



# Parts Manual

Mfg. No: 629104x89C  
Dual Stage Snow Thrower (2001)



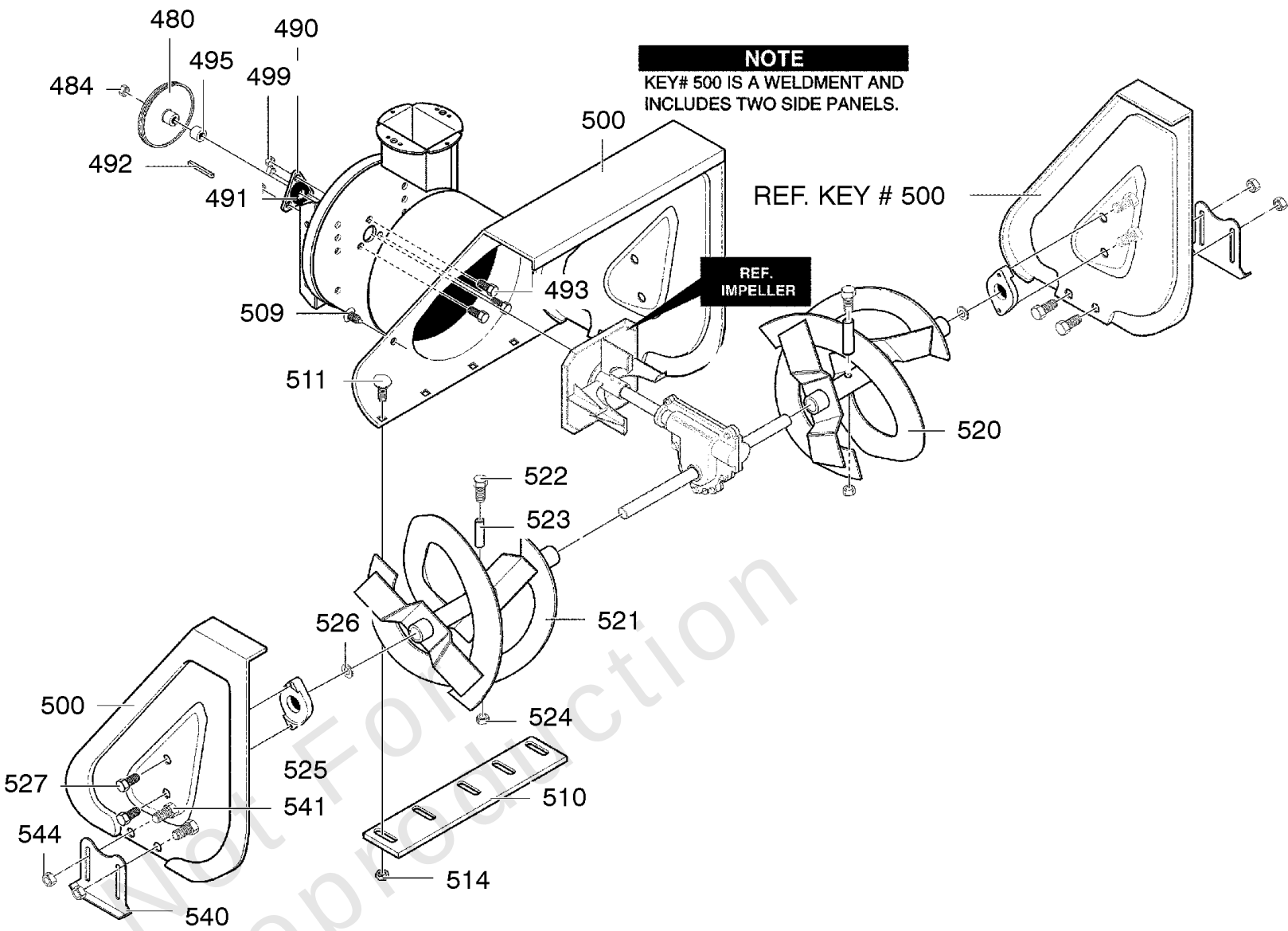
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Auger Housing

Note: Unless noted otherwise, use the standard torque specifications

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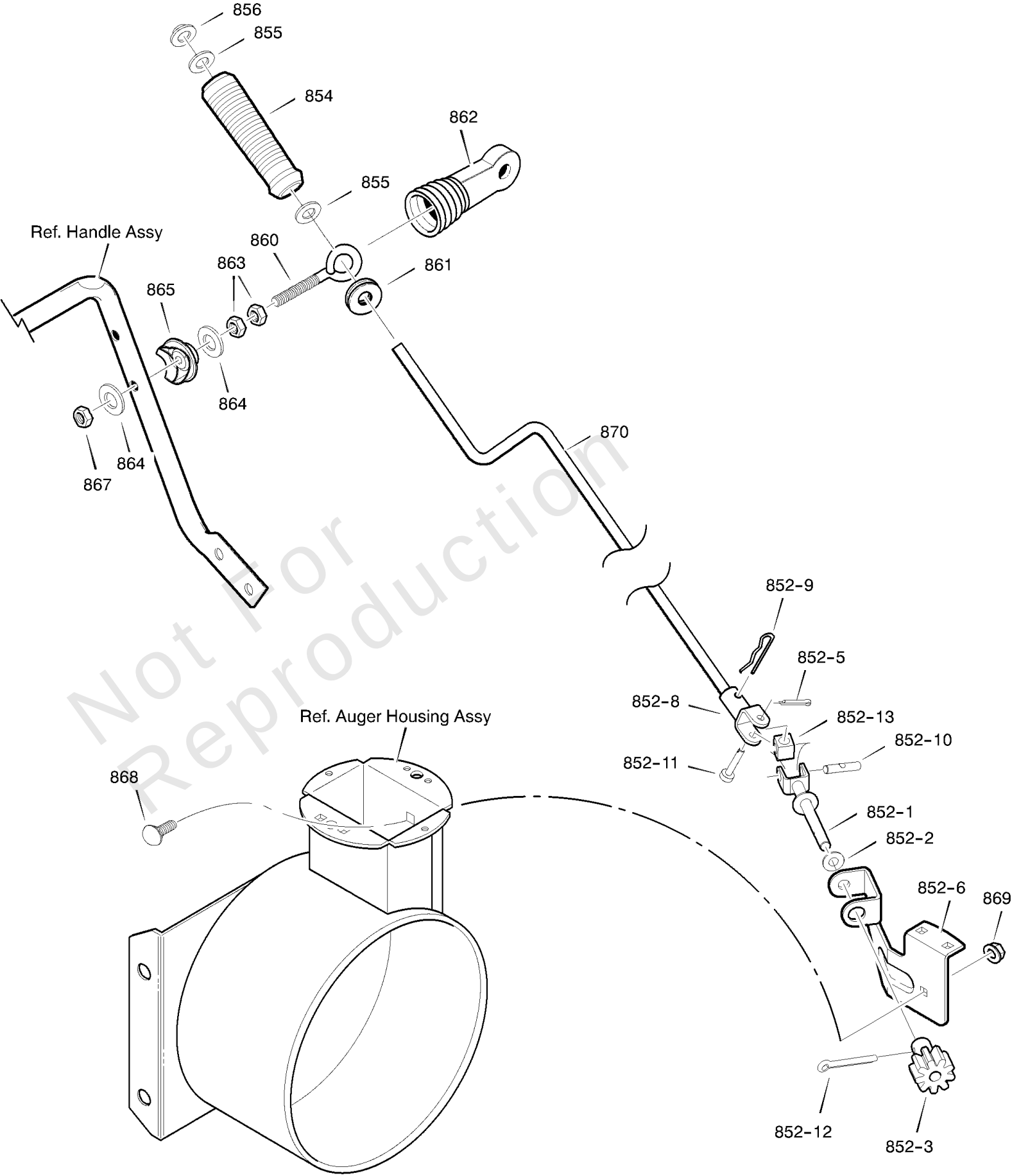
## Auger Housing

| REF NO | PART NO      | QTY | DESCRIPTION              |
|--------|--------------|-----|--------------------------|
| 480    | 583146MA     |     | PULLEY                   |
| 484    | 15X112MA     |     | NUT.50-20 HEX FLG SER    |
| 490    | 582957 YZ    |     | RETAINER, BALL BRNG      |
| 491    | 043846       |     | BEARING, BALL            |
| 492    | 2001022MA    |     | KEY,SQUARE 3/16 X 3/4    |
| 493    | 001X92MA     |     | BOLT, HEX - 0.31-18X0.50 |
| 495    | 1501158MA    |     | SPACER,FRICTION PULLE    |
| 499    | 710026       |     | NUT, 5/16-18 HEXWDFLLK   |
| 500    | 1501121E020  |     | HOUSING, ASSY            |
| 509    | 760040MA     |     | PLUG, CHRISTMAS TREE     |
| 510    | 760655E717MA |     | BLADE, SCRAPER           |
| 511    | 340720MA     |     | BOLT, 1/4-20X.75         |
| 514    | 710026       |     | NUT                      |
| 520    | 760597E717   |     | AUGER, ASSY, LH          |
| 521    | 760598E717   |     | AUGER, ASSY, RH          |
| 522    | 9524MA       |     | SCREW, 1/4-20X1.75       |
| 523    | 3943MA       |     | SPACER, SLEEVE           |
| 524    | 73826        |     | NUT, 1/4-20              |
| 525    | 53757MA      |     | BRNG,AUGER SHAFT MF-L    |
| 526    | -----        |     | UNKNOWN                  |
| 527    | 70984        |     | SCREW, 5/16-18 x 0.75    |
| 540    | 762379E717MA |     | SKID, HEIGHT ADJUST      |
| 541    | 340720MA     |     | BOLT, 5/16-18 X .75      |
| 544    | 710026       |     | NUT, 5/16-18 REGHEX      |

Chute Rod

Note: Unless noted otherwise, use the standard torque specifications

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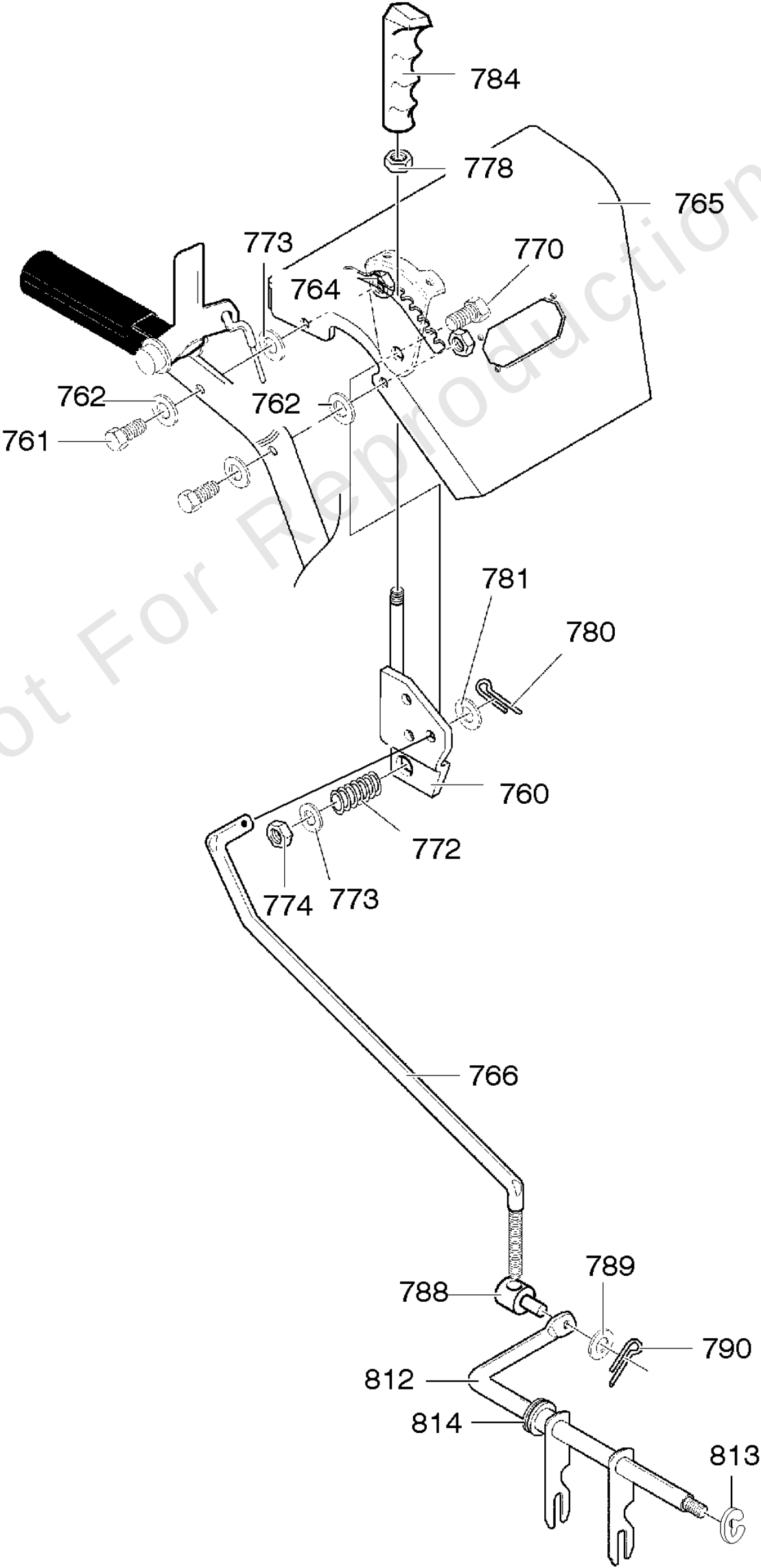
## Chute Rod

| REF NO | PART NO     | QTY | DESCRIPTION                  |
|--------|-------------|-----|------------------------------|
| 852-1  | 1501076 YZ  |     | ASSEMBLY, YOKE & ROD         |
| 852-2  | 313431MA    |     | WASHER, CURVED SPRING        |
| 852-3  | 1501067MA   |     | GEAR,9 TOOTH 8DP             |
| 852-5  | 71082       |     | PIN, COTTER                  |
| 852-6  | 1501051V701 |     | BRACKET, GEAR MOUNT          |
| 852-7  | 579493MA    |     | PIN, COTTER .06X .50         |
| 852-8  | 1501075 YZ  |     | ASSEMBLY, YOKE ADAPTER YZ    |
| 852-9  | 711682MA    |     | PIN, HAIR                    |
| 852-10 | 578060MA    |     | PIN,UNIV JOINT 3/8X1.        |
| 852-11 | 578309MA    |     | LF PIN, CLEVIS .25DX         |
| 852-12 | 579493MA    |     | PIN, COTTER .06X .50         |
| 852-13 | 578063MA    |     | BLOCK,UNIVERSAL PIVOT        |
| 854    | 307399MA    |     | KNOB, SLEEVE                 |
| 855    | 309312MA    |     | WASHER, FLAT .39 X .7        |
| 856    | 73664MA     |     | NUT, PUSH ON 3/8             |
| 860    | 581618MA    |     | EYEBOLT.38-16X6.00 .6        |
| 861    | 148MA       |     | GROMMET, Eyelet              |
| 862    | 308145MA    |     | BOOT, EYE BOLT               |
| 863    | 71045       |     | NUT, 3/8-16 HEXJAM           |
| 864    | 71072       |     | FLATWASHER .406X.81X.066     |
| 865    | 309344MA    |     | ADAPTER, BOOT                |
| 866    | 71072       |     | WASHER, FLAT                 |
| 867    | 71046       |     | NUT, 3/8-16 HEXNYL           |
| 868    | 002X98MA    |     | BOLT, CARRIAGE 1/4-20 X 1.00 |
| 869    | 780029      |     | NUT, 1/4-20                  |
| 870    | 1501074 YZ  |     | CRANK, ASSY CHUTE            |

Control Panel Assembly

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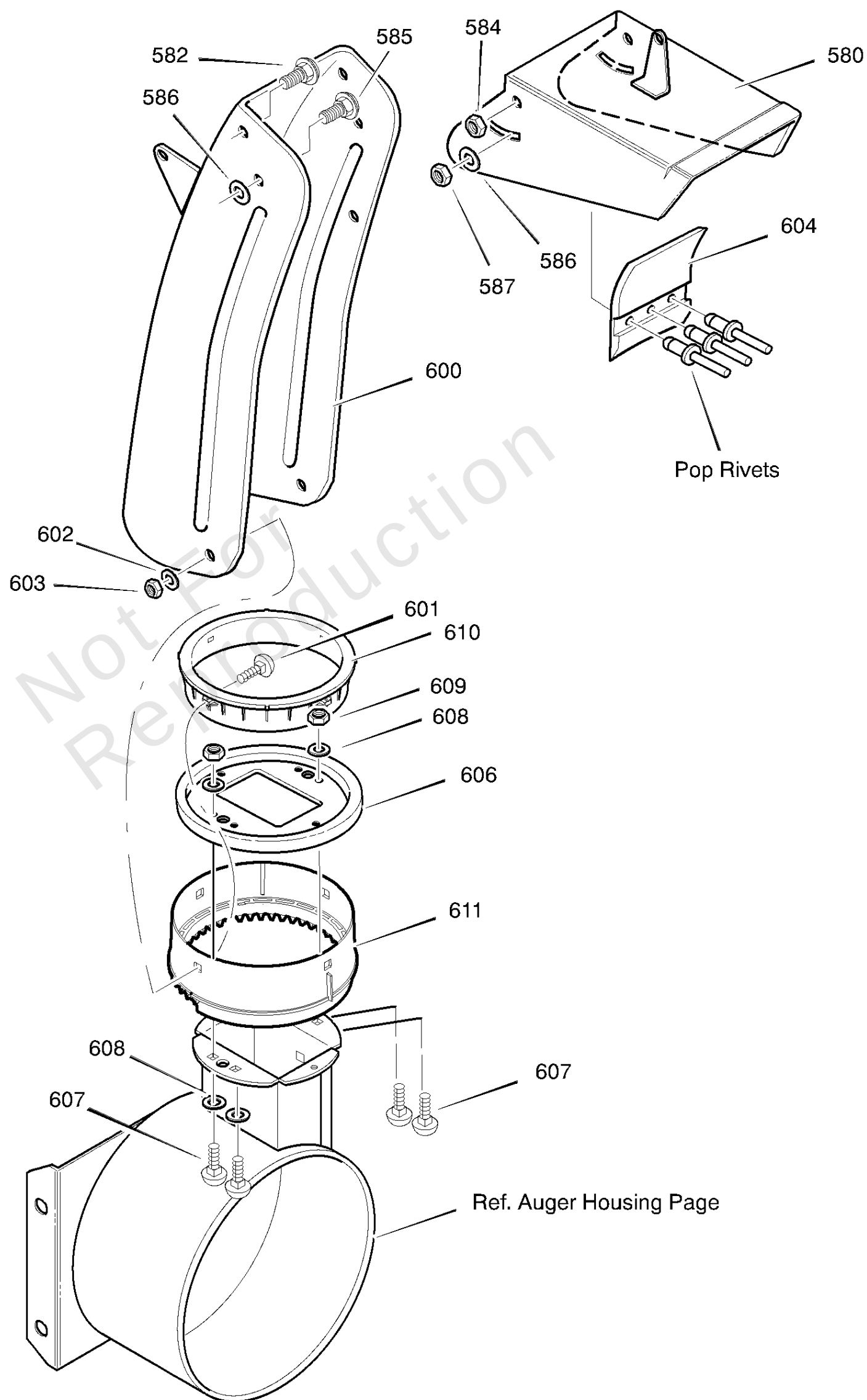


## Control Panel Assembly

| REF NO | PART NO    | QTY | DESCRIPTION            |
|--------|------------|-----|------------------------|
| 760    | 85030 YZ   |     | HANDLE ASSY SPD CTRL   |
| 761    | 302900MA   |     | SCREW, 5/16-18 x 1.75  |
| 762    | 71071      |     | FLATWASHER             |
| 764    | 710026     |     | NUT, 5/16-18 HEXWDFLLK |
| 765    | 760293E020 |     | ASSEMBLY, PANEL        |
| 766    | 330635MA   |     | ROD, SPEED CONTROL     |
| 770    | 71007      |     | SCREW 3/8-16X2.00      |
| 772    | 50786MA    |     | SPRING, .509 DIA X0.75 |
| 773    | 71072      |     | FLATWASHER             |
| 774    | 71046      |     | NUT, 3/8-16 HEXNYL     |
| 778    | 71044      |     | NUT, 3/8-16 REGHEX     |
| 780    | -----      |     | UNKNOWN                |
| 781    | 71071      |     | FLATWASHER             |
| 784    | 304728MA   |     | HANDLE 3/8-16          |
| 788    | 584593 YZ  |     | NUT, TRUNNION          |
| 789    | 71071      |     | FLATWASHER             |
| 790    | 071081     |     | COTTER PIN             |
| 812    | 1501110 YZ |     | ROD, ASSY YOKE         |
| 813    | 11X30MA    |     | RETAINER, RING 7/16 Y  |
| 814    | 579944MA   |     | BRNG FL .500ID X .88   |

**Discharge Chute**

Note: Unless noted otherwise, use the standard torque specifications Mfg. No: 629104x89C



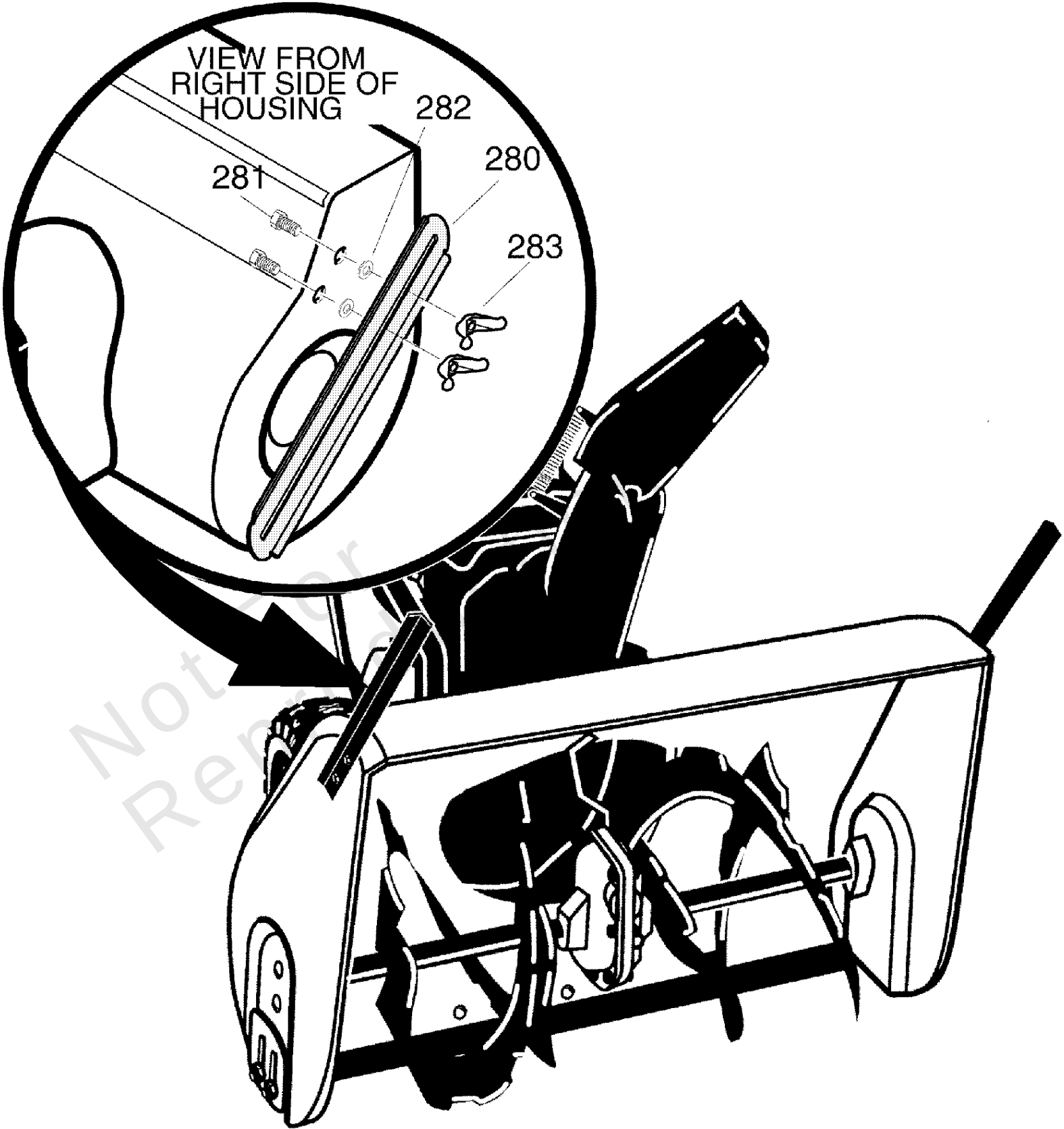
## Discharge Chute

| REF NO | PART NO    | QTY | DESCRIPTION           |
|--------|------------|-----|-----------------------|
| 580    | 761168E717 |     | CHUTE, UPPER W/REMOTE |
| 582    | 578088MA   |     | SCREW, 5/16-18X .75SL |
| 584    | 71038      |     | NUT                   |
| 585    | 578088MA   |     | SCREW, 5/16-18X .75SL |
| 586    | 6711MA     |     | WASHER, PLASTIC .315X |
| 587    | 71038      |     | NUT                   |
| 600    | 761169E717 |     | CHUTE, LOWER W/REMOTE |
| 601    | 586280     |     | BOLT                  |
| 602    | 71071      |     | WASHER, FLAT          |
| 603    | 71038      |     | NUT                   |
| 604    | 762322MA   |     | FLAP, C3 CHUTE INSERT |
| 605    | 760987MA   |     | RIVET,POP ALM.125X.23 |
| 606    | 585214 YZ  |     | CHUTE COLLAR          |
| 607    | 002X98MA   |     | BOLT                  |
| 608    | 71067MA    |     | WASHER, FLAT          |
| 609    | 780029     |     | NUT                   |
| 610    | 337227MA   |     | RETAINER, RING INNER  |
| 611    | 1501054MA  |     | RETAINER, RING OUTER  |

**Drift Cutter Assembly**

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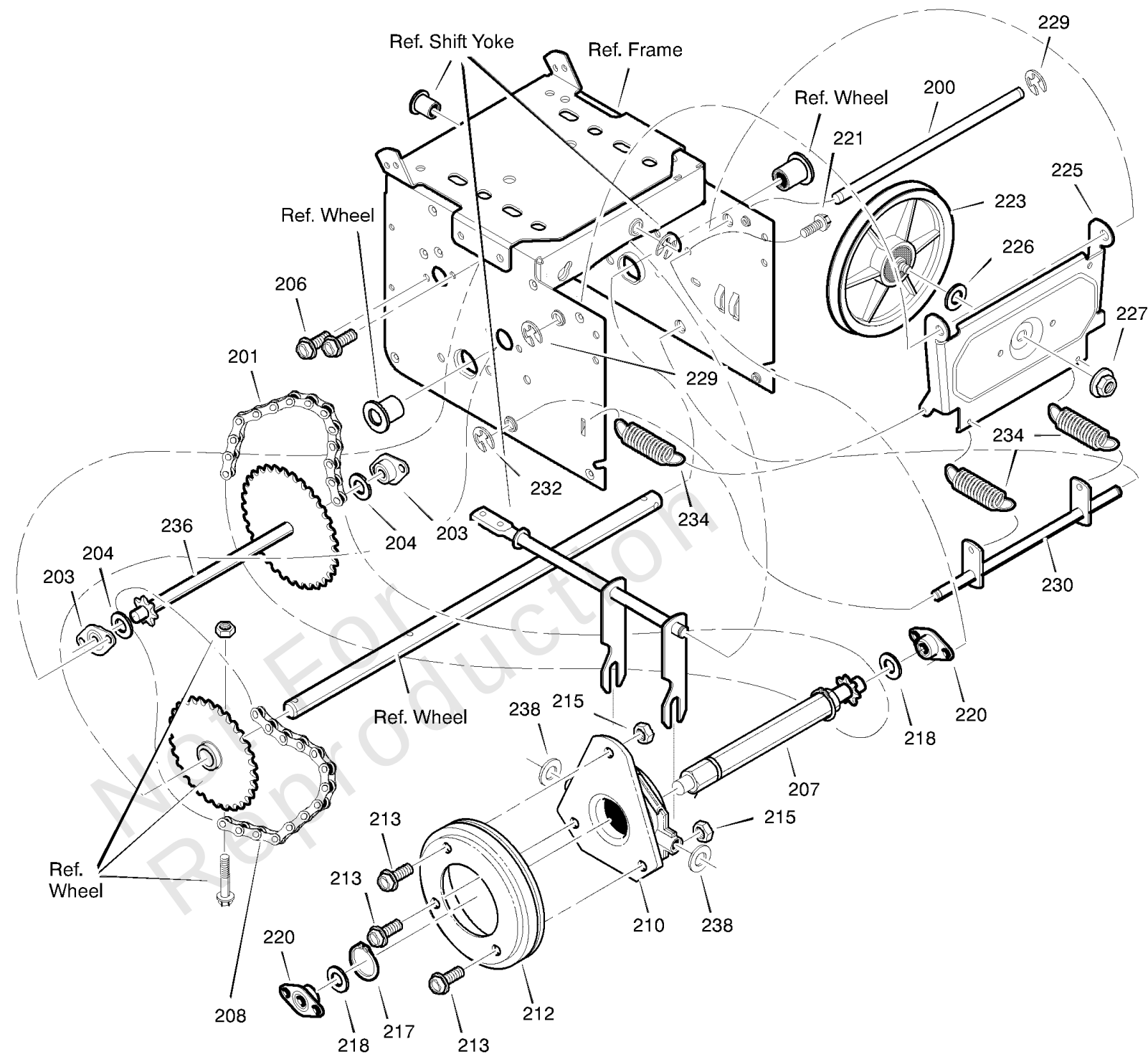
Mfg. No: 629104x89C



## ***Drift Cutter Assembly***

| REF NO | PART NO      | QTY | DESCRIPTION       |
|--------|--------------|-----|-------------------|
| 280    | 762348E717MA |     | DRIFT CUTTER      |
| 281    | 340720MA     |     | BOLT              |
| 282    | 12021        |     | WASHER            |
| 283    | 711604       |     | WINGNUT           |
| --     | 11261MA      |     | CAP, PLASTIC -RED |

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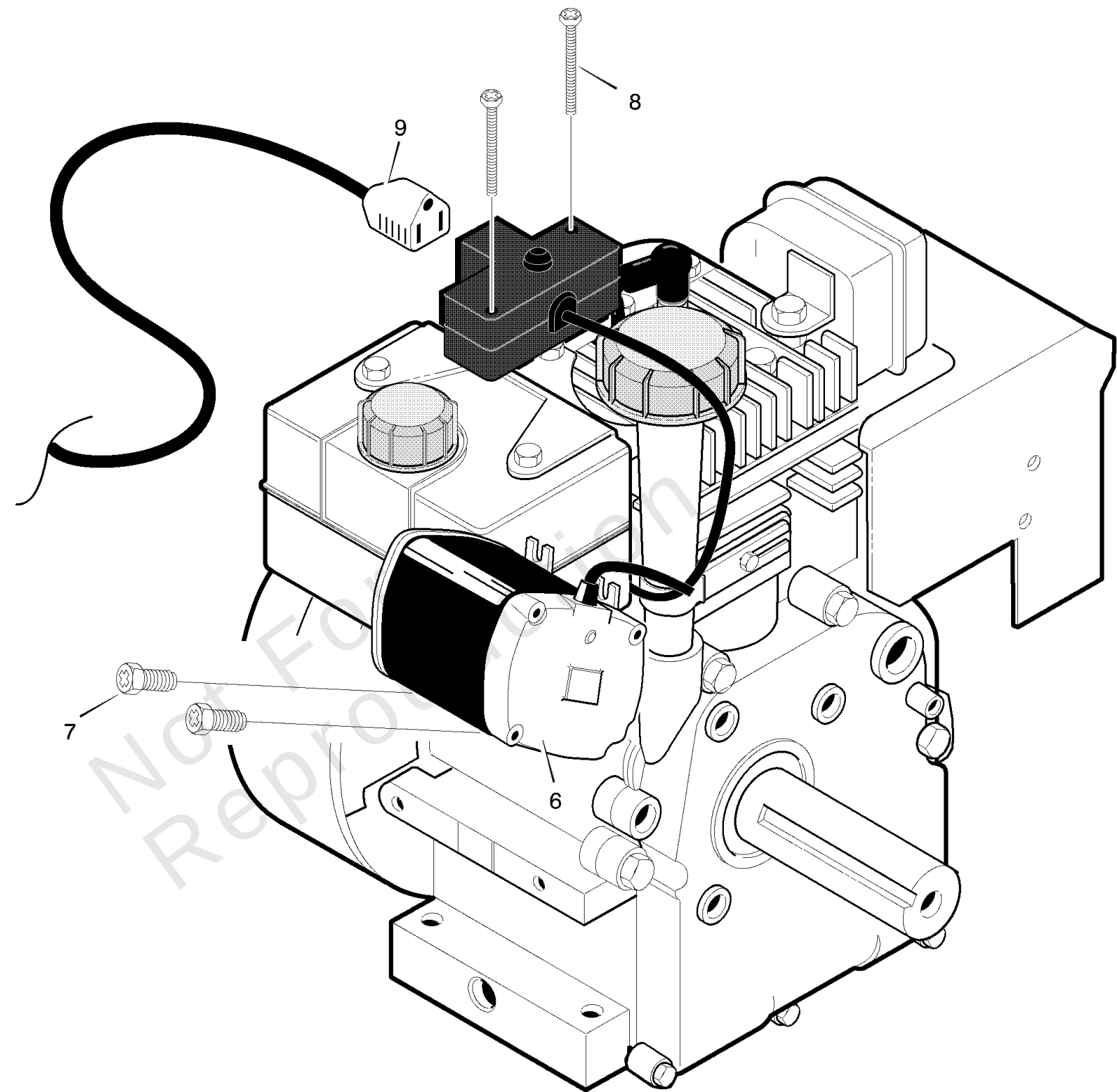
## Drive

| REF NO | PART NO    | QTY | DESCRIPTION                  |
|--------|------------|-----|------------------------------|
| 200    | 1501092 YZ |     | LF AXLE, SWING PLATE YZ      |
| 201    | 579851MA   |     | CHAIN, ROLLER 420X19.        |
| 203    | 334163MA   |     | BEARING AND RETAINER, ASSY   |
| 204    | 579858MA   |     | WASHER.502-0.75-.06 F        |
| 206    | 780055MA   |     | SCREW, TAP 5/16-18 x 0.5     |
| 207    | 1501100MA  |     | HEX SHAFT                    |
| 208    | 579868MA   |     | CHAIN,ROLLER 420X18.0        |
| 210    | 337029MA   |     | BEARING, TRUNION CLUTCH R    |
| 212    | 53830      |     | WHEEL, FRICTION DISC         |
| 213    | 001X38MA   |     | SCREW, 1/4-20 x 0.63         |
| 215    | 303008MA   |     | NUT, KEPS HEX 1/4-20         |
| 217    | 579859MA   |     | RING,RETEXT .54X.03TR        |
| 218    | 579858MA   |     | WASHER.502-0.75-.06 F        |
| 220    | 334163MA   |     | BEARING AND RETAINER, ASSY   |
| 221    | 780055MA   |     | SCREW, TAP 5/16-18 X .50     |
| 223    | 1501242MA  |     | ASSY, FRICTION PULLY         |
| 225    | 1501057 YZ |     | LF PLATE, SWINGING YZ        |
| 226    | 1501158MA  |     | SPACER,FRICTION PULLE        |
| 227    | 15X114     |     | NUT, FLANGE LOCK 3/8-24      |
| 229    | 11X30MA    |     | RETAINER, RING 7/16 Y        |
| 230    | 1501107 YZ |     | LF ASSY, SPRING LINK YZ      |
| 232    | 11X30MA    |     | RETAINER, RING 7/16 Y        |
| 234    | 165X112MA  |     | SPRING, EXTENSION            |
| 236    | 1501090MA  |     | WLD, INTERMED SPROCKET 33T/7 |
| 238    | 71074      |     | WASHER, FLAT                 |

**Electric Start Assembly**

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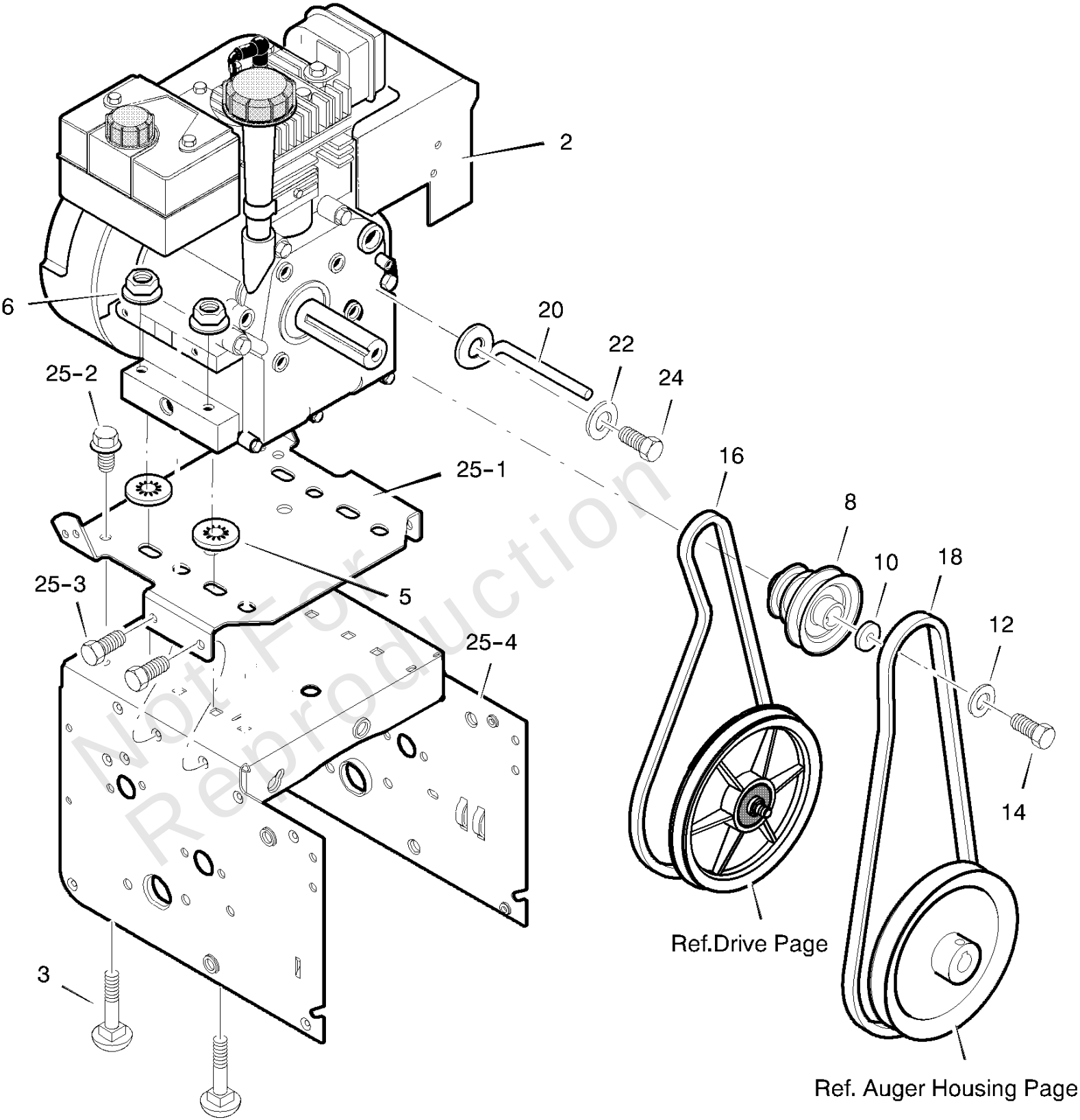
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## *Electric Start Assembly*

| REF NO | PART NO | QTY | DESCRIPTION                |
|--------|---------|-----|----------------------------|
| 6      | 6218    |     | MOTOR, STARTER             |
| 7      | 6216    |     | SCREW                      |
| 8      | 6217    |     | SCREW                      |
| 9      | 6219MA  |     | CORD, Electric, 10FT. 110V |

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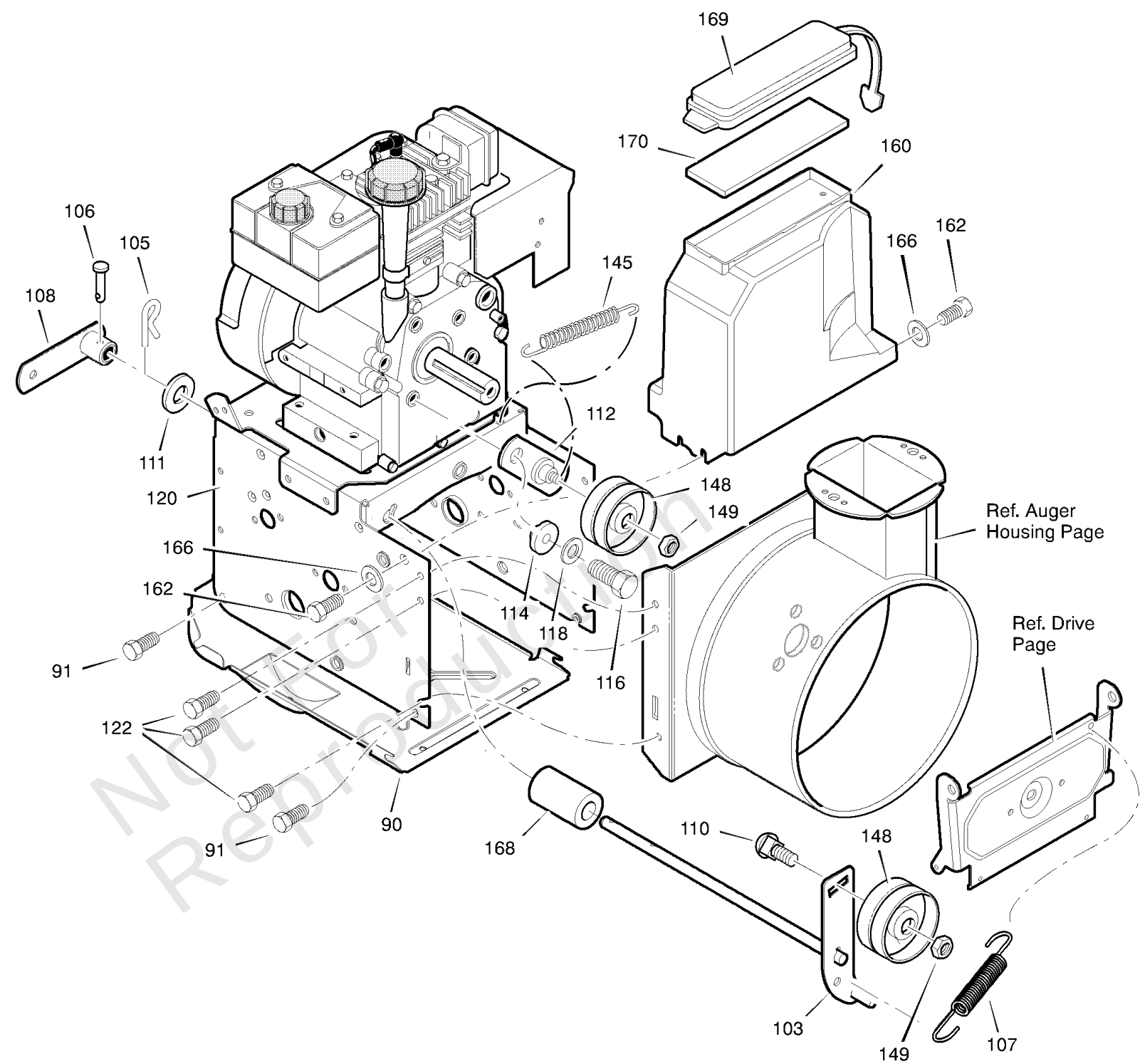
## Engine

| REF NO | PART NO     | QTY | DESCRIPTION               |
|--------|-------------|-----|---------------------------|
| 2      | -----       |     | ENGINE                    |
| 3      | 002X97MA    |     | BOLT, CARRIAGE 5/16-18    |
| 5      | 028X76MA    |     | NUT,SPEED                 |
| 6      | 710026      |     | NUT, HEXWDFLLK 5/16-18    |
| 8      | 1501109MA   |     | PULLEY, ENGINE            |
| 10     | 710247      |     | WASHER                    |
| 12     | 71063       |     | WASHER,HVSPTLK .38ID      |
| 14     | 71015       |     | SCREW, 3/8-24 x 1.00      |
| 16     | 579932MA    |     | BELT, V 3L 33.13LG        |
| 18     | 585416MA    |     | BELT                      |
| 20     | 1501201MA   |     | GUIDE, BELT               |
| 22     | 071060      |     | WASHER, SPTLK .31X.58X.08 |
| 24     | 710097      |     | SCREW, 5/16-24 x 0.75     |
| 25     | -----       |     | FRAME ASSEMBLY            |
| 25-1   | 1501062E020 |     | PLATE, ENGINE MOUNT       |
| 25-2   | 310169MA    |     | SCREW, 1/4-20X .63 WA     |
| 25-3   | 780055MA    |     | SCREW, TAP 5/16-18 X .50  |
| 25-4   | 1501049E020 |     | FRAME, MOTOR BOX          |
| --     | F-011079L   |     | OWNER S MANUAL            |

Frame

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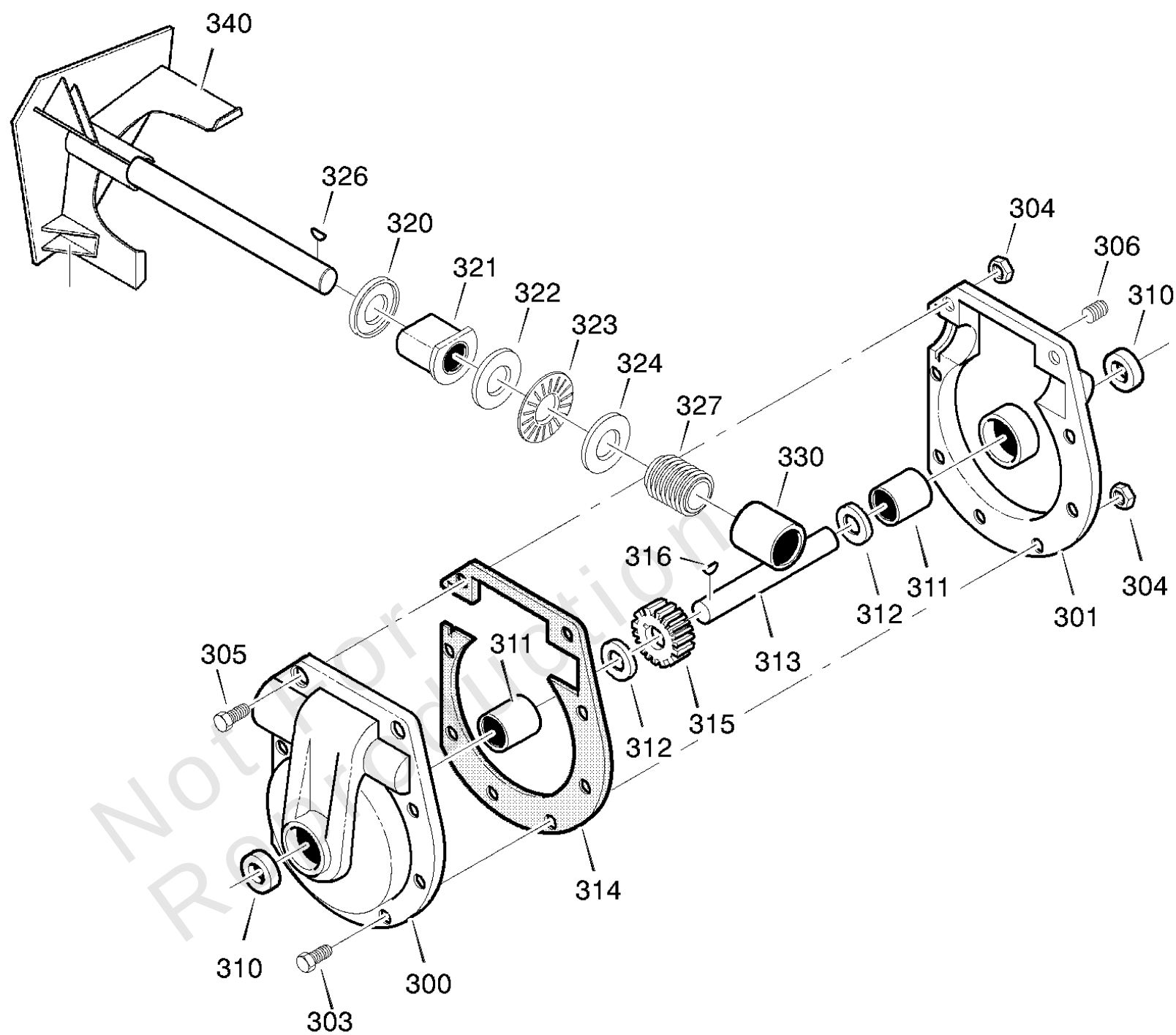
## Frame

| REF NO | PART NO     | QTY | DESCRIPTION               |
|--------|-------------|-----|---------------------------|
| 90     | 1501055E717 |     | COVER, BOTTOM             |
| 91     | 310169MA    |     | SCREW, 1/4-20X .63 WA     |
| 103    | 1501226 YZ  |     | IDLER ASSEMBLY, AUGER     |
| 105    | 711682MA    |     | PIN, HAIR .38DIA X 1.64LG |
| 106    | 761761MA    |     | PIN, CLEVIS 3/16" DIA     |
| 107    | 165X159MA   |     | SPRING, TENSION           |
| 108    | 761675 YZ   |     | ASSY., SPRING ATTACH      |
| 110    | 585781MA    |     | BOLT, 3/8-16X1.25 CARR.   |
| 111    | 711617      |     | WASHER, FLAT              |
| 112    | 1501112 YZ  |     | BRACKET ASSEMBLY, IDLER   |
| 114    | 1501065MA   |     | BUSHING, IDLER BRKT       |
| 116    | 710097      |     | SCREW 5/16-24 X .75       |
| 118    | 071060      |     | WASHER, SPLIT             |
| 120    | -----       |     | UNKNOWN                   |
| 122    | 780055MA    |     | SCREW, TAP 5/16-18 X .50  |
| 145    | 53704MA     |     | SPRING, IDLER TRACTIO     |
| 148    | 50793MA     |     | PULLEY, IDLER             |
| 149    | 590         |     | NUT, JAM 3/8-16           |
| 160    | 1501171     |     | COVER, BELT               |
| 162    | 26X306MA    |     | SCREW, TAP 1/4-20 X .62   |
| 166    | 71067MA     |     | WASHER, FLAT              |
| 168    | 1501200MA   |     | SPACER/AUGER BRKT         |
| 169    | 761167      |     | COVER, TOOLBOX            |
| 170    | 761187MA    |     | PAD, FOAM                 |

**Gear Case**

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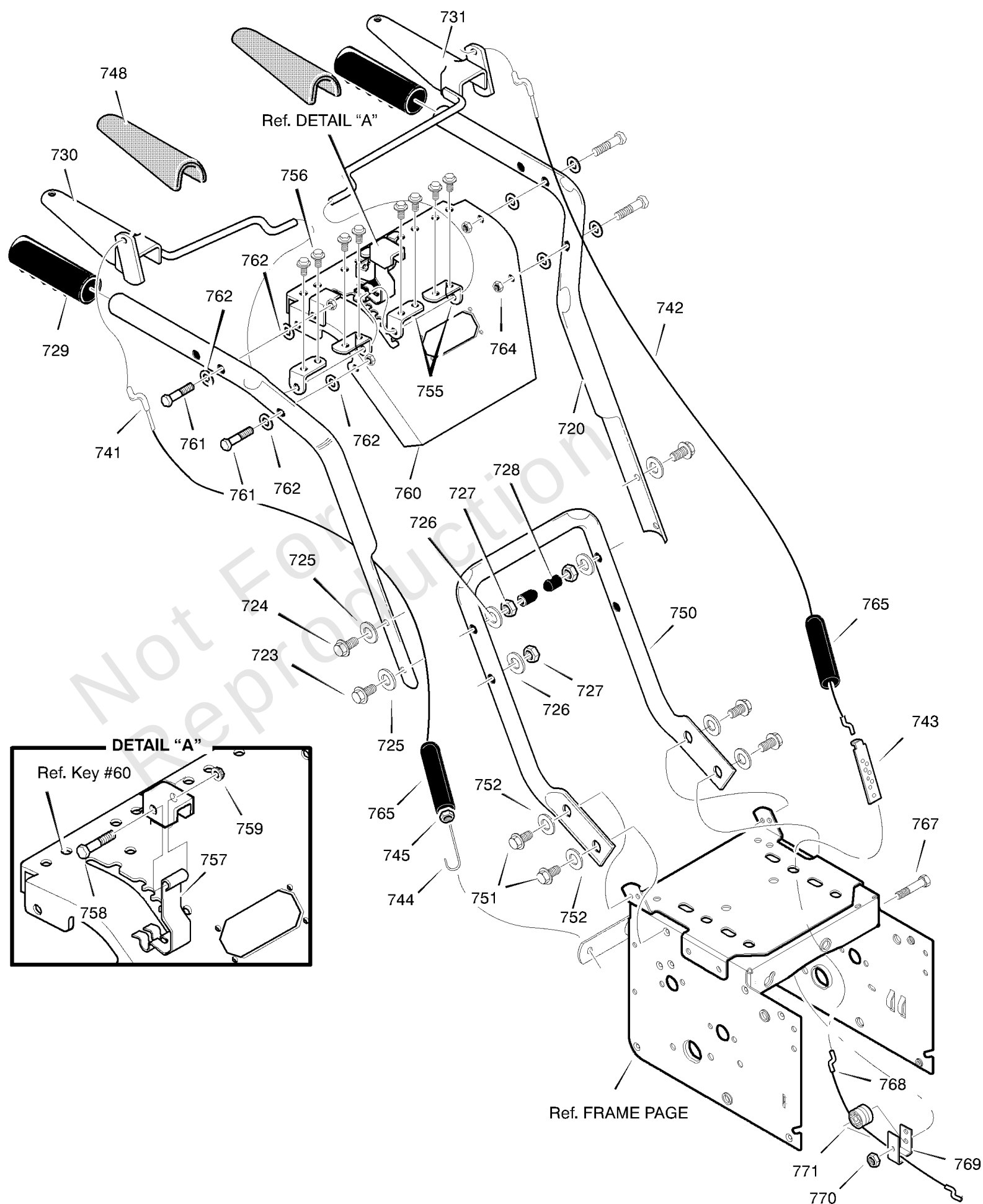
## Gear Case

| REF NO | PART NO       | QTY | DESCRIPTION             |
|--------|---------------|-----|-------------------------|
| 300    | 896MA         |     | CASE,GEAR RH 12AUG/10   |
| 301    | 895MA         |     | CASE, GEAR LH 12"AUG/   |
| 303    | 910828MA      |     | SCREW,1/4-20X.75        |
| 304    | 71100MA       |     | NUT,1/4-20              |
| 305    | 330434MA      |     | NUT, 1/4-20 HEXKEPS     |
| 306    | 53749MA       |     | SCREW, 3/8-16 x 0.50    |
| 310    | 780151MA      |     | SEAL, OIL CR 530552     |
| 311    | 53743         |     | BEARING, FL             |
| 312    | 53748MA       |     | WASHER, FLAT 1.00       |
| 313    | 760528MA      |     | SHAFT, AUGER OUTPUT     |
| 314    | 897MA         |     | GASKET, GEAR BOX        |
| 315    | 53730MA       |     | WORM GEAR               |
| 316    | 73905MA       |     | KEY, WOODRUFF #61       |
| 320    | 53737MA       |     | RING, QUAD .924IDX.10   |
| 321    | 583126MA      |     | BRNG, FL .753IDX1.128   |
| 322    | 48275MA       |     | WASHER, FLAT .752X1.    |
| 323    | 50684MA       |     | PIN, SPRING             |
| 324    | 48275MA       |     | WASHER, FLAT .752X1.    |
| 326    | 50795MA       |     | KEY, HI-PRO 606 .75D    |
| 327    | 53732MA       |     | WORMGEAR,1.75OD 1.56L   |
| 330    | 53731MA       |     | BEARING                 |
| 340    | 1501147E717MA |     | IMPELLER                |
| --     | 333431MA      |     | LUBRIPLATE, GR132, 14oz |

Handle Assembly

Note: Unless noted otherwise, use the standard torque specifications

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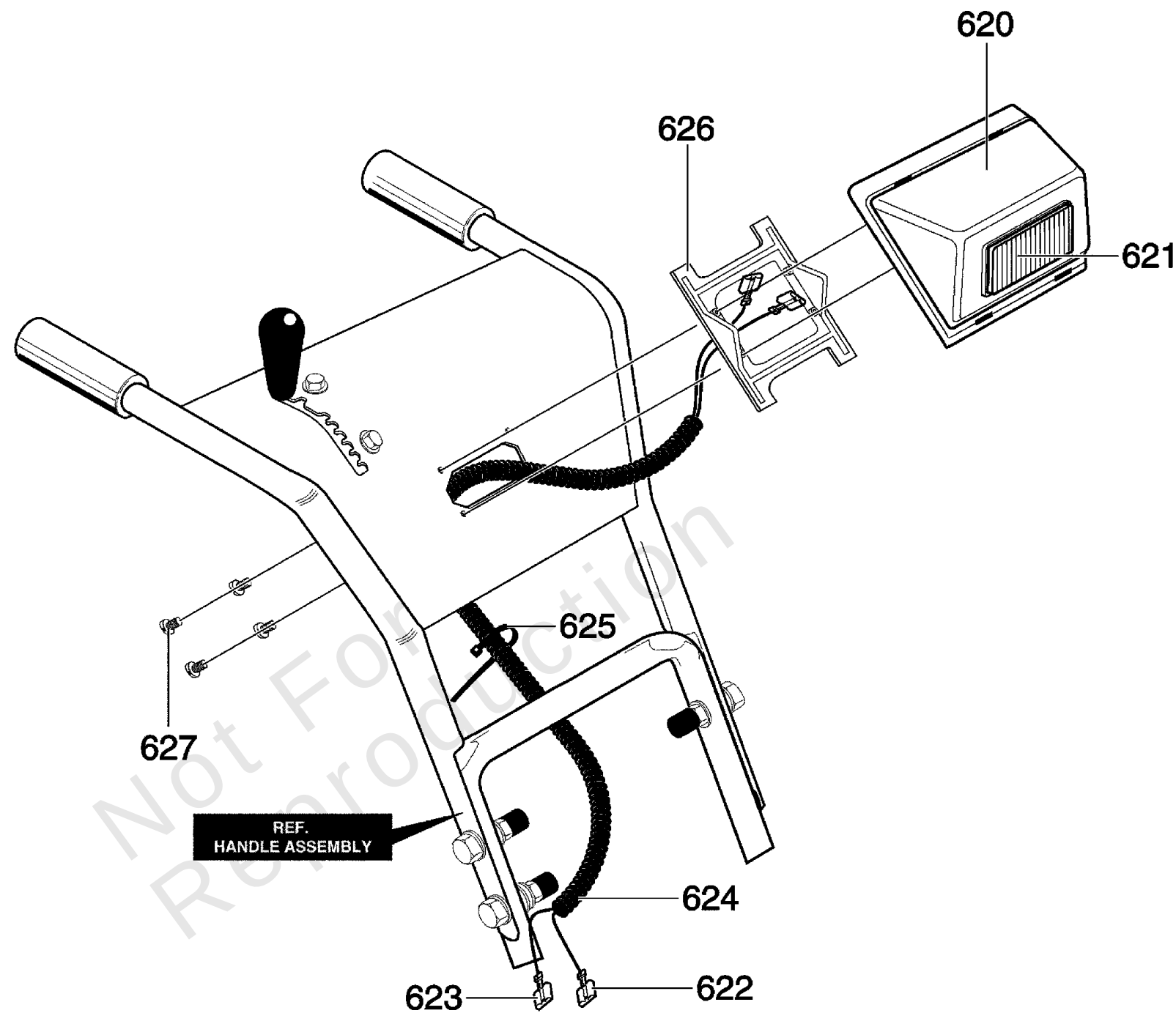
## Handle Assembly

| REF NO | PART NO    | QTY | DESCRIPTION                 |
|--------|------------|-----|-----------------------------|
| 60     | -----      |     | UNKNOWN                     |
| 720    | 5113E717   |     | HANDLE, UPPER LH            |
| 721    | 5115E717   |     | HANDLE, UPPER RH            |
| 723    | 71007      |     | SCREW                       |
| 724    | 7288MA     |     | SCREW, 3/8-16X3.00 HH       |
| 725    | 71072      |     | WASHER, FLAT                |
| 726    | 71062      |     | WASHER, SPTLK               |
| 727    | 71044      |     | NUT, REGHEX                 |
| 728    | 7289MA     |     | STOP,PLASTIC.375            |
| 729    | 761209MA   |     | GRIP-HANDLE                 |
| 730    | 760290 YZ  |     | LEVER, ASSY CLUTCH DRIVE RH |
| 731    | 760289 YZ  |     | LEVER, ASSY CLUTCH DRIVE LH |
| 741    | 761590MA   |     | CABLE, AUGER CLUTCH         |
| 742    | 1501124MA  |     | CABLE, AUGER DRIVE          |
| 743    | 313441MA   |     | BRACKET, CABLE ADJ BL       |
| 744    | 1673MA     |     | SPRING, AUGER CLUTCH,       |
| 745    | 780029     |     | NUT, 1/4-20                 |
| 748    | 760992MA   |     | GRIP, CLUTCH HANDLE         |
| 750    | 5543E717   |     | HANDLE, LOWER               |
| 751    | 70984      |     | SCREW, TAP 5/16-18 X .75    |
| 752    | 071060     |     | WASHER, SPTLK               |
| 754    | 70984      |     | SCREW                       |
| 755    | 760201 YZ  |     | BRKT, ROD                   |
| 756    | 760858MA   |     | SCREW                       |
| 757    | 760227MA   |     | SPRING, CAM LOCK            |
| 758    | 45526      |     | BOLT, HEX                   |
| 759    | 71038      |     | NUT                         |
| 760    | -----      |     | UNKNOWN                     |
| 761    | 302900MA   |     | SCREW                       |
| 762    | 71071      |     | WASHER, FLAT                |
| 764    | 710026     |     | NUT, HEXFLNG                |
| 765    | 308146MA   |     | BOOT, CLUTCH SPRING         |
| 767    | 01X186MA   |     | BOLT, HEX 1/4-20 X 1.75 YZ  |
| 768    | 1501122MA  |     | CABLE, LOWER DRIVE 12       |
| 769    | 1501059 YZ |     | BRACKET, CABLE SPOOL YZ     |
| 770    | 780029     |     | NUT                         |
| 771    | 579860MA   |     | SPOOL-CABLE, AUGRT CLUTCH   |
| 772    | 1673MA     |     | SPRING, AUGER CLUTCH,       |

Headlight

Note: Unless noted otherwise, use the standard torque specifications

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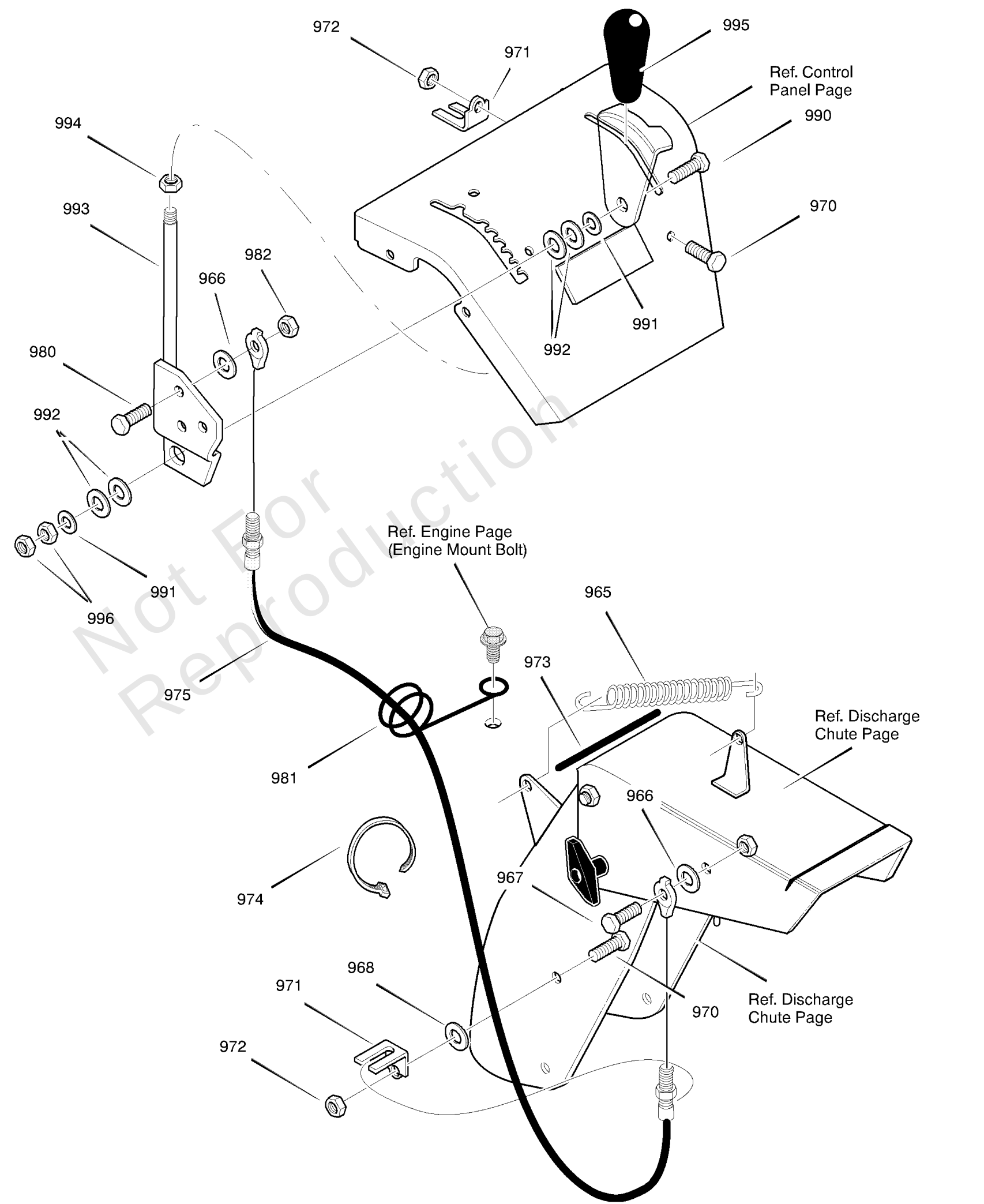
## Headlight

| REF NO | PART NO  | QTY | DESCRIPTION           |
|--------|----------|-----|-----------------------|
| 620    | 584731MA |     | HEADLAMP HOUSING      |
| 621    | 581575MA |     | HEADLIGHT ASSY        |
| 622    | 305743   |     | LIGHT, BEZEL          |
| 623    | 305740   |     | WIRE, HEADLIGHT       |
| 624    | 6636     |     | CONDUIT, SPLIT        |
| 625    | 57444    |     | CABLE TIE             |
| 626    | 584732MA |     | BRACKET, HEADLAMP     |
| 627    | 316042MA |     | SCREW, 10X.62 UNSL-HW |

# Remote Control

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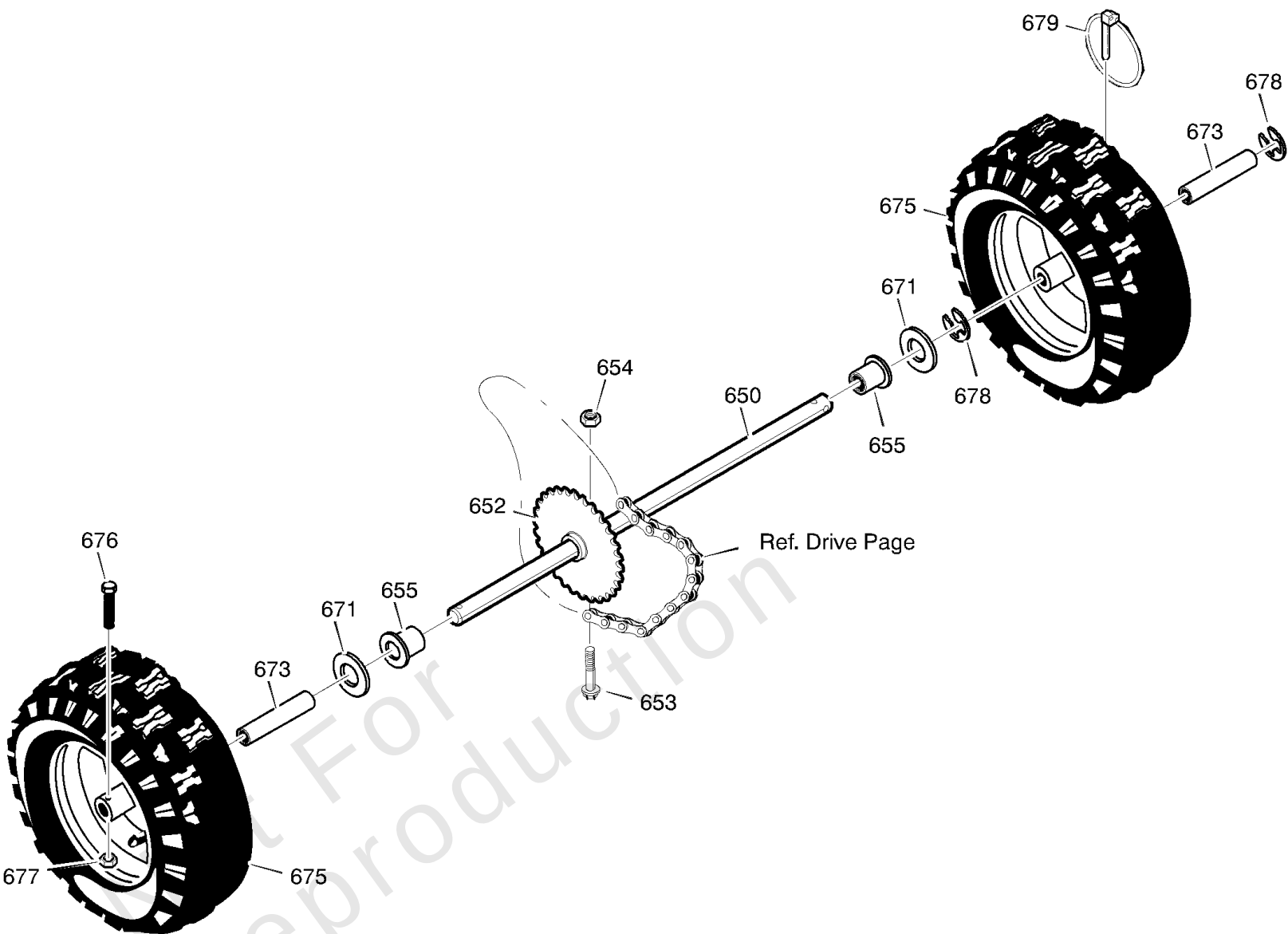
## Remote Control

| REF NO | PART NO    | QTY | DESCRIPTION             |
|--------|------------|-----|-------------------------|
| 965    | 318468MA   |     | TENSION SPRING          |
| 966    | 711666     |     | FLATWASHER              |
| 967    | 310088MA   |     | BOLT-SHD.250X.312 .25   |
| 968    | 73787MA    |     | WASHER, FLAT .330X .    |
| 969    | 302635     |     | NUT                     |
| 970    | 313676     |     | SCREW                   |
| 971    | 306447 YZ  |     | BRACKET, CABLE CHUTE    |
| 972    | 71391      |     | NUT                     |
| 973    | 095105     |     | TRIM STRIP, GREY        |
| 974    | 760113MA   |     | TIE, CABLE              |
| 975    | 761131MA   |     | CABLE, CHUTE DEFLECTOR  |
| 980    | 310088MA   |     | BOLT-SHD.250X.312 .25   |
| 981    | 780220MA   |     | WIRE FORM,REMOTE CHUT   |
| 982    | 302635     |     | NUT                     |
| 985    | 761669-853 |     | BRACKET, SNAP-IN REMOTE |
| 990    | 71007      |     | SCREW                   |
| 991    | 71072      |     | WASHER, FLAT            |
| 992    | 4051MA     |     | WASHER, SPRING          |
| 993    | 85030 YZ   |     | HANDLE, ASSY            |
| 994    | 71044      |     | NUT                     |
| 995    | 304728MA   |     | KNOB, SHIFT (GREY)      |
| 996    | 71046      |     | NUT                     |

Wheels

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 629104x89C



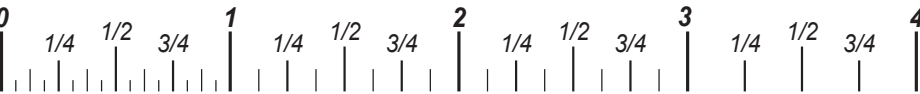
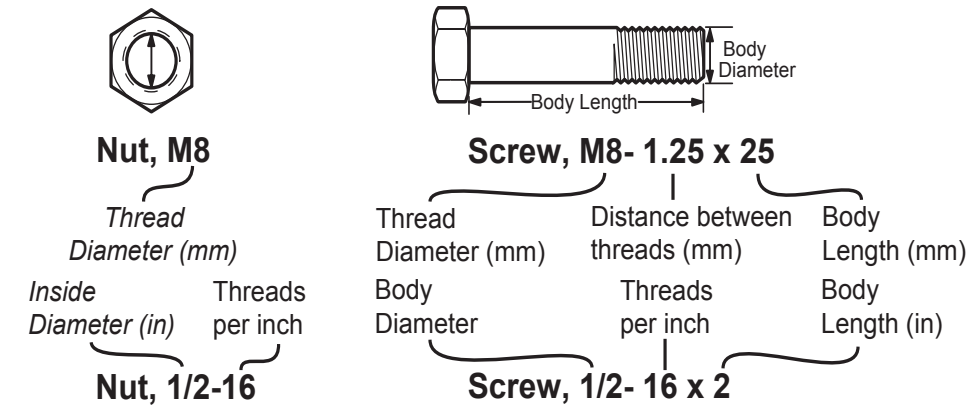
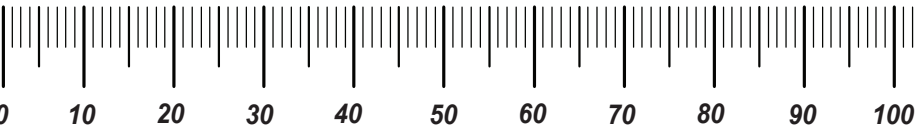
## ***Wheels***

| REF NO | PART NO   | QTY | DESCRIPTION              |
|--------|-----------|-----|--------------------------|
| 650    | 1501104MA |     | SHAFT, AXLE              |
| 652    | 1501089   |     | SPRKT & HUB              |
| 653    | 01X186MA  |     | SCREW, 1/4-20X2.25       |
| 654    | 780029    |     | NUT, 1/4-20 HEX NYLOCK   |
| 655    | 1501114MA |     | BEARING,AXLE             |
| 671    | 712120MA  |     | FLATWASHER               |
| 673    | 1501138MA |     | BUSHING, WHEEL           |
| 675    | 584535MA  |     | TIRE & RIM               |
| 676    | 577015MA  |     | SCREW, SHR 1/4-20X1.7    |
| 677    | 780029    |     | NUT, 1/4-20 HEX NYLOCK   |
| 678    | 239MA     |     | RING, RET                |
| 679    | 73842MA   |     | PIN, KLIK .25 X 1.38 DIA |

# Hardware Identification & Torque Specifications

| Torque Specification Chart                             |                                                                                                |      |                                                                                                |      |                                                                                                 |      |                                                                                                 |      |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------|------|
| FOR STANDARD METRIC MACHINE HARDWARE (Tolerance ± 20%) |                                                                                                |      |                                                                                                |      |                                                                                                 |      |                                                                                                 |      |
| Property Class                                         | <br>Class 5.6 |      | <br>Class 8.8 |      | <br>Class 10.9 |      | <br>Class 12.9 |      |
| Size Of Hardware                                       | in/lbs<br>ft/lbs                                                                               | Nm.  | in/lbs<br>ft/lbs                                                                               | Nm.  | in/lbs<br>ft/lbs                                                                                | Nm.  | in/lbs<br>ft/lbs                                                                                | Nm.  |
| 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 |

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



## 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).

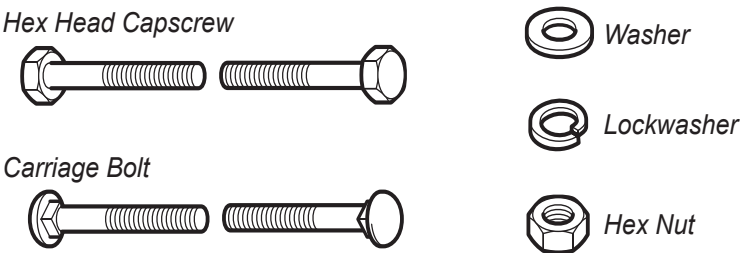
When bolt or capscrew is identified as 1/2 - 16 x 2" (M8 - 1.25 x 50), this means the *Nominal size*, or body diameter is 1/2 inch (8mm metric thread diameter), the second number, 16, represents the *threads per inch*, (*distance between threads*). The final number is the body length of the bolt or screw,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

| Torque Specification Chart                      |                                                                                                    |       |                                                                                                    |       |                                                                                                    |         |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------|---------|
| FOR STANDARD MACHINE HARDWARE (Tolerance ± 20%) |                                                                                                    |       |                                                                                                    |       |                                                                                                    |         |
| Hardware Grade                                  | <br>SAE Grade 2 |       | <br>SAE Grade 5 |       | <br>SAE Grade 8 |         |
| Size Of Hardware                                | in/lbs<br>ft/lbs                                                                                   | Nm.   | in/lbs<br>ft/lbs                                                                                   | Nm.   | in/lbs<br>ft/lbs                                                                                   | Nm.     |
| 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 |

### 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



## Wrench & Fastener Size Guide

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

