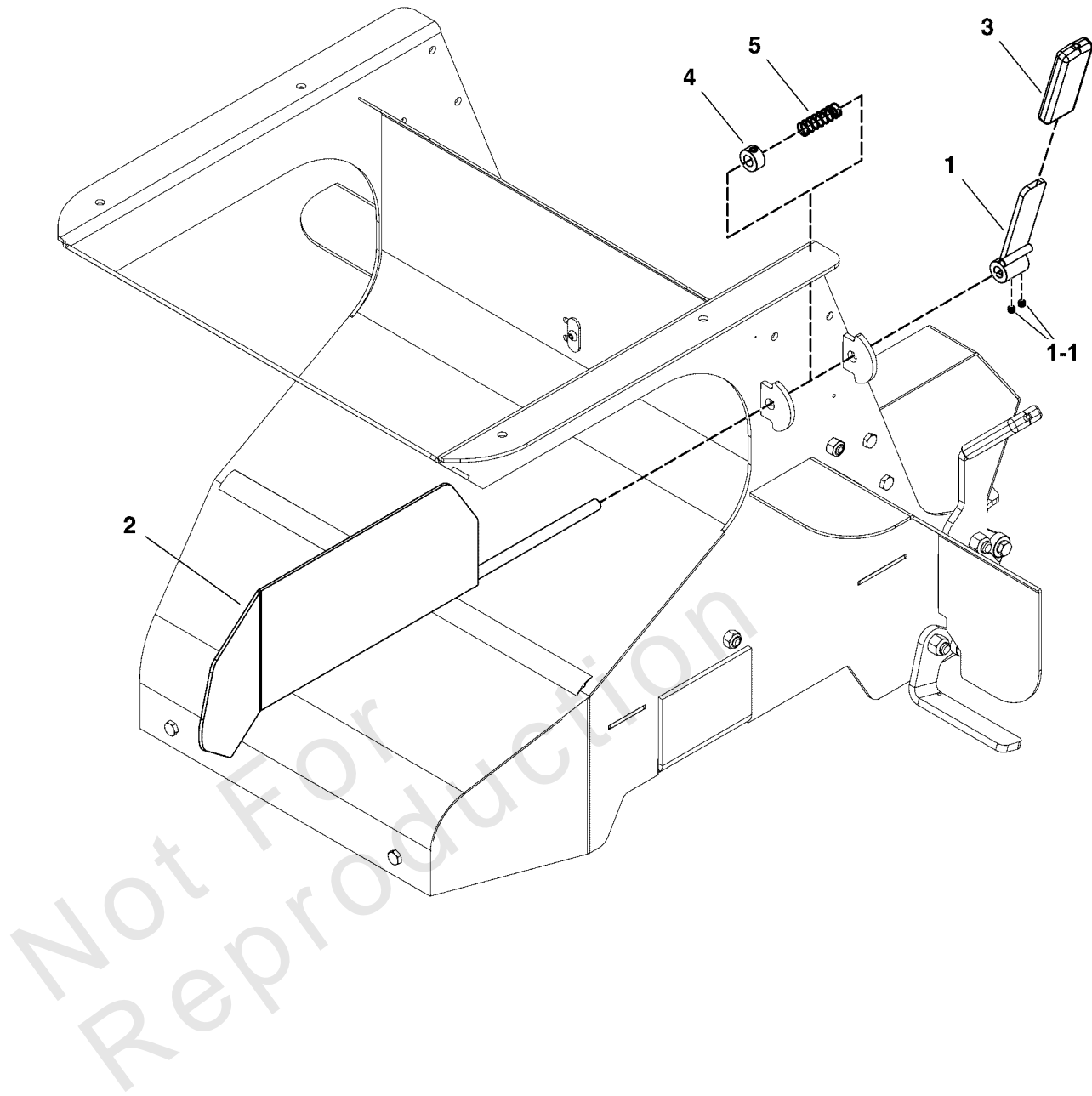
Power Transmission Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|----------|-----|---|
| 1 | 5105934 | 1 | TRANSMISSION, PEERLESS 855-007D |
| 2 | 5106010 | 1 | WELD, LEVER, GEAR SHIFT, ROVER |
| 3 | 5105976 | 1 | SPCR-PVC 1.049" X 1.315" X 3.000 |
| 4 | 5105991 | 1 | SPCR-PVC 1.049" X 1.315" X 2.850" |
| 5 | 5106259 | 1 | SPCR-UHMW .765" X 1.250" X .450" |
| 6 | 5106216 | 1 | BUMPER, 1.188OD X 1.50LG W/.3125-18 STUD |
| 7 | 5105900 | 1 | GRIP, .188" X 1.00" ID X .150" THK CLSD CELL FOAM |
| 8 | 5106235 | 2 | SPCR-SS, 304 0.370" X 0.500" X 1.350" |
| 9 | 5105968 | 1 | PULLEY, 3.50" O.D. x 0.750" I.D. V, A/B |
| 10 | 5106498 | 1 | PULLEY, 4.00" O.D. x 0.750" I.D. V, A/B |
| 11 | 5106499 | 1 | PULLEY, 3.50" O.D. x 0.875" I.D. V, A/B -(S/N: 30000003969 and below) |
| 11 | 84008431 | 1 | PULLEY, Crankshaft -(S/N: 30000003970 and above) |
| 12 | 5105987 | 1 | BELT, A-SEC, A39 |
| 13 | 5105988 | 1 | BELT, V, B 29.80EL OHR ETH, PLY CD |
| 14 | 5106038 | 1 | KEY, .188" SQ. X 1.50" SS303 |
| 15 | 5105970 | 1 | KEY, .188"-.250" STEPPED X 1.00" LONG SS 304 -(S/N: 30000003969 and below) |
| 15 | 84008432 | 1 | KEY, Drive Pulley -(S/N: 30000003970 and above) |
| 16 | 5105938 | 2 | KEY, .250" SQ. X 2" SS188 |
| 17 | 5106056 | 2 | SCR-CAP, HEX .3125"-18 X 2.250" SS188 |
| 18 | 5105980 | 4 | SCR-CAP, HEX .3125"-18 X 3.000" SS188 |
| 19 | 5105992 | 8 | NUT-HEX-NYLK, 0.3125"-18 SS188 |
| 20 | 5106032 | 1 | SCR-CAP, HEX .250"-28 X 0.750" SS188 |
| 21 | 84008081 | 1 | WSHR-SS, BLV .281"X.875"x.066 |
| 22 | 5106185 | 6 | SCR-SH, SET .3125"-18 X .375" KCPT SS188 |
| 23 | 5105882 | 1 | E-RING, .750" SHAFT YZ |
| 24 | 5105909 | 2 | E-RING, 1.000" SHAFT YZ |
| 25 | 5105936 | 2 | WSHR-STL, FLT 1.000"X1.500"X.075" MAB ZP |
| 26 | 5106009 | 8 | WSHR-STL, FLT .343" X .750" X .050" SPC SS188 |
| 27 | 5105920 | 2 | HUB, 1.00" BORE 4-BOLT X 4.00" BC |
| 28 | 5106299 | 1 | BREATHER VENT, .125"-27 PFT X .4375" HEX |
| 29 | 5105964 | 8 | NUT-LUG, .500"-20 ZP |
| 30 | ---- | 1 | ENGINE, Briggs & Stratton Vanguard 169cc, 10V362-0031-F1 |
| 31 | 5109539 | 1 | PLATE, MUFFLER SHIELD VG160 STAMPED MFLR |
| 32 | 5106454 | 1 | GROMMET, 0.375" I.D., FIT 0.500" HOLE |
| 33 | 5108652 | 1 | CONNECTOR, FEMALE BLT 14-16 AWG -(This connector is crimped to an engine wire and the wire harness plugs into it.) |
| 34 | 5418044 | 2 | ASM, WHEEL&TIRE 18" X 9.50" W/ANTI-FREEZE |

Spreader Shield Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902000



Spreader Shield Group

| REF NO | PART NO | QTY | DESCRIPTION |
|--------|---------|-----|---|
| 1 | 5106131 | 1 | WELD, HANDLE DIVERter, ROVER -(Includes item #1-1) |
| 1-1 | ----- | 2 | SET SCREW, 1/4"-20 X 3/16" Hex Socket |
| 2 | 5106271 | 1 | WELD, DIVERter ROVER |
| 3 | 5105900 | 1 | GRIP, .188" X 1.00" ID X .150" THK CLSD CELL FOAM |
| 4 | 5106023 | 1 | COLLAR, SHAFT .375ID X .750OD X .375WD |
| 5 | 5106027 | 1 | SPRING, COMPRESSION .480" OD X 1.500 LONG SS |

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.

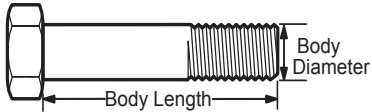


Nut, M8

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 |

