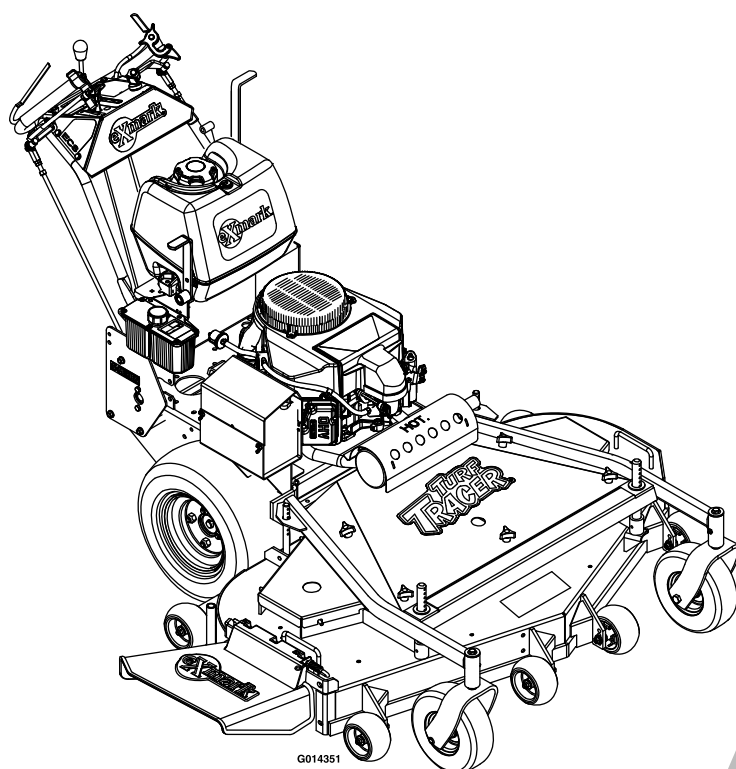




# **TURF TRACER® S-SERIES**

**Model No. TTS20KAE483—Serial No. 920000 and Up**

Picture below may not reflect actual product.



G014351

# **Parts Manual**

# Ordering Replacement Parts

To order replacement parts, please supply the part number, the quantity, and the description of each part desired.

## Understanding Reference Numbers

Each identified part in an illustration has a reference number. The reference number for a part also appears in the parts list, along with other information about the part.

This catalog uses two special reference number formats, one to indicate parts in a service assembly and another to indicate the quantity of a given part in an illustration.

## Service Assembly Reference Numbers

Parts in service assemblies have reference numbers in the form a:b. The a represents the reference number of the entire service assembly and the b represents a sequential number unique to each part within the service assembly.

For example, a wheel assembly might be identified by reference number 6, the tire by 6:1, the valve by 6:2, and the wheel by 6:3. When you order the assembly identified by reference number 6, you receive all parts identified by reference numbers 6:1, 6:2, and 6:3. However, you may also order any part individually. Reference numbers of this type appear in illustration and in parts lists.

## Reference Numbers Indicating Quantity

In an illustration, if a reference number indicates more than one part, the reference number has the form nX y. The n represents the quantity of the part, the X is the multiplication symbol, and the y represents the reference number.

For example, in an illustration, the reference number 2X 37 means that two of the parts identified by reference number 37 are indicated.

# List of Abbreviations

**AR:** as required

**ASM:** assembly

**BBC:** blade brake control

**BHTF:** button head thread forming

**CARR:** carriage

**CCW:** counter clockwise

**CW:** clockwise

**DEG:** degrees

**DPA:** Dual Point Adjustment

**ECM:** electronic control module

**EXT:** external

**FH:** flat head

**GA:** gauge

**HD:** heavy-duty

**HF:** hex flange

**HH:** hex head

**HHF:** hex head flange

**HHFTF:** hex head flange thread forming

**HJ:** hex jam

**HLH:** hex lag head

**HOC:** height-of-cut

**HSBH:** hex socket button head

**HSFH:** hex socket flat head

**HSH:** hex socket head

**HWH:** hex washer head

**HWHTF:** hex washer head thread forming

**HYD:** hydraulic

**LH:** left hand

**LP:** Liquid Propane

**NI:** nylon insert

**NPTF:** national pipe thread fine

**PFH:** phillips flat head

**PPH:** phillips pan head

**PPHTF:** phillips pan head thread forming

**PRH:** phillips round head

**PTH:** phillips truss head

**PTO:** power-take-off

**RH:** right hand

**ROPS:** roll-over protection system

**RRB:** rear roller brush

**SFH:** slotted fillister head

**SHH:** slotted hex head

**SHWH:** slotted hex washer head

**SPH:** slotted pan head

**SQH:** square head

**SRH:** slotted round head

**STD:** standard

**TAP:** self tapping

**TTH:** torx truss head

# Touch Up Paint

Exmark black touch up spray paint – gloss black.

Exmark red touch up paint (spray paint – P/N 1-850337 - .6 oz liquid bottle – P/N 103-9140).

**EXMARK PARTS PLUS**

***PARTS***

**OVERNIGHT**

**OR *FREE*\***

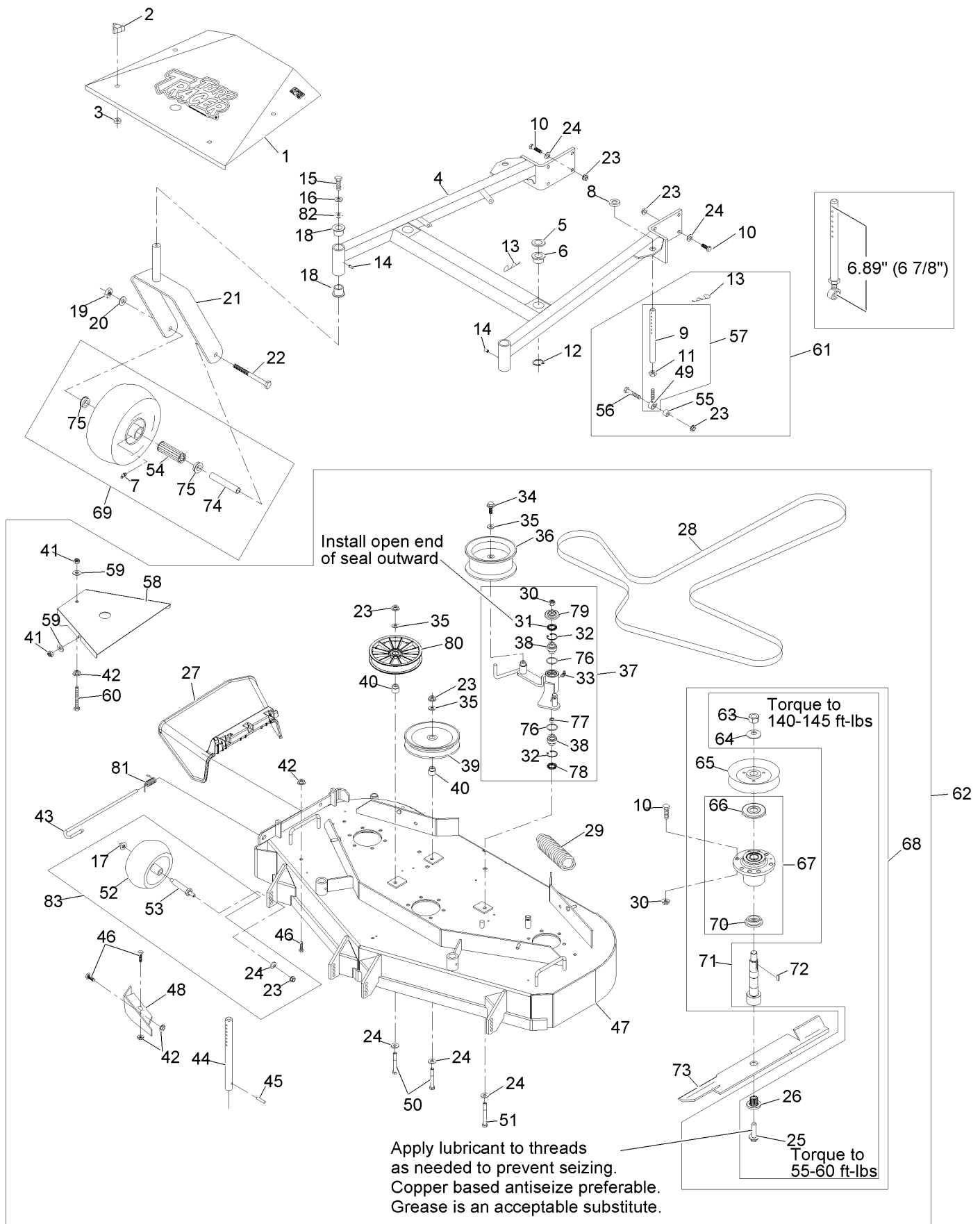
If your Exmark dealer does not have the Exmark part in stock, Exmark will get the parts to the dealer the next business day or the part will be FREE Guaranteed!! (Some restrictions apply. See your participating Exmark Dealer for details.)

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- Fuel Tank Assembly ..... 14
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- Hydraulic Assembly ..... 16
- Decals ..... 18



## Mower Deck Assembly



## Mower Deck Assembly (continued)

| <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>                                | <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>                                                      |
|-------------|--------------------|-------------|---------------------------------------------------|-------------|--------------------|-------------|-------------------------------------------------------------------------|
| 1           | 116-2711           | 1           | Shield, Belt (1-413101-01)<br>W/Decals            | 47          | 1-414384           | 1           | Wld, Deck (116-2457-01)<br>W/Decals, Discharge Baffle<br>& Support Rods |
| 2           | 1-323385           | 4           | Knob-3 Prong                                      | 48          | 116-2297-01        | 1           | Baffle, Discharge                                                       |
| 3           | 1-323417           | 4           | Washer-Belt Shield                                | 49          | 1-613204           | 2           | Balljoint                                                               |
| 4           | 1-414310           | 1           | Wld, Support (1-412110-01)<br>W/Bushings & Decals | 50          | 323-13             | 2           | Screw-HH 3/8-16 X 2 3/4                                                 |
| 5           | 1-413425           | 2           | Spacer                                            | 51          | 98-5961            | 1           | Screw-HH 3/8-16 X 4 Gr8                                                 |
| 6           | 1-513336           | 2           | Bushing-Deck                                      | 52          | 1-603299           | 4           | Roller-Scalp, Anti                                                      |
| 7           | 302-61             | 2           | Zerk-45° 1/4-28                                   | 53          | 99-2842            | 4           | Spacer                                                                  |
| 8           | 1-323539           | 2           | Spacer-Blade Drive                                | 54          | 1-513809           | 2           | Bearing                                                                 |
| 9           | 1-413525           | 2           | Link, Rear Deck Support                           | 55          | 1-603050           | 2           | Spacer                                                                  |
| 10          | 323-7              | 26          | Screw-HH 3/8-16 X 1 1/4                           | 56          | 323-9              | 2           | Screw-HH 3/8-16 X 1 3/4                                                 |
| 11          | 3220-3             | 2           | Nut-Jam 3/8-24                                    | 57          | 1-414521           | 2           | Link, Assembly                                                          |
| 12          | 32120-33           | 2           | Ring-Retaining                                    | 58          | 103-2970-01        | 2           | Shield, Belt                                                            |
| 13          | 1-806009           | 4           | Hairpin-Cotter #206                               | 59          | 3256-3             | 6           | Washer-5/16 Std                                                         |
| 14          | 302-52             | 2           | Zerk-1/8-27 Str                                   | 60          | 1-800017           | 2           | Bolt-HH 5/16-18 X 3 1/4 Tap                                             |
| 15          | 323-6              | 2           | Screw-HH 3/8-16 X 1                               | 61          | 1-411532           | 2           | Kit, Support Link W/Pin                                                 |
| 16          | 3253-5             | 2           | Washer-Lock 3/8 Heavy                             | 62          | 103-0321           | 1           | Asm, Deck Complete                                                      |
| 17          | 109-6658           | 4           | Nut-Nyloc 3/8-16 Flg                              | 63          | 3217-46            | 3           | Nut-Hex 3/4-16 Heavy                                                    |
| 18          | 1-303514           | 4           | Bearing-Flanged                                   | 64          | 103-2802           | 3           | Washer-Spring Disc 3/4                                                  |
| 19          | 3217-9             | 2           | Nut-Hex 1/2-13                                    | 65          | 1-413424           | 3           | Sheave W/ Hub ▲                                                         |
| 20          | 3253-7             | 2           | Washer-Lock 1/2                                   | 66          | 103-1330           | 3           | Guard-Bearing Top ▲                                                     |
| 21          | 1-522143-01        | 2           | Wld, Caster                                       | 67          | 103-8280           | 3           | Kit, Cutter Housing                                                     |
| 22          | 325-20             | 2           | Screw-HH 1/2-13 X 6                               | 68          | 103-9081           | 3           | Asm, Cutter Housing<br>Complete                                         |
| 23          | 3290-357           | 13          | Nut-Whizlock 3/8-16                               | 69          | 103-2171           | 2           | Kit, Tire & Wheel Asm W/<br>Spacer                                      |
| 24          | 98-5975            | 15          | Washer-Spring Disc 3/8                            | 70          | 103-2535           | 3           | Spacer-Guard Bottom                                                     |
| 25          | 109-9220           | 3           | Screw-Sems 1/2-20 X 2.19                          | 71          | 103-9071           | 3           | Kit, Spindle ▲                                                          |
| 26          | 103-3037           | 3           | Bushing,Splined                                   | 72          | 1-807268           | 3           | Key-Machine 1/4 X 3/16 X 1                                              |
| 27          | 109-5151           | 1           | Cht Disch Xrk M056                                | 73          | 103-6401           | 3           | Blade-Notched ■                                                         |
| 28          | 1-413093           | 1           | Belt - V, B                                       | 73          | 103-6391           | 3           | Blade, Mulch 16.25 (.94<br>Hole)                                        |
| 29          | 103-3330           | 1           | Spring-Extension                                  | 73          | 103-6386           | 3           | Blade, Low Lift 16.25 (.94<br>Hole)                                     |
| 30          | 3296-39            | 19          | Nut-Nyloc 3/8-16                                  | 73          | 103-6381           | 3           | Blade, Solid 16.25 (.94<br>Hole)                                        |
| 31          | 103-3506           | 1           | Seal-Single Lip                                   | 73          | 103-6396           | 3           | Blade, Extreme 16.25 (.94<br>Hole)                                      |
| 32          | 32120-10           | 2           | Ring-Retaining                                    | 74          | 1-513547           | 2           | Spacer                                                                  |
| 33          | 302-40             | 1           | Zerk-90° 1/4-28                                   | 75          | 1-513810           | 4           | Bushing-Flanged                                                         |
| 34          | 3234-11            | 1           | Screw-HH Flg 3/8-16 X 1                           | 76          | 106-7159           | 2           | O-Ring                                                                  |
| 35          | 3256-24            | 3           | Washer-3/8 Sae                                    | 77          | 103-5677           | 1           | Spacer                                                                  |
| 36          | 1-413099           | 1           | Pulley-Idler                                      | 78          | 103-3505           | 1           | Seal-Double Lip                                                         |
| 37          | 103-8585           | 1           | Kit, Idler Arm (103-7356-03)<br>W/Brgs ●          | 79          | 103-2916           | 1           | Guard-Top                                                               |
| 38          | 103-3504           | 2           | Bearing-Spherical                                 | 80          | 109-0977           | 1           | Pulley,Idler 5"                                                         |
| 39          | 1-613098           | 1           | Pulley-Idler                                      | 81          | 116-0962           | 1           | Spring, Torsion                                                         |
| 40          | 1-413113           | 2           | Bushing-Idler                                     | 82          | 1-373034           | 2           | Washer                                                                  |
| 41          | 3296-29            | 6           | Nut-Nyloc 5/16-18                                 | 83          | 103-4051           | 1           | Kit,Anti-Scalp Roller                                                   |
| 42          | 32128-20           | 3           | Nut-Whizlock 5/16-18                              |             |                    |             |                                                                         |
| 43          | 109-8854           | 1           | Pin-Chute                                         |             |                    |             |                                                                         |
| 44          | 1-603001           | 2           | Rod, Deck Support                                 |             |                    |             |                                                                         |
| 45          | 1-806332           | 2           | Rollpin 1/4 X 1 1/2                               |             |                    |             |                                                                         |
| 46          | 322-2              | 3           | Screw-HH 5/16-18 X 5/8                            |             |                    |             |                                                                         |

● Assembly also includes Washer and Screw

■ Requires installation of mulch kit for proper mulching. See your Exmark dealer for details.

▲ Apply Mobil HTS grease (P/N 103-5217 1.5 oz packet) (or a food-grade anti-seize). See operator s manual for locations.

This exploded view diagram illustrates the assembly of the engine. The components are numbered as follows:

- Engine Bolts:** Indicated by a callout pointing to bolt 88.
- Assembly Order:** The numbers 1 through 30 indicate the sequence in which the parts should be installed.
- Key Components:**
  - 19:** The main engine housing or block.
  - 22:** A component mounted on the top of the housing.
  - 83:** A rectangular component, likely a filter or cover, shown separately.
  - 84:** A bracket or support component.
  - 85:** A mounting plate or base.
  - 86:** A component that fits into the mounting plate.
  - 87:** A small component, possibly a pin or clip.



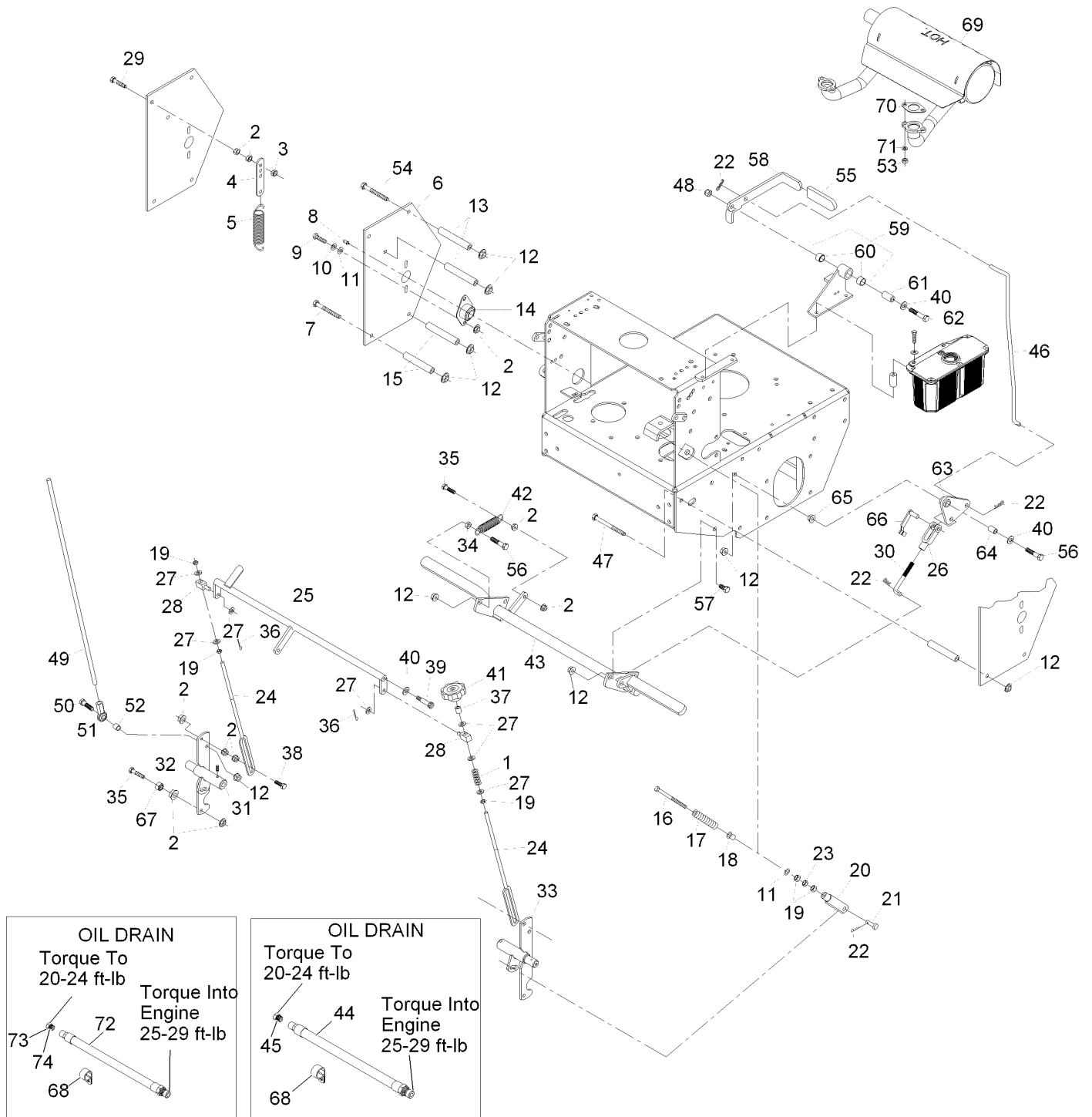
## Engine Deck Assembly (continued)

| <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>                     | <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>                          |
|-------------|--------------------|-------------|----------------------------------------|-------------|--------------------|-------------|---------------------------------------------|
| 1           | 323-11             | 1           | Screw-HH 3/8-16 X 2 1/4                | 46          | 1-603496           | 1           | Bushing-Idler                               |
| 2           | 98-5975            | 26          | Washer-Spring Disc 3/8                 | 47          | 103-8599           | 1           | Spring, Extension                           |
| 3           | 103-3506           | 1           | Seal-Single Lip                        | 48          | 109-1296           | 1           | Kit, Idler Arm (109-1208-03)<br>W/Brgs      |
| 4           | 1-513034           | 2           | Sleeve-Bearing                         | 49          | 1481               | 2           | Zerk-45° 1/4-28                             |
| 5           | 302-19             | 1           | Zerk-1/4-28 Str                        | 50          | 98-5961            | 1           | Screw-HH 3/8-16 X 4 Gr8                     |
| 6           | 1-414143           | 1           | Asm, Bellcrank<br>(1-412285-03) W/Brgs | 51          | 323-9              | 2           | Screw-HH 3/8-16 X 1 3/4                     |
| 7           | 322-6              | 1           | Screw-HH 5/16-18 X 1 1/4               | 56          | 1-807272           | 2           | Key-5Mm X 5Mm X 25Mm                        |
| 8           | 321-6              | 2           | Screw-HH 1/4-20 X 1                    | 57          | 1-803050           | 4           | Setscrew-5/16-18 X 3/4 ■                    |
| 9           | 32128-33           | 4           | Nut-Whizlock 1/4-20                    | 58          | 109-1057           | 1           | Belt, Pump Drive                            |
| 10          | 1-523498           | 1           | Spring, Motion Control                 | 59          | 1-413010           | 2           | Sheave ASM ●                                |
| 11          | 103-7398           | 1           | Spring, Belt Tension                   | 60          | 103-6317           | 1           | Belt, Blade Clutch                          |
| 12          | 1-543007           | 1           | Spacer                                 | 61          | 1-807259           | 1           | Key-Machine 1/4 X 1/4 X 1                   |
| 13          | 1-213069           | 1           | Washer                                 | 62          | 103-6308           | 1           | Sheave W/Shaft ●                            |
| 14          | 3296-29            | 3           | Nut-Nyloc 5/16-18                      | 63          | 1-413111           | 2           | Bearing, Clutch ●                           |
| 15          | 3256-4             | 2           | Washer-3/8 Std                         | 64          | 32120-8            | 2           | Ring-Retaining                              |
| 16          | 3290-357           | 19          | Nut-Whizlock 3/8-16                    | 65          | 1-413012           | 1           | Spacer, Bearing                             |
| 17          | 1-413282           | 1           | Linkage                                | 66          | 1-523157           | 1           | Washer                                      |
| 18          | 1-806003           | 1           | Hairpin-Cotter                         | 67          | 1-413049-01        | 1           | Plate, Clutch Pivot                         |
| 19          | 109-1297           | 1           | Asm, Deck (116-1682-01)<br>W/Decals    | 68          | 322-5              | 6           | Screw-HH 5/16-18 X 1                        |
| 20          | 323-4              | 2           | Screw-HH 3/8-16 X 3/4                  | 69          | 1-413207           | 2           | Pivot, Bearing                              |
| 21          | 1-633068           | 1           | Arm-Lift, Deck                         | 70          | 1-414418           | 1           | Asm, Clutch Arm<br>(1-412417-03) W/Bearings |
| 22          | 32128-20           | 11          | Nut-Whizlock 5/16-18                   | 71          | 1-413235           | 1           | Washer, Spacer                              |
| 23          | 1-303334           | 1           | Washer-Spring Disc 5/16                | 72          | 1-412138-03        | 1           | Wld, Pivot Pin                              |
| 25          | 103-2916           | 1           | Guard-Top                              | 73          | 322-3              | 3           | Screw-HH 5/16-18 X 3/4                      |
| 26          | 103-3505           | 1           | Seal-Double Lip                        | 74          | 1-413062           | 1           | Band, Brake                                 |
| 27          | 3256-3             | 2           | Washer-5/16 Std                        | 75          | 323-8              | 2           | Screw-HH 3/8-16 X 1 1/2                     |
| 29          | 3296-39            | 5           | Nut-Nyloc 3/8-16                       | 76          | 103-6310           | 1           | Wld, Belt Guide                             |
| 30          | 323-6              | 10          | Screw-HH 3/8-16 X 1                    | 77          | 1-412028           | 1           | Sheave W/Drum ●                             |
| 31          | 1-412082-01        | 2           | Mount, Wheel Motor (48&<br>52)         | 78          | 1-800521           | 1           | Screw-HH 3/8-24 X 1 ■                       |
| 32          | 323-6              | 8           | Screw-HH 3/8-16 X 1                    | 79          | 1-413009-01        | 1           | Plate, Guard                                |
| 33          | 1-602997           | 2           | Hub ASM W/Studs                        | 80          | 103-2056           | 1           | Shield-Drag                                 |
| 33:1        | 1-633926           | 8           | Stud-Wheel                             | 81          | 1-413510           | 2           | Clip-Loom                                   |
| 34          | 1-613263           | 2           | Wheel And Tire ASM                     | 82          | 1-413511           | 2           | Hanger, Drag Shield                         |
| 34:1        | 1-613264           | 2           | Tire-Turfmaster                        | 83          | 103-3442           | 1           | Battery, Cover (1-543891)<br>W/Decal        |
| 34:2        | 1-603715           | 2           | Wheel-Rim                              | 84          | 1-543792           | 2           | Wingnut-Nyloc 1/4-20                        |
| 35          | 242-50             | 8           | Nut-Lug 1/2-20                         | 85          | 1-413541           | 1           | Trim-Lok, 1/8 X 5                           |
| 36          | 32136-5            | 2           | Nut-Slotted 3/4-16                     | 86          | 103-1098           | 1           | Stand W/ Trim-Lok                           |
| 37          | 1-806800           | 2           | Pin-Cotter 9/64 X 1 1/2                | 87          | 1-543882           | 2           | Bolt, Hold Down                             |
| 38          | 1-807264           | 1           | Key-Machine 1/4 X 1/4 X 2<br>5/8       | 88          | 323-7              | 5           | Screw-HH 3/8-16 X 1 1/4                     |
| 39          | 103-6309           | 1           | Asm, Drive Sheave ●                    | 89          | 32120-10           | 2           | Ring-Retaining                              |
| 40          | 1-603609           | 1           | Bushing                                | 90          | 1-807019           | 2           | Key-Woodruff 1 X 1/4                        |
| 41          | 1-373034           | 2           | Washer                                 | 91          | 103-3504           | 2           | Bearing-Spherical                           |
| 42          | 1-603610           | 2           | Washer-Spring Disc 7/16                | 92          | 106-7159           | 2           | O-Ring                                      |
| 43          | 3212-10            | 1           | Screw-HH 7/16-20 X 2 1/2 ■             | 93          | 103-5677           | 1           | Spacer                                      |
| 44          | 3256-24            | 2           | Washer-3/8 Sae                         | 94          | 116-2839           | 2           | Nut-Lock                                    |
| 45          | 109-4077           | 1           | Pulley-Idler, Flat                     | 95          | 1-603044           | 1           | Bushing                                     |

● Apply anti-seize compound in bore.

■ Use Pro-Lock, Nut Type (P/N 1-840022, .5ml tube) on threads.

# Engine Deck Assembly (cont.)



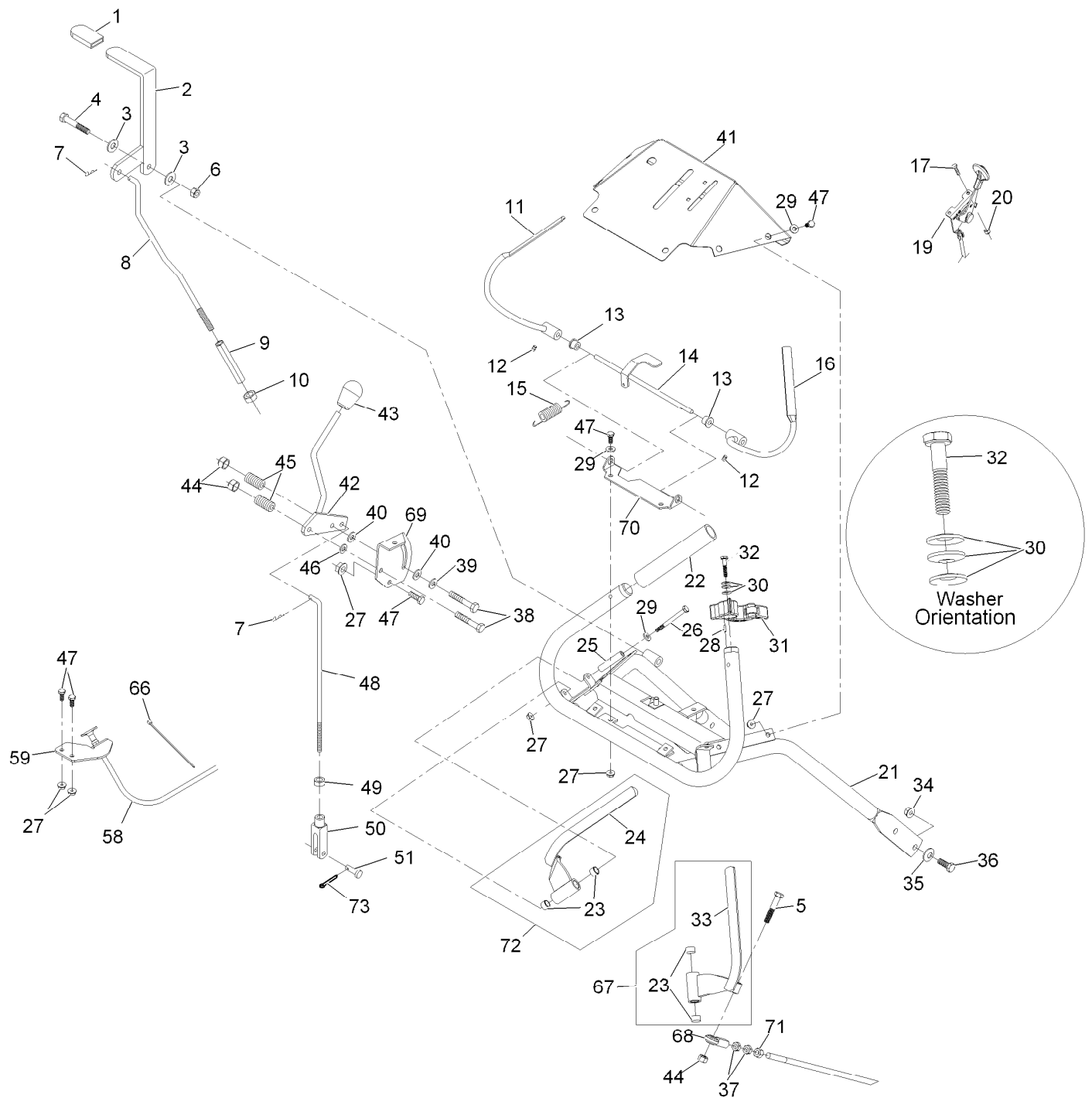
## Engine Deck Assembly (cont.) (continued)

| <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>              | <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>                        |
|-------------|--------------------|-------------|---------------------------------|-------------|--------------------|-------------|-------------------------------------------|
| 1           | 1-323245           | 1           | Spring-Compression              | 39          | 1-809056           | 2           | Screw-Sh 5/16-18 X 1 3/8 ■                |
| 2           | 32128-20           | 20          | Nut-Whizlock 5/16-18            | 40          | 3256-24            | 4           | Washer-3/8 Sae                            |
| 3           | 3296-29            | 2           | Nut-Nyloc 5/16-18               | 41          | 103-3060           | 1           | Knob-Tracking                             |
| 4           | 1-613089           | 2           | Tab-Spring, Extension           | 42          | 1-323161           | 1           | Spring                                    |
| 5           | 1-603693           | 2           | Spring                          | 43          | 103-2004-03        | 1           | Brake                                     |
| 6           | 110-4897-01        | 2           | Shield-Control                  | 44          | 109-0877           | 1           | Asm, Oil Drain W/Plug ●                   |
| 7           | 323-16             | 6           | Screw-HH 3/8-16 X 4             | 45          | 109-1012           | 1           | Plug                                      |
| 8           | 302-19             | 2           | Zerk-1/4-28 Str                 | 46          | 1-413492           | 1           | Linkage, Upper Brake                      |
| 9           | 322-3              | 4           | Screw-HH 5/16-18 X 3/4          | 47          | 323-16             | 1           | Screw-HH 3/8-16 X 4                       |
| 10          | 1-805005           | 4           | Washer-Lock 5/16 Heavy          | 48          | 3296-39            | 1           | Nut-Nyloc 3/8-16                          |
| 11          | 3256-2             | 6           | Washer-1/4 Std                  | 49          | 103-1148           | 2           | Rod, Drive Lever                          |
| 12          | 3290-357           | 15          | Nut-Whizlock 3/8-16             | 50          | 323-8              | 2           | Screw-HH 3/8-16 X 1 1/2                   |
| 13          | 1-323195-01        | 4           | Spacer-Shield                   | 51          | 103-1167           | 2           | Joint-Ball End, .38X.38Fe LH              |
| 14          | 1-633102           | 2           | Bearing-Flanged                 | 52          | 103-1166           | 2           | Spacer-Tube, Pump Link                    |
| 15          | 1-323197-01        | 4           | Spacer-Shield                   | 53          | 114-3549           | 4           | Nut-M8                                    |
| 16          | 1-603737           | 2           | Bolt-Neutral Return             | 54          | 323-23             | 1           | Screw-HH 3/8-16 X 4-1/2                   |
| 17          | 103-0265           | 2           | Spring, Neutral Return          | 55          | 1-303020           | 1           | Grip-Lever                                |
| 18          | 1-603735           | 2           | Bushing-Flanged                 | 56          | 323-9              | 2           | Screw-HH 3/8-16 X 1 3/4                   |
| 19          | 3219-2             | 7           | Nut-Hex 5/16-24                 | 57          | 323-4              | 3           | Screw-HH 3/8-16 X 3/4                     |
| 20          | 1-303105           | 2           | Yoke-Adjustable                 | 58          | 103-3495           | 1           | Lever, Brake (1-412501-03) W/Decal & Grip |
| 21          | 1-808280           | 2           | Pin-Clevis 5/16 X 1 49/64       | 59          | 1-414504           | 1           | Bracket ASM                               |
| 22          | 1-806003           | 5           | Hairpin-Cotter                  | 60          | 1-413347           | 2           | Sleeve-Bushing                            |
| 23          | 3220-2             | 2           | Nut-Jam 5/16-24                 | 61          | 1-413344           | 1           | Bushing-Pivot                             |
| 24          | 1-413350           | 2           | Link-Control, Speed             | 62          | 323-10             | 1           | Screw-HH 3/8-16 X 2                       |
| 25          | 1-412203-01        | 1           | Crank-Control, Speed            | 63          | 1-414508           | 1           | Bellcrank ASM                             |
| 26          | 1-633131           | 1           | Yoke-Linkage, Brake             | 64          | 1-303548           | 1           | Bushing-Plastic                           |
| 27          | 3256-23            | 7           | Washer-5/16 Sae                 | 65          | 32128-21           | 1           | Nut-3/8-16 Flanged Side Lock              |
| 28          | 1-603676           | 2           | Swivel-Adjustable, Short        | 66          | 103-2399           | 1           | Pin-Clevis Spring 3/8                     |
| 29          | 1-800016           | 2           | Bolt-HH 5/16-18 X 1 1/4 Tap     | 67          | 3218-2             | 2           | Nut-Jam 5/16-18                           |
| 30          | 1-413489           | 1           | Linkage-Lower                   | 68          | 1-643312           | 1           | Clip-Loom                                 |
| 31          | 1-803022           | 2           | Setscrew-5/16-18 X 5/8 ■        | 69          | 116-4397           | 1           | Muffler                                   |
| 32          | 103-1190-01        | 1           | Shaft-Control, LH               | 70          | 1-653313           | 2           | Gasket-Exhaust                            |
| 33          | 103-4796-01        | 1           | Shaft-Control, RH               | 71          | 114-3550           | 4           | Washer-Lock, Spring                       |
| 34          | 3218-3             | 1           | Nut-Jam 3/8-16                  | 72          | 116-5052           | 1           | Asm-Oil Drain Hose W/Plug ●               |
| 35          | 116-3515           | 3           | Screw,HH Special 5/16-18 X 1.25 | 73          | 353-508            | 1           | Plug-W/O-Ring                             |
| 36          | 3272-5             | 2           | Pin-Cotter 3/32 X 1/2           | 74          | 237-42             | 1           | O-Ring                                    |
| 37          | 1-603903           | 1           | Spacer                          |             |                    |             |                                           |
| 38          | 1-403180           | 2           | Screw-HH 5/16-18 X 1 1/4 Sp     |             |                    |             |                                           |

● Use a Teflon Pipe Sealant or equivalent on threads.

■ Use Pro-Lock, Nut Type (P/N 1-840022, .5ml tube) on threads.

# ECS Upper Handles and Controls Assembly

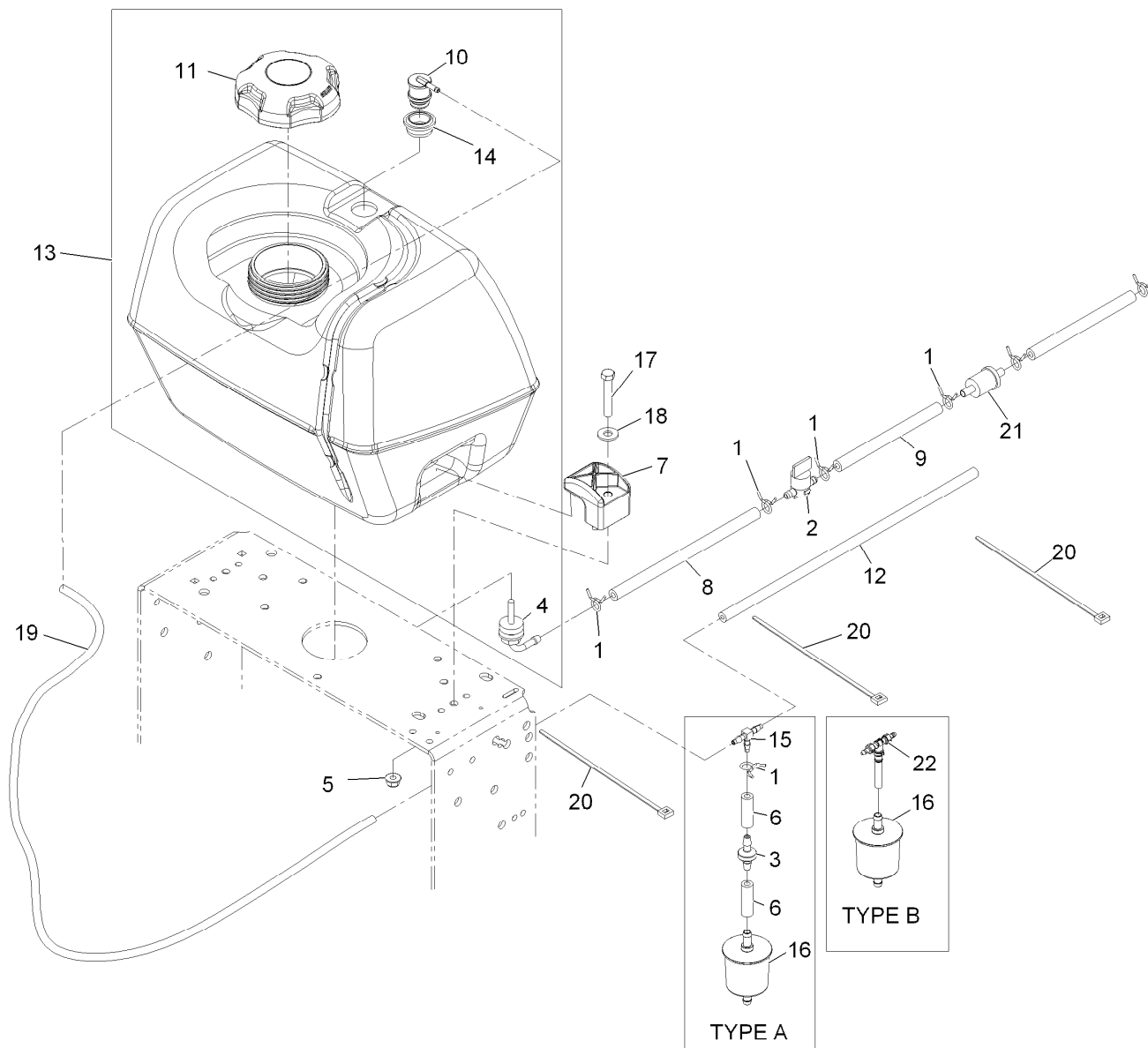


# ECS Upper Handles and Controls Assembly (continued)

| Ref. | Part Number | Qty. | Description                     | Ref. | Part Number | Qty. | Description                         |
|------|-------------|------|---------------------------------|------|-------------|------|-------------------------------------|
| 1    | 1-303020    | 1    | Grip-Lever                      | 32   | 103-0235    | 2    | Screw-HH 1/4-20 X 1 1/8 W/Nylon ●   |
| 2    | 1-414234    | 1    | Asm, Lever (1-412295-03) W/Grip | 33   | 116-4082-03 | 1    | Lever, Drive RH                     |
| 3    | 3256-4      | 2    | Washer-3/8 Std                  | 34   | 3290-357    | 4    | Nut-Whizlock 3/8-16                 |
| 4    | 323-11      | 1    | Screw-HH 3/8-16 X 2 1/4         | 35   | 98-5975     | 4    | Washer-Spring Disc 3/8              |
| 5    | 322-9       | 2    | Screw-HH 5/16-18 X 1 3/4        | 36   | 323-6       | 4    | Screw-HH 3/8-16 X 1                 |
| 6    | 3296-39     | 1    | Nut-Nyloc 3/8-16                | 37   | 3220-3      | 4    | Nut-Jam 3/8-24                      |
| 7    | 1-806003    | 2    | Hairpin-Cotter                  | 38   | 322-10      | 4    | Screw-HH 5/16-18 X 2                |
| 8    | 103-1149    | 1    | Link, Blade Engagement          | 39   | 1-603716    | 1    | Washer-Friction Disc                |
| 9    | 1-413279    | 1    | Turnbuckle                      | 40   | 1-323244    | 2    | Washer-Friction                     |
| 10   | 3217-7      | 1    | Nut-Hex 3/8-16                  | 41   | 109-4650    | 1    | Asm, Console (109-4649-03)W/ Decals |
| 11   | 116-4079    | 1    | Wld, Lever, Opc (LH) ■          | 42   | 116-4083    | 1    | Wld, Speed Shift                    |
| 12   | 1-803322    | 2    | Setscrew-5/16-24 X 5/16 ●       | 43   | 103-0423    | 1    | Knob-Nyloc 3/8-16                   |
| 13   | 1-303365    | 2    | Bushing-Nylon                   | 44   | 3296-29     | 4    | Nut-Nyloc 5/16-18                   |
| 14   | 103-0769-03 | 1    | Wld, Opc Axle Lever             | 45   | 1-323245    | 2    | Spring-Compression                  |
| 15   | 1-303363    | 1    | Spring-Extension                | 46   | 3256-23     | 1    | Washer-5/16 Sae                     |
| 16   | 116-4080    | 1    | Wld, Opc Lever (RH) ■           | 47   | 321-3       | 12   | Screw-HH 1/4-20 X 5/8               |
| 17   | 1-807513    | 2    | Bolt-Carriage #10-24 X 1/2      | 48   | 1-413225    | 1    | Rod, Speed Control                  |
| 19   | 116-2426    | 1    | Cable, Throttle                 | 49   | 3220-2      | 1    | Nut-Jam 5/16-24                     |
| 20   | 3296-2      | 2    | Nut-Nyloc #10-24                | 50   | 1-303105    | 1    | Yoke-Adjustable                     |
| 21   | 103-0770-03 | 1    | Wld, Handle                     | 51   | 1-808280    | 1    | Pin-Clevis 5/16 X 1 49/64           |
| 22   | 103-0815    | 2    | Grip-Bar, Handle                | 58   | 103-1796    | 1    | Cable-Choke                         |
| 23   | 1-413152    | 4    | Bushing-Sleeve                  | 59   | 103-1797-01 | 1    | Bracket-Cable, Choke                |
| 24   | 116-4081-03 | 1    | Lever, Drive LH                 | 66   | 1-303287    | 1    | Tie-Cable 5 1/2 (Small)             |
| 25   | 103-0027    | 2    | Bushing-Lever, Drive            | 67   | 103-2513    | 1    | Asm, Drive Lever RH                 |
| 26   | 321-14      | 2    | Screw-HH 1/4-20 X 2 3/4         | 68   | 103-2463    | 2    | Balljoint                           |
| 27   | 32128-33    | 14   | Nut-Whizlock 1/4-20             | 69   | 103-0503    | 1    | Bracket, Shifter Slide              |
| 28   | 103-0464    | 2    | Pin-Spring 1/8 X 1/2            | 70   | 103-0489-03 | 1    | Bracket, Opc Axle                   |
| 29   | 3256-22     | 10   | Washer-1/4 Sae                  | 71   | 3219-3      | 2    | Nut-Hex 3/8-24                      |
| 30   | 1-303435    | 6    | Washer-Spring Disc 1/4          | 72   | 103-2514    | 1    | Asm, Drive Lever LH                 |
| 31   | 103-1371    | 1    | Thumb Latch Asm RH(Shown)       | 73   | 3272-5      | 1    | Pin-Cotter 3/32 X 1/2               |
| 31   | 103-1372    | 1    | Thumb Latch Asm LH(Not Shown)   |      |             |      |                                     |

● Use Pro-Lock, Nut Type (P/N 1-840022, .5ml tube) on threads.

■ Use Pro-Lock retaining type, Part no. 1-840023 (.5cc tube) on inside of bore of OPC hub.



## Fuel Tank Assembly

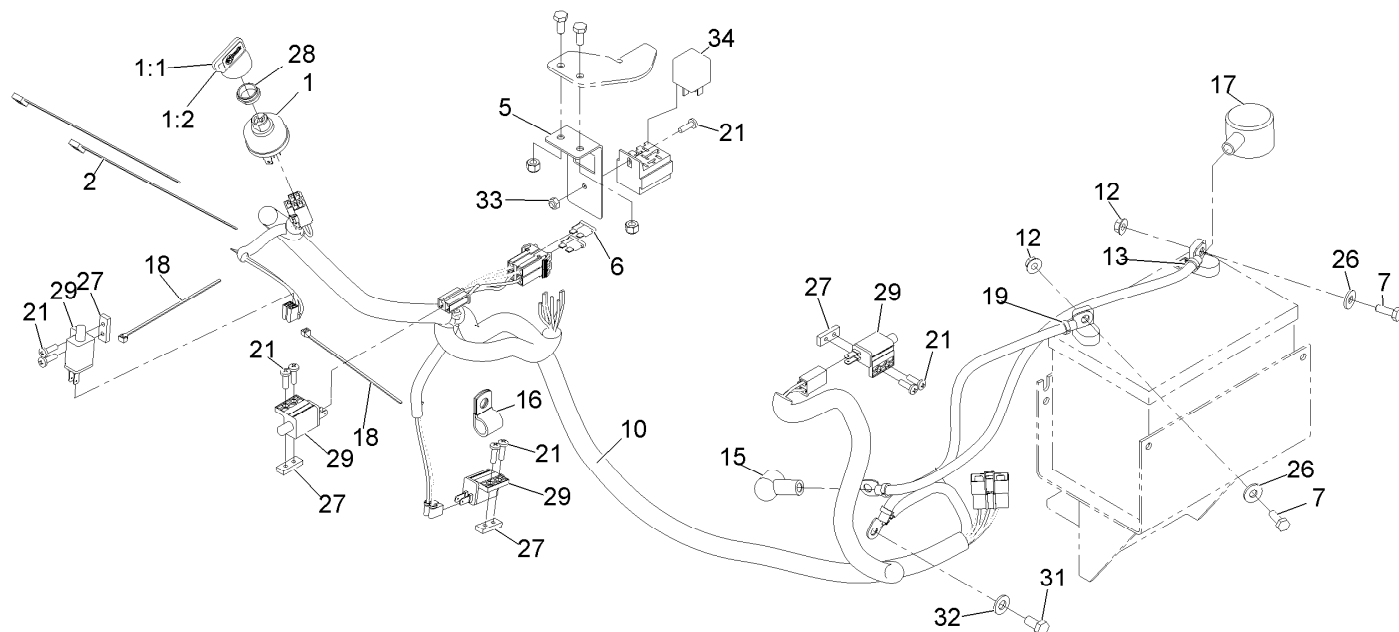
| Ref. | Part Number | Qty. | Description                        |
|------|-------------|------|------------------------------------|
| 1    | 2412-98     | 5    | Clamp-Hose                         |
| 1    | 2412-98     | 4    | Clamp-Hose                         |
| 2    | 1-603770    | 1    | Valve-Fuel                         |
| 3    | 99-5000     | 1    | Valve-Check, Fuel                  |
| 4    | 103-2605    | 1    | Fitting-Fuel Bulkhead W/Strainer ▲ |
| 5    | 104-8300    | 2    | Nut-Nyloc 5/16-18 Flg              |
| 6    | 106-9492    | 2    | Hose-Fuel                          |
| 7    | 107-4543    | 2    | Clamp                              |
| 8    | 109-0650    | 1    | Hose-Fuel                          |
| 9    | 99-9415     | 1    | Hose-Fuel                          |
| 10   | 114-0285    | 1    | Valve-Rollover                     |
| 11   | 120-5461    | 1    | Cap-Fuel, Ratcheting               |

| Ref. | Part Number | Qty. | Description                             |
|------|-------------|------|-----------------------------------------|
| 12   | 115-7872    | 1    | Hose-Fuel                               |
| 13   | 116-3656    | 1    | Asm-Fuel Tank                           |
| 14   | 114-0284    | 1    | Grommet                                 |
| 15   | 120-2234    | 1    | Fitting-Tee                             |
| 16   | 120-2235    | 1    | Filter-Air                              |
| 17   | 322-10      | 2    | Screw-HH 5/16-18 X 2                    |
| 18   | 3256-3      | 2    | Washer-5/16 Std                         |
| 19   | 116-4346    | 1    | Hose-Emissions                          |
| 20   | 1-303335    | 3    | Tie-Cable 7 15/16 (Large)               |
| 21   |             | 1    | Pn 41019-1055 Filter W/6In Fuel Line ■● |
| 22   | 116-5464    | 1    | Asm-Tee And Check                       |

● Not serviced separately

▲ Use Pro-Lock, Nut Type (P/N 1-840022, .5ml tube) on threads.

■ Obtain parts from [www.kawpowerepc.com](http://www.kawpowerepc.com)



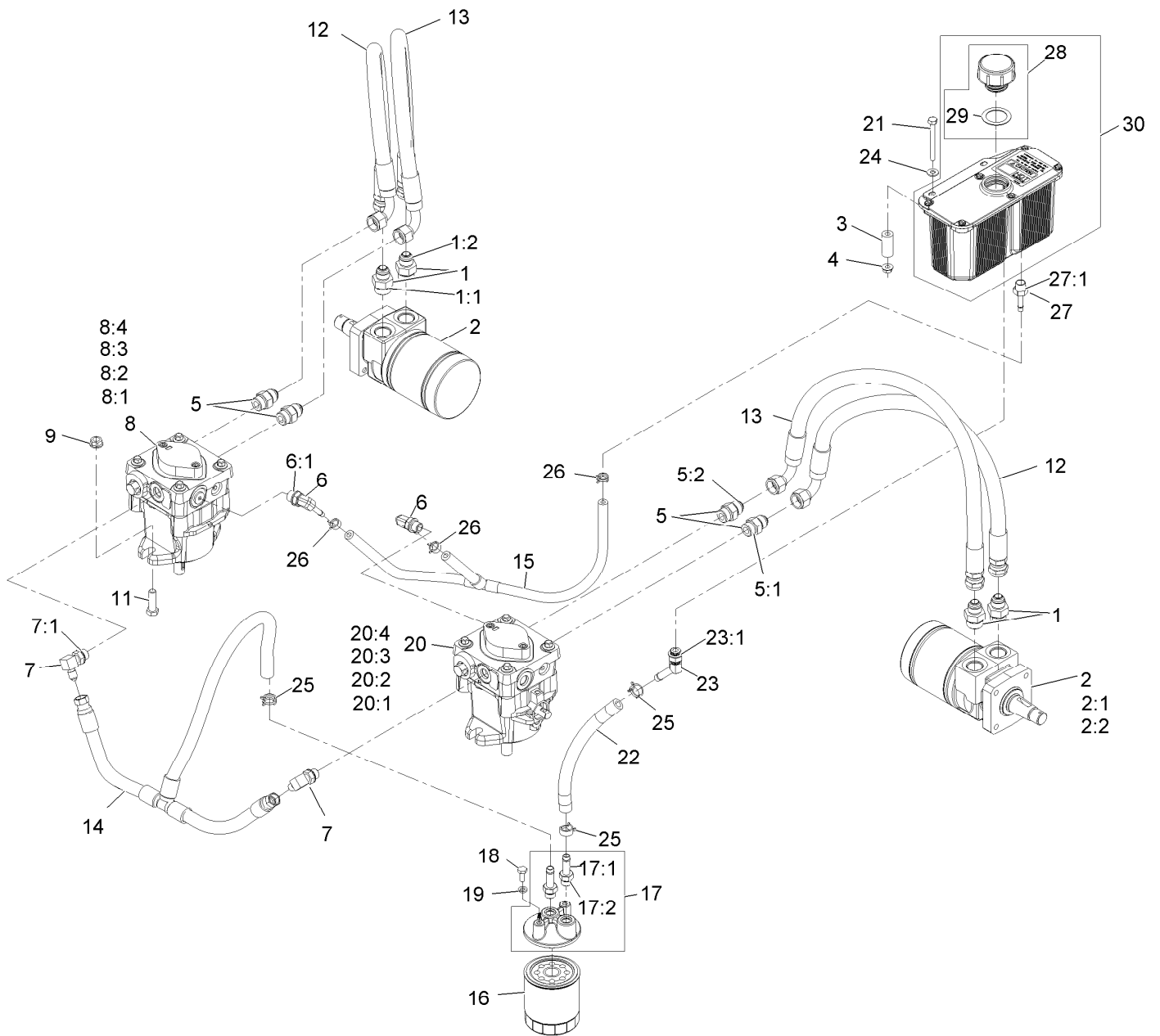
## Electrical Assembly

| Ref. | Part Number | Qty. | Description               |
|------|-------------|------|---------------------------|
| 1    | 103-0206    | 1    | Switch-Ignition W/Keys    |
| 1:1  | 1-603511    | 1    | Key-Ignition              |
| 1:2  | 103-2106    | 1    | Key-Exmark Logo           |
| 2    | 1-303335    | 2    | Tie-Cable 7 15/16 (Large) |
| 5    | 116-2738-01 | 1    | Bracket, Fuse             |
| 6    | 1-816001    | 2    | Fuse-Blade Type, 20 Amp   |
| 7    | 321-4       | 5    | Screw-HH 1/4-20 X 3/4     |
| 10   | 116-2560    | 1    | Harness, Wiring ●         |
| 12   | 32128-33    | 2    | Nut-Whizlock 1/4-20       |
| 13   | 109-7628    | 1    | Cable, Battery +          |
| 15   | 1-543393    | 1    | Insulator-Solenoid        |
| 16   | 1-603727    | 1    | Clip-Loom                 |

| Ref. | Part Number | Qty. | Description             |
|------|-------------|------|-------------------------|
| 17   | 109-2407    | 1    | Insulator-Battery       |
| 18   | 1-303287    | 2    | Tie-Cable 5 1/2 (Small) |
| 19   | 1-413540    | 1    | Cable-Battery, Negative |
| 21   | 3290-500    | 9    | Screw-PPH #10-24 X 5/8  |
| 26   | 3256-2      | 2    | Washer-1/4 Std          |
| 27   | 1-633181    | 4    | Plate-Tapped            |
| 28   | 103-0498    | 1    | Nut-Ignition            |
| 29   | 1-513051    | 4    | Switch-N.O.             |
| 31   | 33114-016   | 1    | Screw-HH M8-1.25 X 16Mm |
| 32   | 33094-00    | 1    | Washer                  |
| 33   | 3296-2      | 1    | Nut-Nyloc #10-24        |
| 34   | 1-643275    | 1    | Relay-12Vdc 40 Amp      |

● Use dielectric grease on all wiring harness connectors.

# Hydraulic Assembly

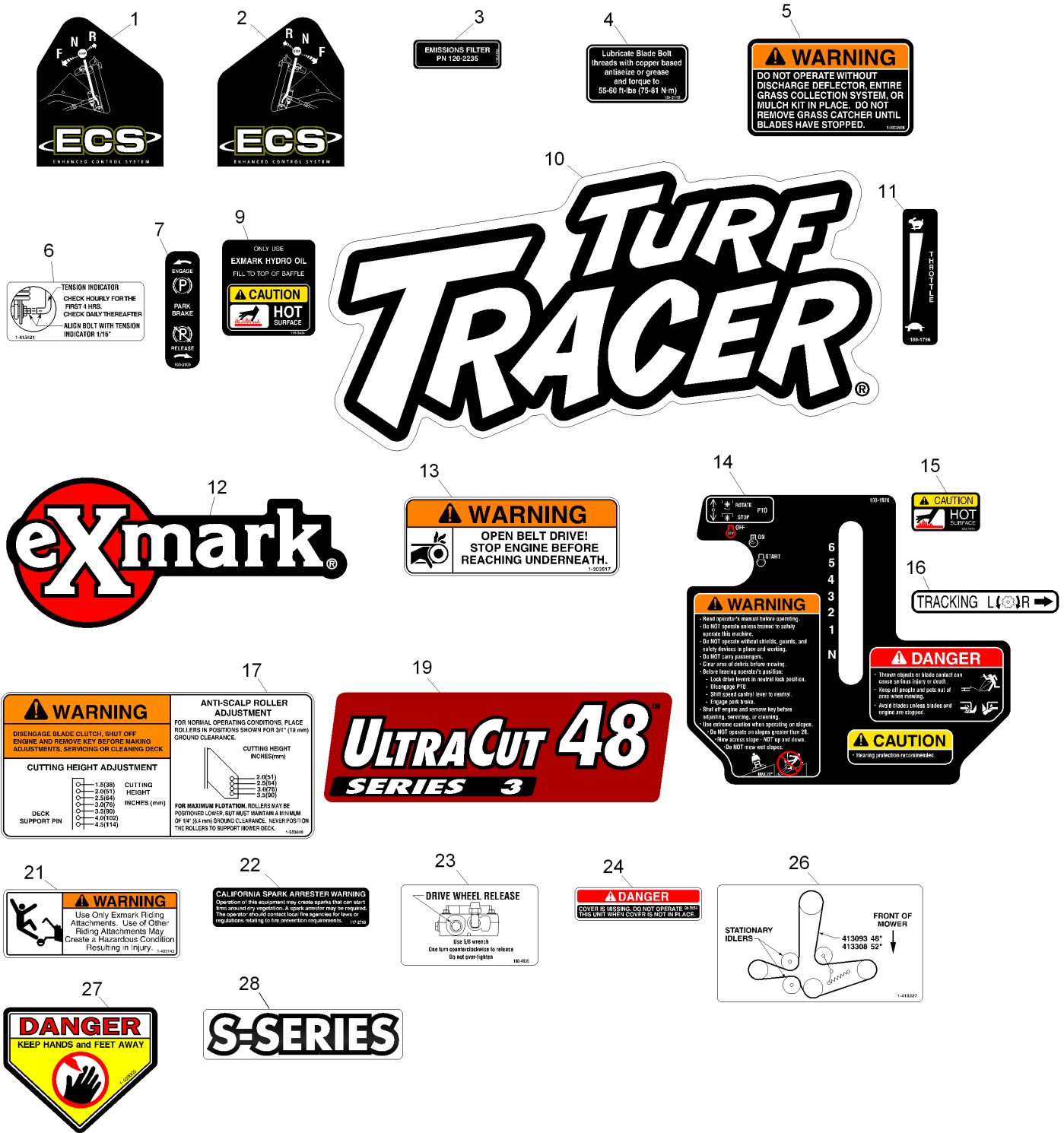


## Hydraulic Assembly (continued)

| <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>      | <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>            |
|-------------|--------------------|-------------|-------------------------|-------------|--------------------|-------------|-------------------------------|
| 1           | 1-603991           | 4           | Adapter-Straight        | 16          | 109-4180           | 1           | Filter,25 Micron              |
| 1:1         | 1-603919           | 1           | O-Ring-Sae #10          |             |                    |             | Bi-Directional                |
| 1:2         | 1-603992           | 1           | O-Ring-37 Flare #8      | 16          | 1-523541           | 1           | Element, Oil Filter(Winter) ● |
| 2           | 1-603718           | 2           | HYD Motor ASM           | 17          | 103-2889           | 1           | Filter Head ASM               |
| 2:1         | 1-000138           | 1           | Bearing And Seal Kit    | 17:1        | 103-1912           | 2           | Adapter-Straight              |
| 2:2         | 1-000119           | 1           | Seal Kit                | 17:2        | 1-603921           | 1           | O-Ring-Sae #6                 |
| 3           | 103-2191           | 2           | Spacer                  | 18          | 321-3              | 2           | Screw-HH 1/4-20 X 5/8         |
| 4           | 32128-33           | 2           | Nut-Whizlock 1/4-20     | 19          | 1-805004           | 2           | Washer-Lock 1/4 Heavy         |
| 5           | 1-603990           | 4           | Adapter-Straight        | 20          | 116-0943           | 1           | RH HYD Pump ASM               |
| 5:1         | 1-603920           | 1           | O-Ring-Sae #8           | 20:1        | 103-2664           | 1           | Input Shaft Kit               |
| 5:2         | 1-603992           | 1           | O-Ring-37 Flare #8      | 20:2        | 94-6922            | 1           | Bearing-Thrust                |
| 6           | 103-1799           | 2           | Elbow-90 DEG            | 20:3        | 103-2666           | 1           | Cylinder Block Kit            |
| 6:1         | 1-603921           | 1           | O-Ring-Sae #6           | 20:4        | 105-6184           | 1           | Seal Overhaul Kit             |
| 7           | 103-1802           | 2           | Fitting-HYD, 90 DEG     | 21          | 321-15             | 2           | Screw-HH                      |
| 7:1         | 1-603921           | 1           | O-Ring-Sae #6           | 22          | 103-2959           | 1           | Hose-Charge                   |
| 8           | 116-0942           | 1           | LH HYD Pump ASM         | 23          | 103-1807           | 1           | Fitting-Barbed, 45 DEG        |
| 8:1         | 103-2664           | 1           | Input Shaft Kit         | 23:1        | 1-603921           | 1           | O-Ring-Sae #6                 |
| 8:2         | 94-6922            | 1           | Bearing-Thrust          | 24          | 3256-22            | 2           | Washer-1/4 Sae                |
| 8:3         | 103-2666           | 1           | Cylinder Block Kit      | 25          | 103-1988           | 3           | Clamp-Hose 11/16              |
| 8:4         | 105-6184           | 1           | Seal Overhaul Kit       | 26          | 103-1716           | 3           | Clamp-Hose 17/32              |
| 9           | 32128-43           | 4           | Nut-Whizlock 3/8-16     | 27          | 103-1801           | 1           | Adapter-Straight              |
| 11          | 323-7              | 4           | Screw-HH 3/8-16 X 1 1/4 | 27:1        | 1-603921           | 1           | O-Ring-Sae #6                 |
| 12          | 1-613034           | 2           | Hose-Pressure, High     | 28          | 103-7615           | 1           | Asm, Cap W/Gasket             |
| 13          | 1-323241           | 2           | Hose-Pressure, High     | 29          | 103-1949           | 1           | Gasket-Cap                    |
| 14          | 116-2123           | 1           | Charge Hose ASM         | 30          | 103-1947           | 1           | HYD Reservoir ASM             |
| 15          | 116-0918           | 1           | Case Drain Hose ASM     |             |                    |             |                               |

● Use only for operation below 32°F (0°C).

# Decals



## Decals (continued)

| <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>        | <i>Ref.</i> | <i>Part Number</i> | <i>Qty.</i> | <i>Description</i>         |
|-------------|--------------------|-------------|---------------------------|-------------|--------------------|-------------|----------------------------|
| 1           | 103-2242           | 1           | Decal, LH Ecs Instruction | 15          | 103-2076           | 2           | Decal-Caution              |
| 2           | 103-2243           | 1           | Decal, RH Ecs Instruction | 16          | 1-413214           | 1           | Decal, Tracking            |
| 3           | 116-4769           | 1           | Decal-Filter, Emissions   | 17          | 1-553049           | 1           | Decal-Anti Scalp           |
| 4           | 109-3148           | 1           | Decal,Bolt Torque         | 19          | 116-4697           | 1           | Decal-Ultracut 48 Series 3 |
| 5           | 1-303508           | 1           | Decal-Warning, Discharge  | 21          | 1-403143           | 1           | Decal, Sully Warning       |
| 6           | 1-413421           | 1           | Decal, Indicator          | 22          | 117-2718           | 1           | Decal-Arrester, Spark      |
| 7           | 103-2103           | 1           | Decal-Brake, Park         | 23          | 103-4935           | 1           | Decal, Drive Wheel Release |
| 9           | 116-0404           | 1           | Decal-Hydraulic Tank      | 24          | 98-5954            | 3           | Decal-Cover, Missing       |
| 10          | 103-3013           | 1           | Decal-Turf Tracer         | 26          | 1-413327           | 1           | Decal, Belt Routing        |
| 11          | 103-1798           | 1           | Decal, Throttle           | 27          | 1-403005           | 2           | Decal-Danger               |
| 12          | 103-2882           | 1           | Decal,Exmark Logo         | 28          | 116-3884           | 2           | Decal-S-Series             |
| 13          | 1-303517           | 1           | Decal,Belt Drive          | 99          | 103-2461           | 1           | Decal Kit ●                |
| 14          | 103-1976           | 1           | Decal, Ecs Console        |             |                    |             |                            |

● Not illustrated

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| MICRO-MULCH SYSTEM                 | ULTRA VAC QUICK DISPOSAL SYSTEM    |

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| HITCH KIT                          | TRASH CONTAINER                 |
| LIGHT KIT                          | ULTRA VAC COLLECTION SYSTEM     |
| MICRO-MULCH SYSTEM                 | ULTRA VAC QUICK DISPOSAL SYSTEM |
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