

Instruction Sheet

Kit Number: 89100900

GRAVELY HD / ARIENS APEX ROLLOVER PROTECTION STRUCTURE (ROPS) KIT



WARNING: FAILURE TO FOLLOW INSTRUCTIONS could result in personal injury and / or damage to unit.

IMPORTANT: Save these instructions for future reference.

PACKAGE CONTENTS

Check the contents of your kit for the parts listed below. Also see Figure 1.

Item	Description	Qty	Ariens P/N
1	Lower ROPS Tube	2	05085200
2	ROPS Hoop	1	05021600
3	Right-side Support Bracket	1	05116451
4	Left-side Support Bracket	1	05116551
5	Transmission Disconnect Decal	2	03271900
6	1/2-13 x 3" Hex Bolt	4	05959900
7	Anti-Vibration Bumper	4	04884200
8	5/16 x 2 9/16" Pin With Groove	4	06800127
9	5/16" E-Ring	4	05700222
10	1/2-13 x 3 1/4" Hex Bolt	2	05960000
11	1/2-13" Center-Lock Flange Nut	6	06530008
12	ROPS Lock Pin With Lanyard	2	04898200
13	1/4-20 x 1/2" Hex Washer-head Screw	3	07400034
14	Seat Latch Assembly	1	N/A
15	5/16-18 x 3/4" Round Head Square Neck Bolt	2	06215700
16	5/16-18" Nylon Locking Flange Nut	2	06545400
17	Latch Receiver	1	05118451
18	1/2" ID Routing Clip	1	00367900
19	Seat Belt Assembly	1	59110000
20	1 x 1/4" Flat Steel Washer	2	06400922
21	5/16-18 x 1 1/2" Button-head Screw	4	05901727
22	7/8" Flat Steel Washer	4	06435700
23	7/8" Flange Bushing	4	05501127
24	Seat Hook Mounting Bracket	1	05118851
25	1/2" Polyliner Split Bushing	2	05500026

Item	Description	Qty	Ariens P/N
26	1/4-20 x 1 1/4" Hex Bolt	2	05947400
27	1/4-20" Locking Flange Nut	2	06530100
28	1/4-20" Nylon Locking Flange Nut	2	06500012
29	Tension Spring	2	08314100
30	Seat Latch Release Lever	1	05118751
31	5/16" Flat Steel Washer	1	06435800
32	Hair Pin	2	06701000
33	Seat Latch	1	05118651
34	Seat-release Decal	1	07800221
35	Seat Plate*	*	04995651

* One seat plate must be ordered for some models. See *Models That Require New Seat Plate on page 9.*

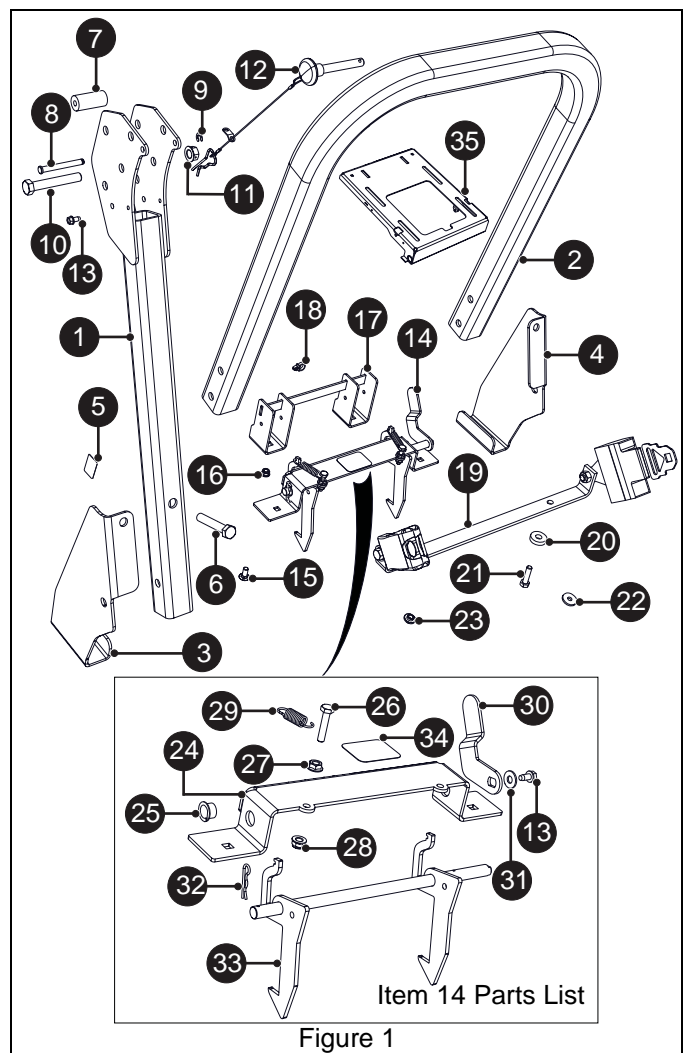
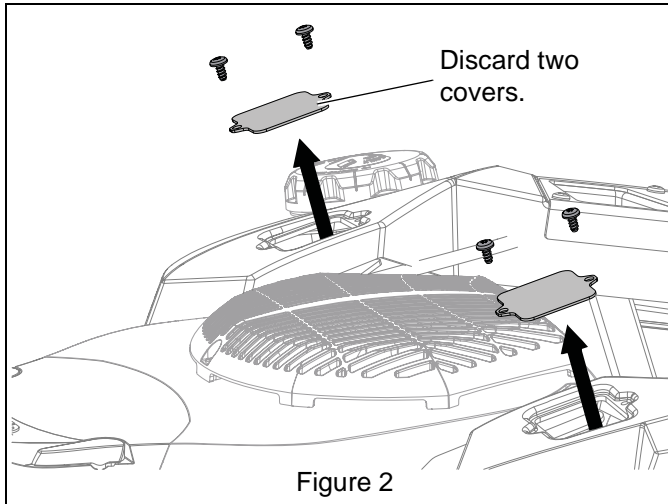


Figure 1

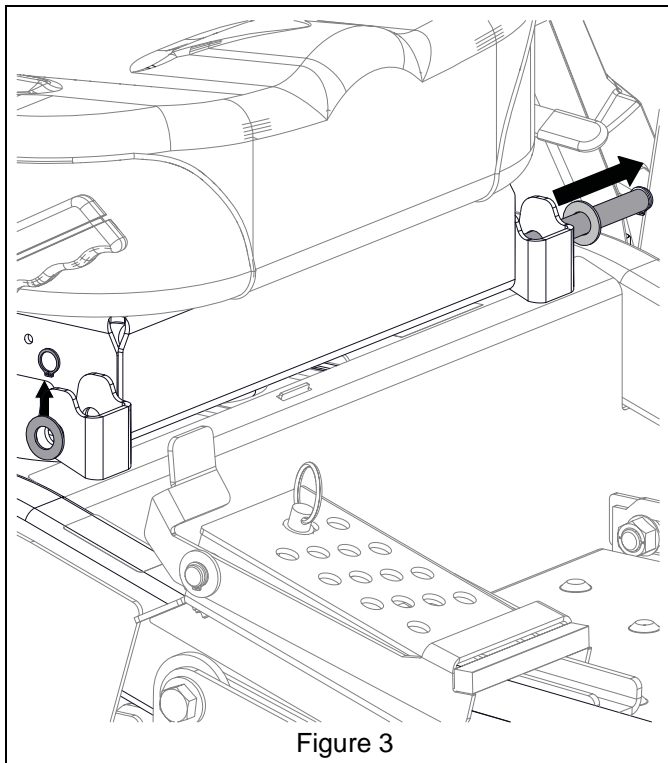
NOTICE: Gravely HD model shown. Ariens Apex models are similar.

REMOVAL

1. Stop engine, remove key and engage parking brake. Wait for moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wires.
3. Remove four screws retaining ROPS pocket covers and remove covers. Discard covers; reinstall screws for better appearance. See Figure 2.

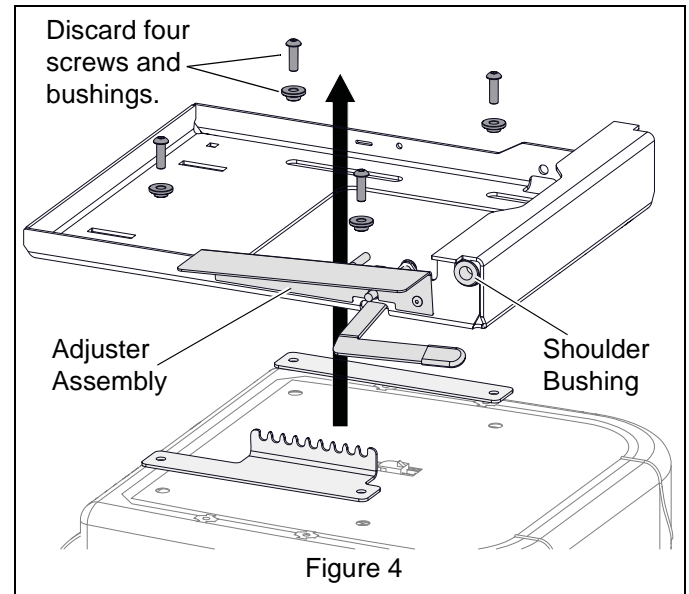


4. Tilt seat forward and disconnect seat switch. Return seat to operating position.
5. Remove one C-clip retaining seat pivot rod and remove pivot rod and washers. Retain all parts. See Figure 3. Remove seat assembly.



6. Position seat with the seat plate facing upward on cardboard or shop towels to help prevent damage to seat material.
7. Remove four button-head socket screws and four flange bushings retaining seat plate assembly. Discard socket screws and flange bushings; save all other parts. See Figure 4.

NOTICE: If kit required ordering a seat plate (item 35), transfer adjuster assembly and two shoulder bushings to new seat plate. Discard old seat plate.

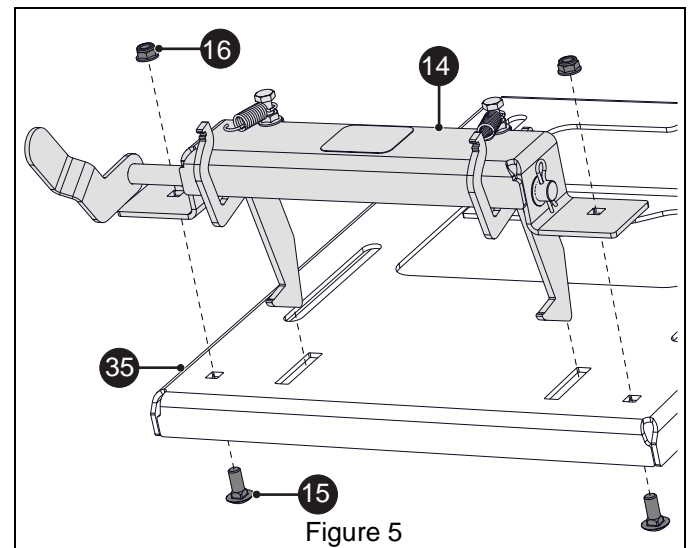


INSTALLATION

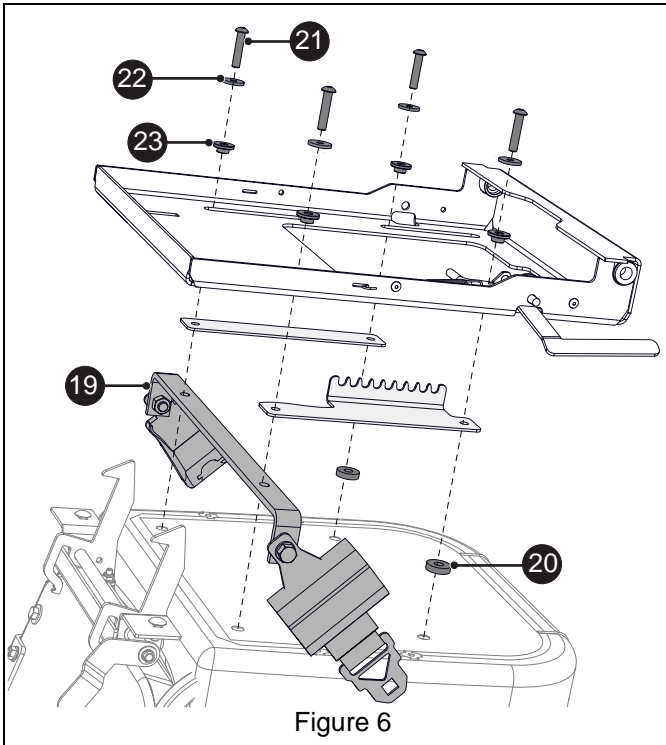
Install Seat Latch and Seat Belt Assemblies

1. Attach seat latch assembly (item 14) to seat plate (item 35) with two 5/16 x 3/4" round head square neck bolts (item 15) and two 5/16" nylon locking flange nuts (item 16). See Figure 5.

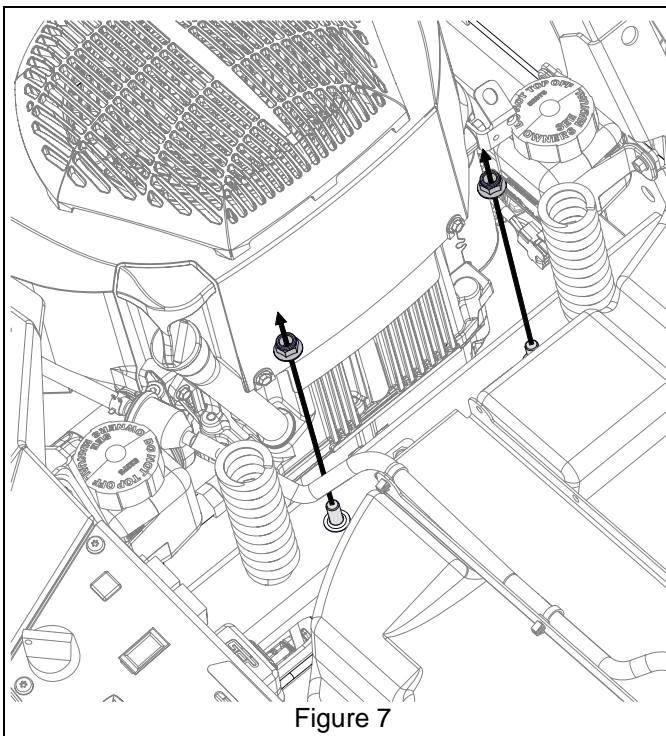
IMPORTANT: Bolts MUST be installed with bolt heads on the bottom.



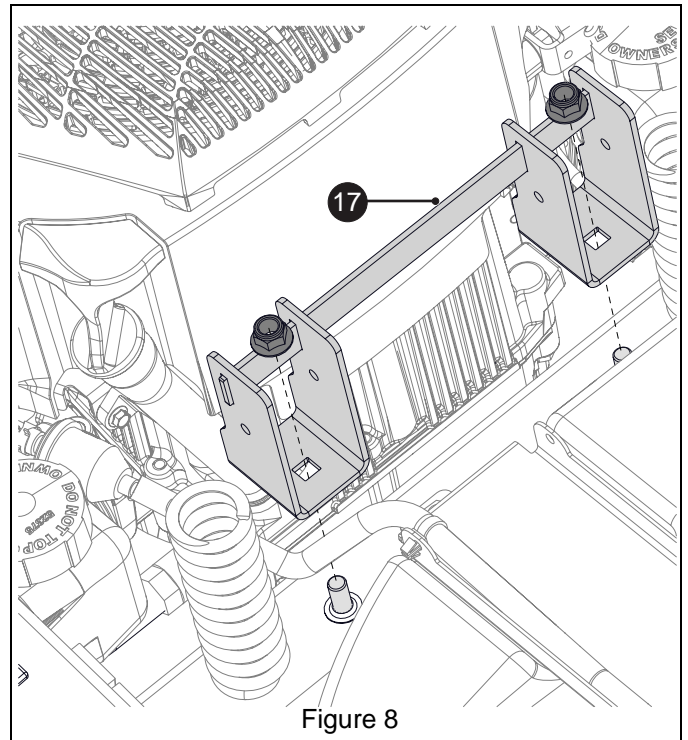
- Position seat belt assembly (item 19) onto rear seat bottom. Position 1/4" flat washers (item 20) onto front seat bottom. Position seat adjustment plates and seat plate onto seat. Secure all parts with four 7/8" flat steel washers (item 22), four 7/8" flange bushings (item 23) and four 5/16 x 1 1/2" button-head screws (item 21). See Figure 6.



- Remove and retain two 3/8" locking nuts from crossmember in front of engine. See Figure 7.

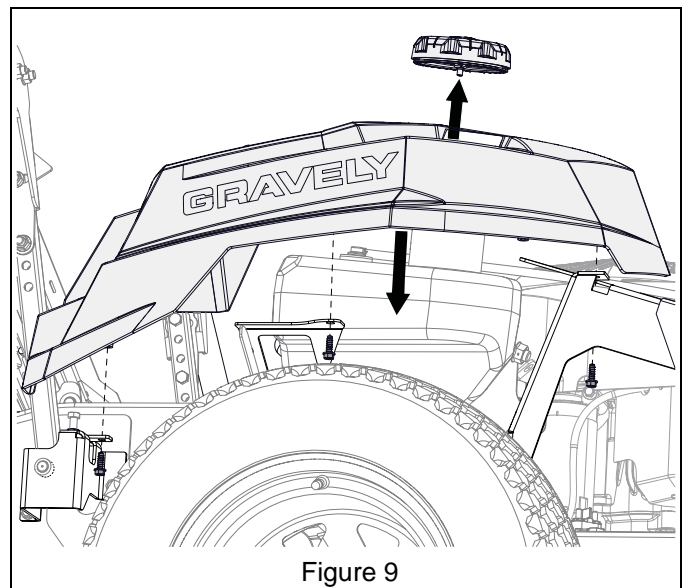


- Install latch receiver (item 17) onto crossmember and retain with two 3/8" locking hex nuts removed in step 3. Ensure that cutout in receiver faces the engine. See Figure 8.

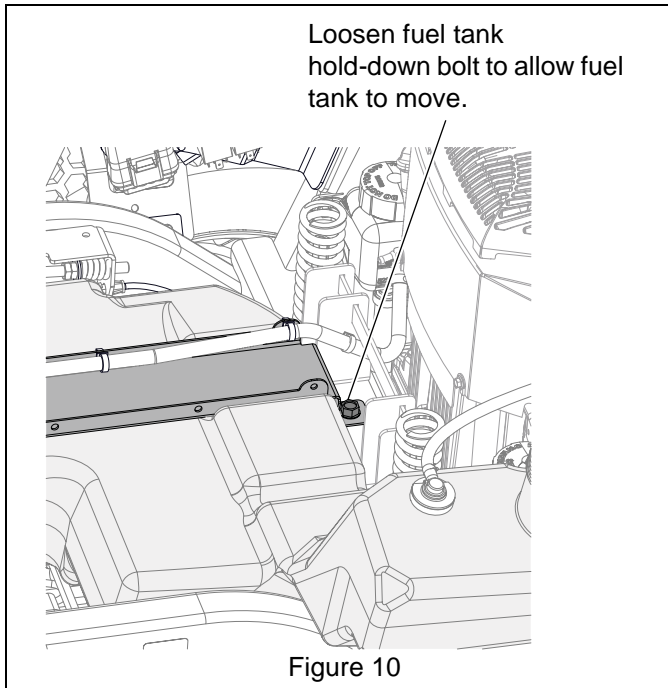


Install ROPS Tubes

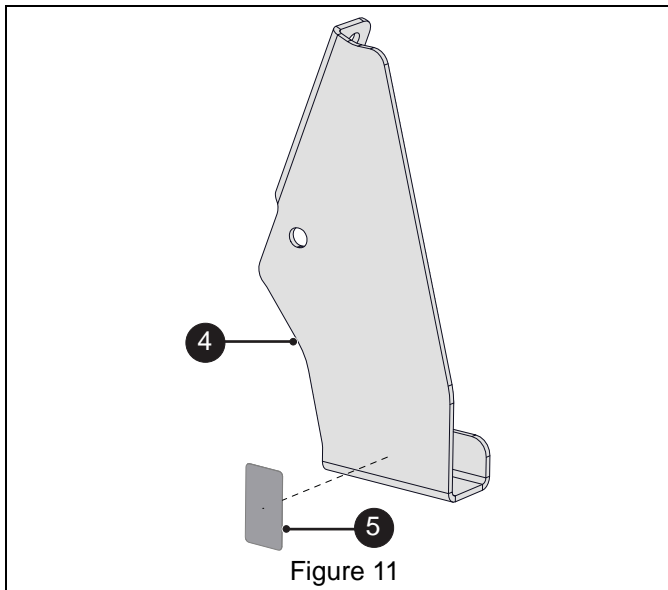
- Remove fuel cap.
- Remove three plastic hex screws retaining left fender and remove fender. See Figure 9.



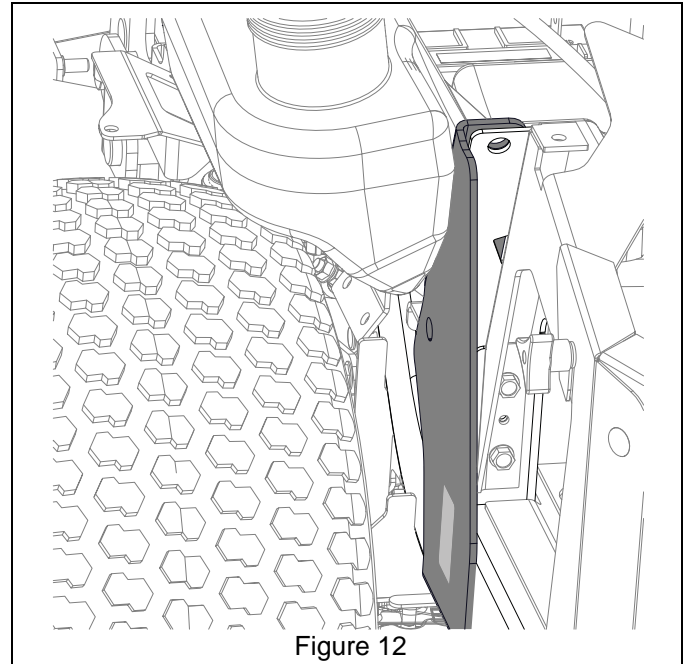
- Loosen the rear fuel tank strap mounting bolt to allow some fuel tank movement. See Figure 10.



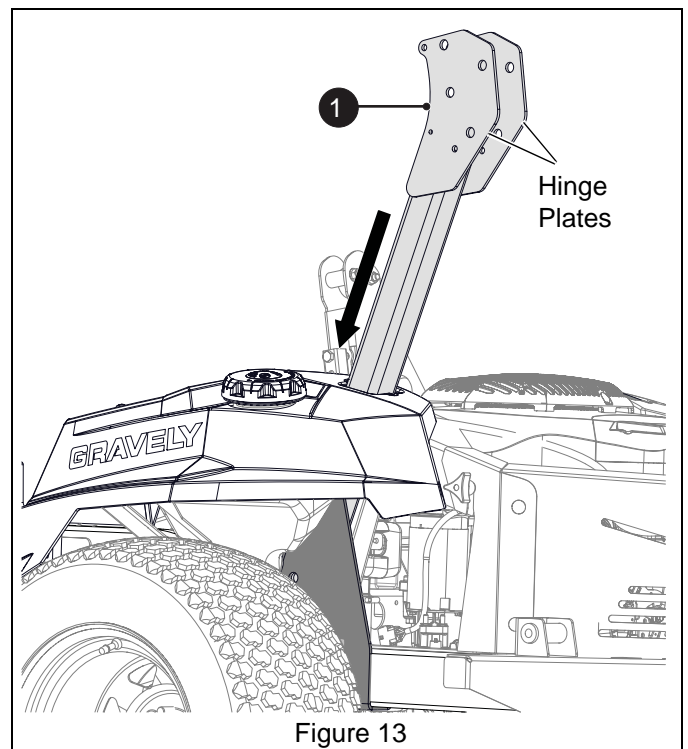
- Clean surface thoroughly and attach one transmission disconnect decal (item 5) to left-side support bracket (item 4). See Figure 11.



- From above unit, position bracket on frame. It may be necessary to move the fuel tank filler slightly to provide clearance. Once bracket is in position, re-tighten the rear fuel tank strap mounting bolt. See Figure 12.



- Reinstall fender but DO NOT install hex screws at this time.
- Reinstall fuel cap.
- Insert ROPS tube (item 1) through the opening and between left support bracket and frame. Ensure that hinge plates are positioned facing the rear. See Figure 13.



9. Attach tube with two 1/2 x 3" hex bolts (item 6) and two 1/2" center-lock flange nuts (item 11). Fully tighten hardware. See Figure 14.

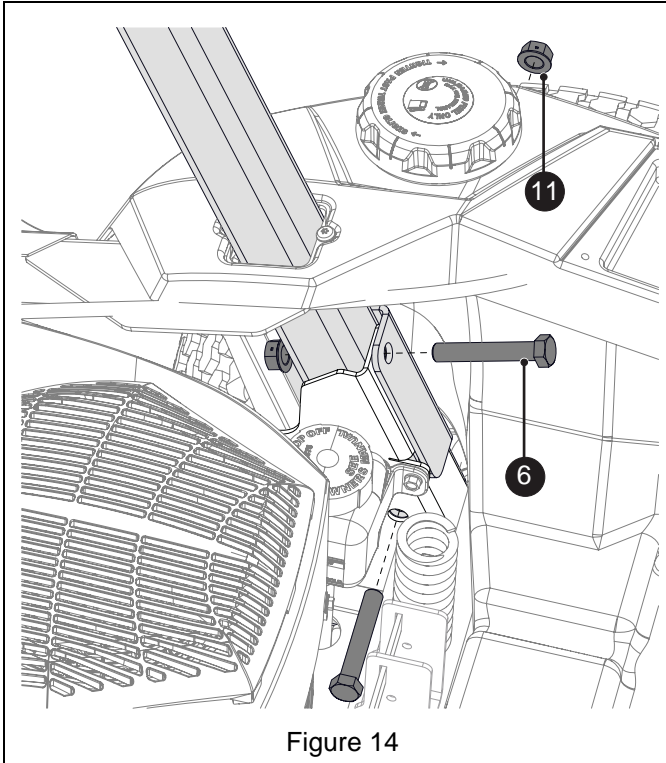


Figure 14

10. Reinstall plastic hex screws retaining left fender.
 11. Clean surface thoroughly and attach one transmission disconnect decal (item 5) to right-side support bracket (item 3). See Figure 15.

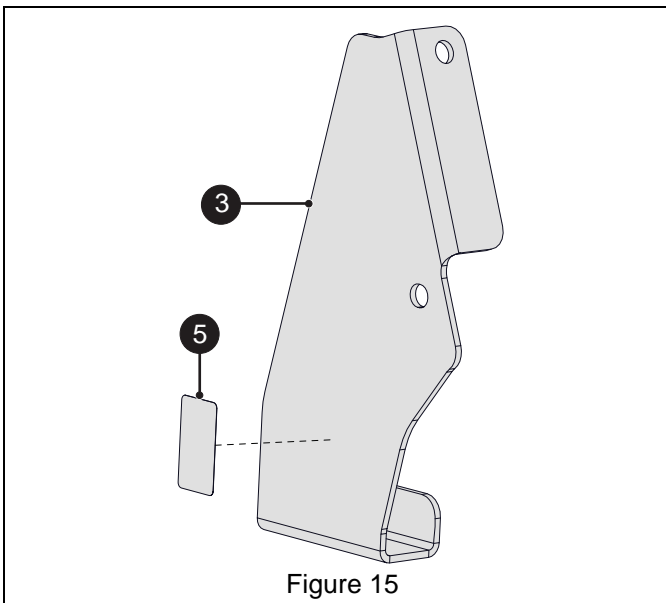


Figure 15

12. Remove 1/2 x 1" bolt and hex nut retaining spacer plate and remove plate. Discard bolt, nut and spacer. See Figure 16.

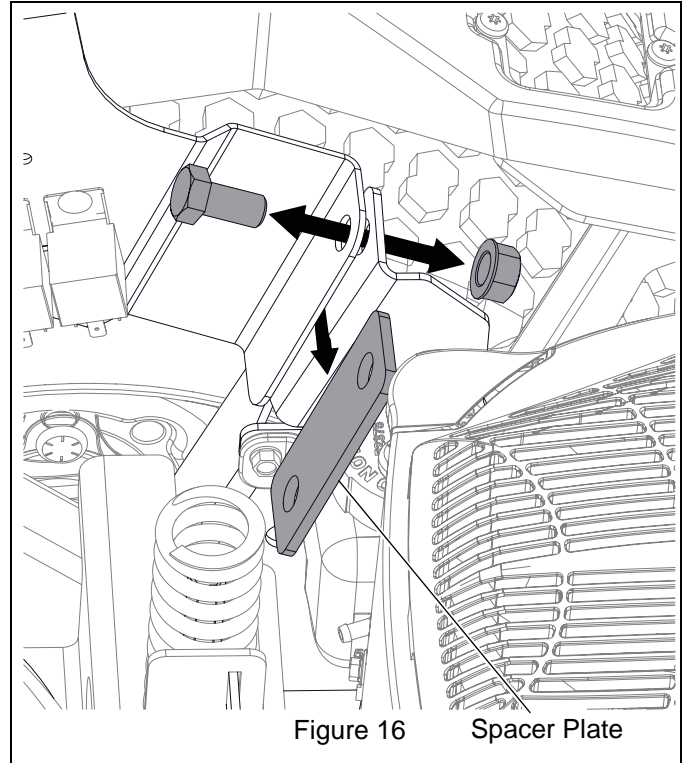


Figure 16 Spacer Plate

13. From below unit, position right-side support bracket on frame. Ensure that support bracket is positioned between control panel bracket and existing support bracket. See Figure 17.

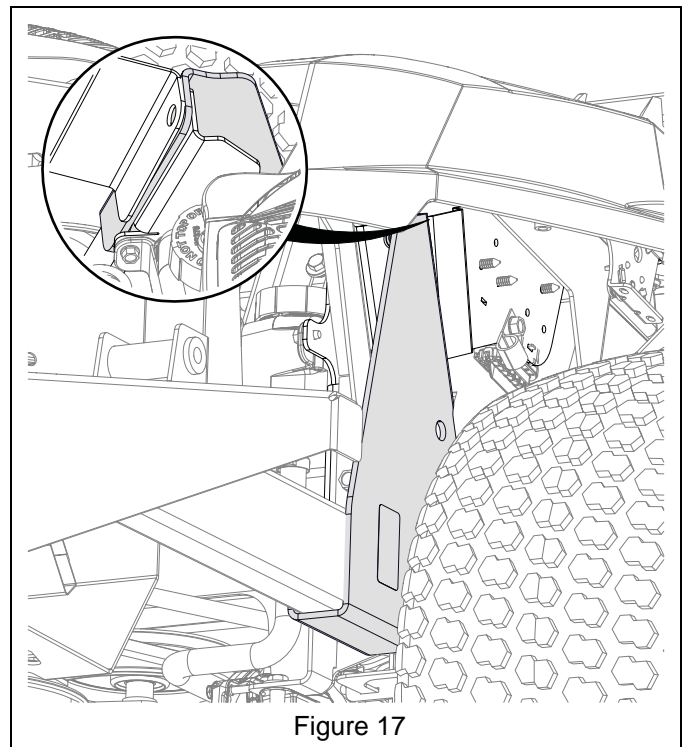
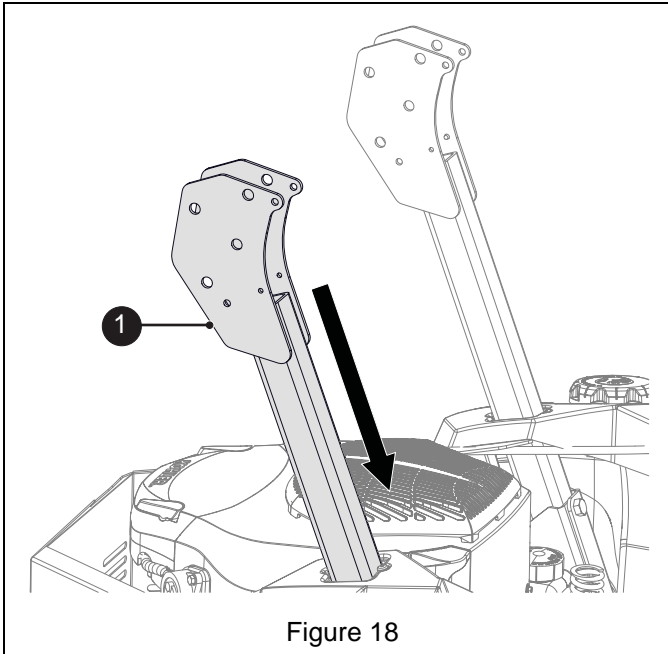
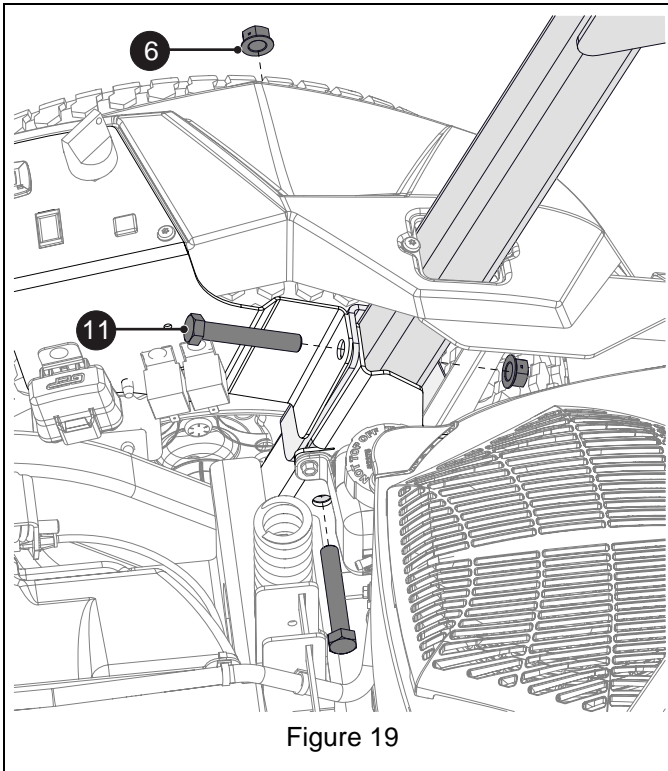


Figure 17

14. Insert ROPS tube (item 1) through the opening and between right support bracket and frame. Ensure that hinge plates are positioned facing the rear. See Figure 18.

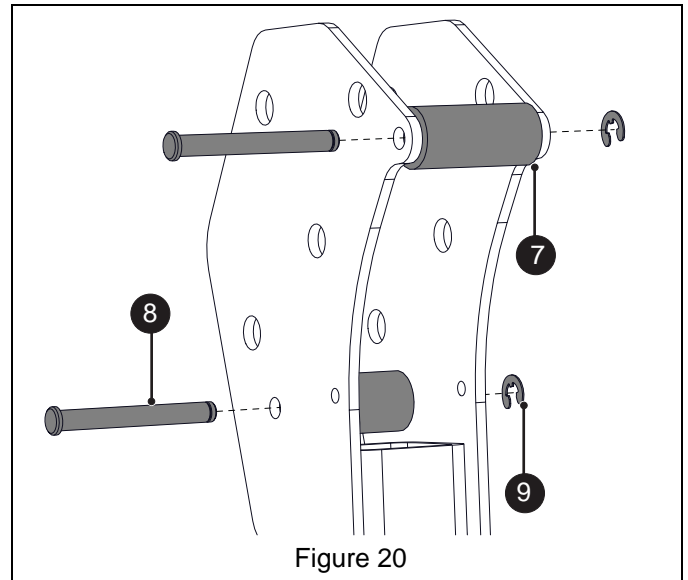


15. Attach ROPS with two 1/2 x 3" hex bolts (item 6) and two 1/2" center-lock flange nuts (item 11). DO NOT fully tighten hardware at this time. See Figure 19.

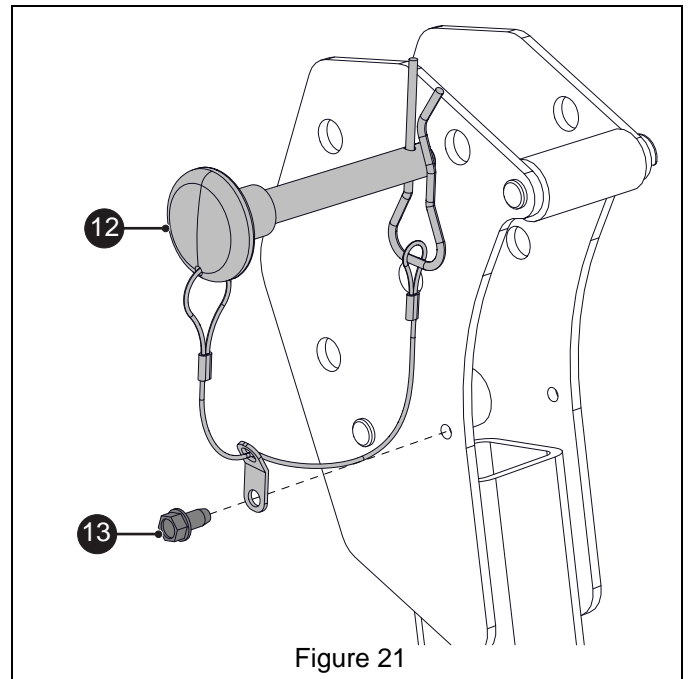


Assemble ROPS Hardware

1. Install two anti-vibration bumpers (item 7) in ROPS tube hinge plates and retain with two 5/16 x 2 9/16" pins (item 8) and two 5/16" E-rings (item 9). See Figure 20.



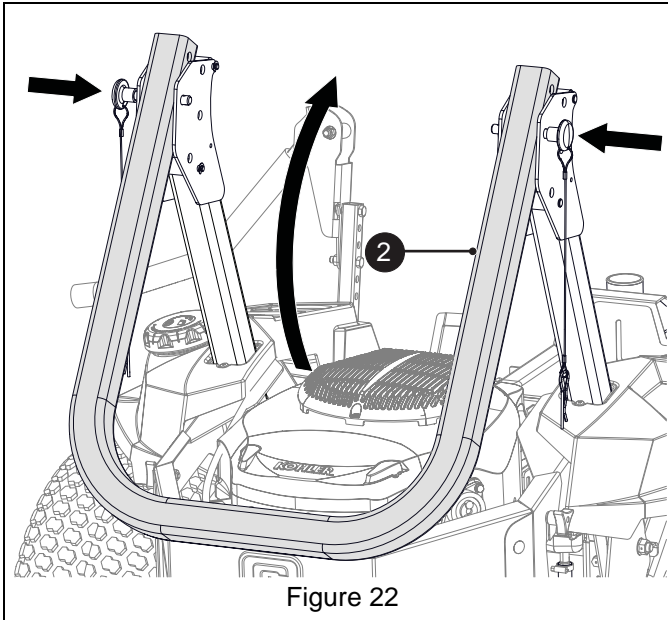
2. Attach lock pin (item 12) to hinge plate with 1/4 x 1/2" hex washer head screw (item 13). See Figure 21.



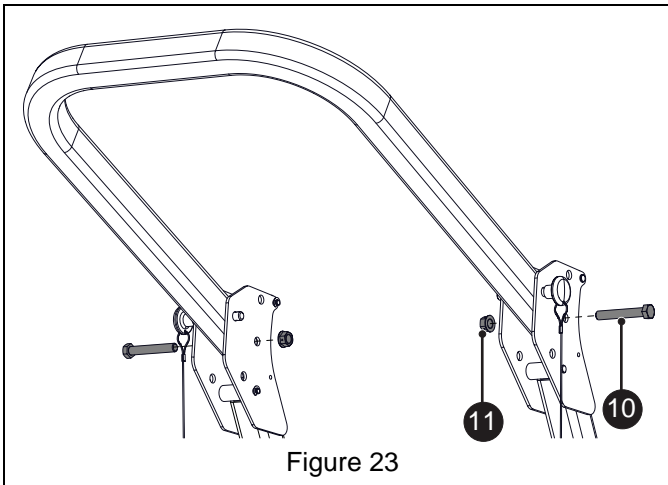
3. Repeat steps 1 and 2 for second tube.

Install ROPS Hoop

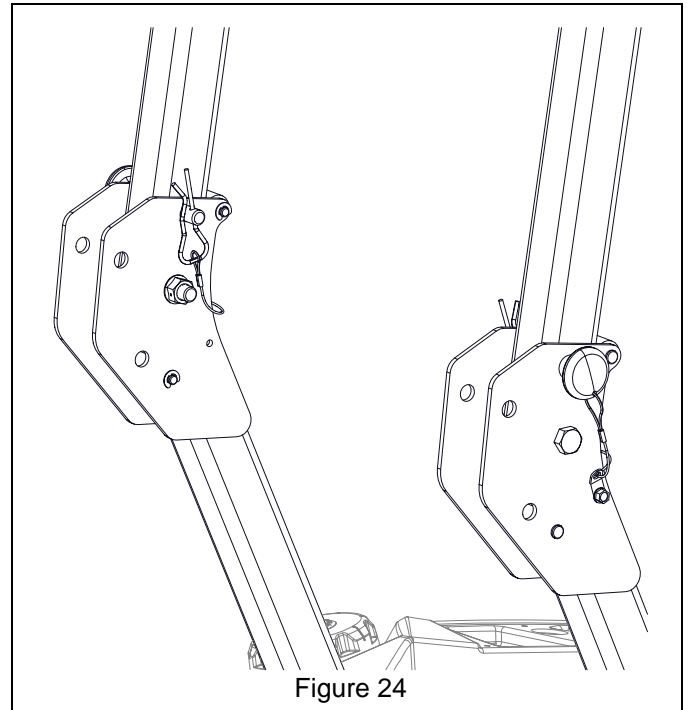
1. Position ROPS hoop (item 2) in hinge brackets and retain with lock pins. Insert pins through second hole from bottom of hoop and the rear holes in the brackets. See Figure 22.
2. Rotate hoop into vertical position.



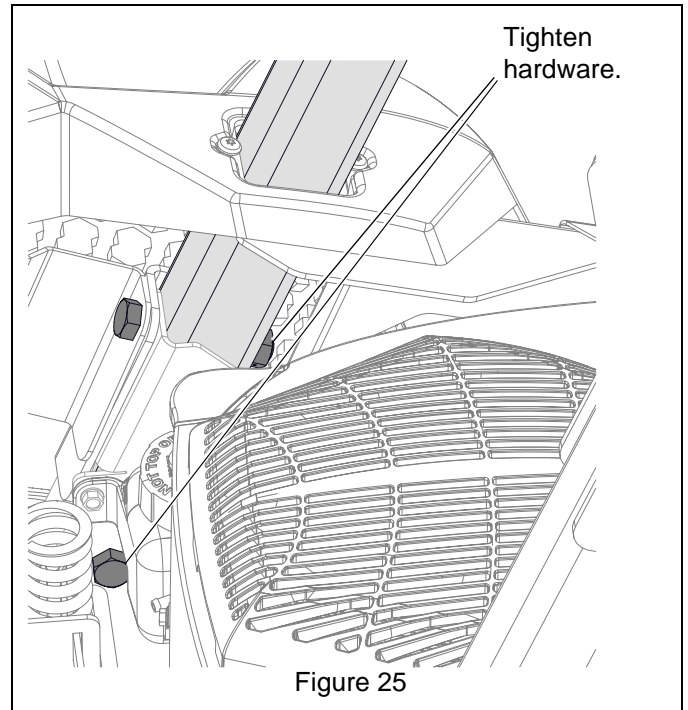
3. Retain hoop with two 1/2 x 3 1/4" hex bolts (item 11) and two 1/2" center-lock flange nuts (item 10). See Figure 23.



4. Remove lock pins and rotate hoop to normal operating position. Reinstall lock pins and retain with hairpins. See Figure 24.



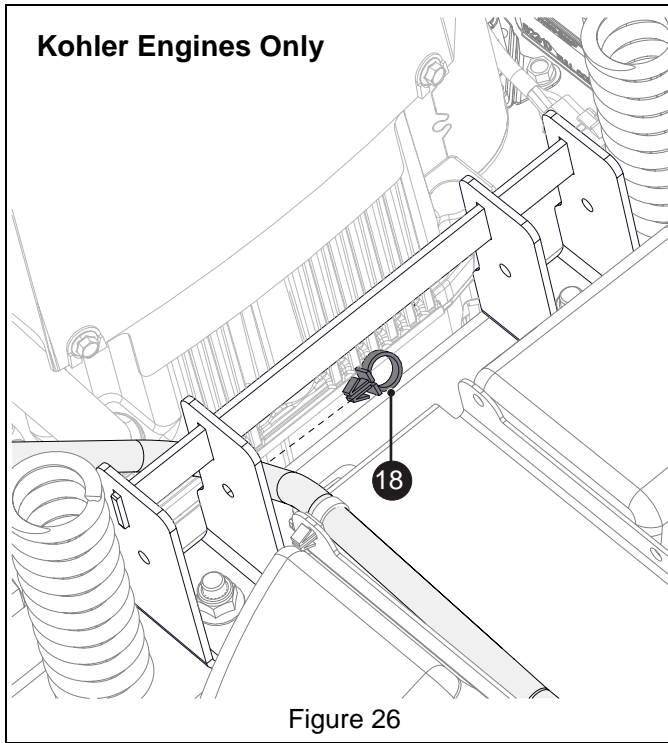
5. Tighten right-side 1/2 x 3" hex bolts and nuts installed earlier. See Figure 25.



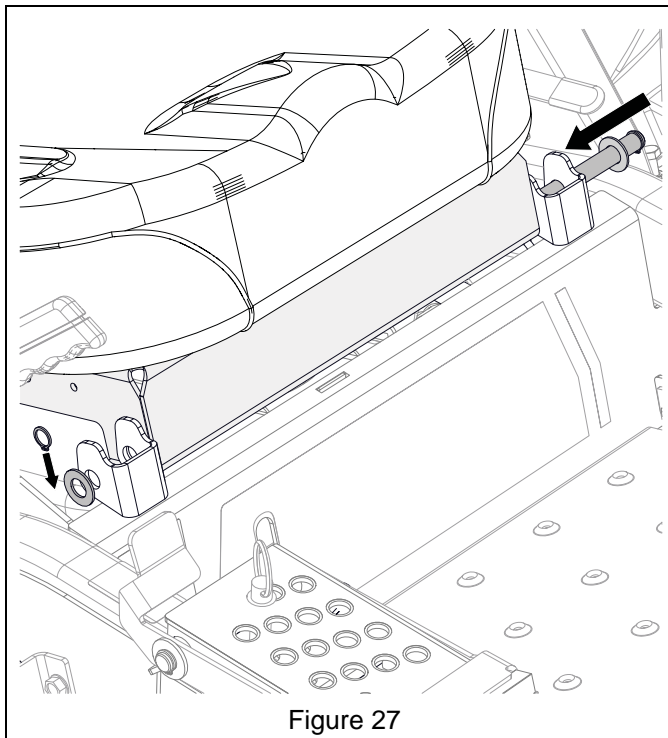
Reinstall Seat Assembly

1. Kohler engines only: Install fuel line routing clip (item 18) onto fuel hose and install in right-side hole in latch receiver. See Figure 26.

NOTICE: Kawasaki engines do not require installation of a fuel line clip.



2. Position seat assembly on unit. Reinstall seat pivot rod and washers and retain with C-clip. See Figure 27.



3. Rotate seat forward and reconnect seat switch.
4. Return seat to operating position.
5. Reconnect spark plug wires.

POSITIONING ROPS

IMPORTANT: ALWAYS inspect ROPS and seatbelt for damage and loose or missing hardware before use.

ROPS has three positions:

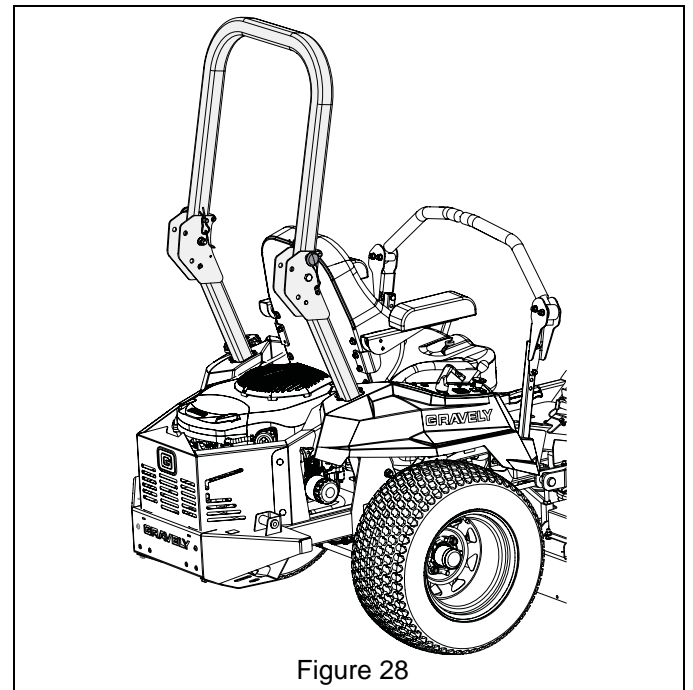
1. Operating position with or without bagger attached.
2. Storage position without bagger attached.
3. Storage position with bagger attached.

Raise Center Hoop

WARNING: AVOID INJURY. Seatbelt **MUST** be worn when operating with center hoop raised.

See Figure 28.

1. Remove hairpins from lock pins and remove lock pins from hinge plate.
2. Raise center hoop and secure with lock pins and hairpins.



Lower Center Hoop



WARNING: AVOID INJURY. Lower the center bar only when needed to drive under an object. There is no rollover protection with the center bar in the lowered position. **DO NOT** wear seatbelt when ROPS hoop is in lowered position.

See Figure 29.

1. Remove hairpins from lock pins and remove lock pins from hinge plate.
2. Lower hoop and secure with lock pins and hairpins.

IMPORTANT: Return center hoop to the raised position when clear of obstacles.

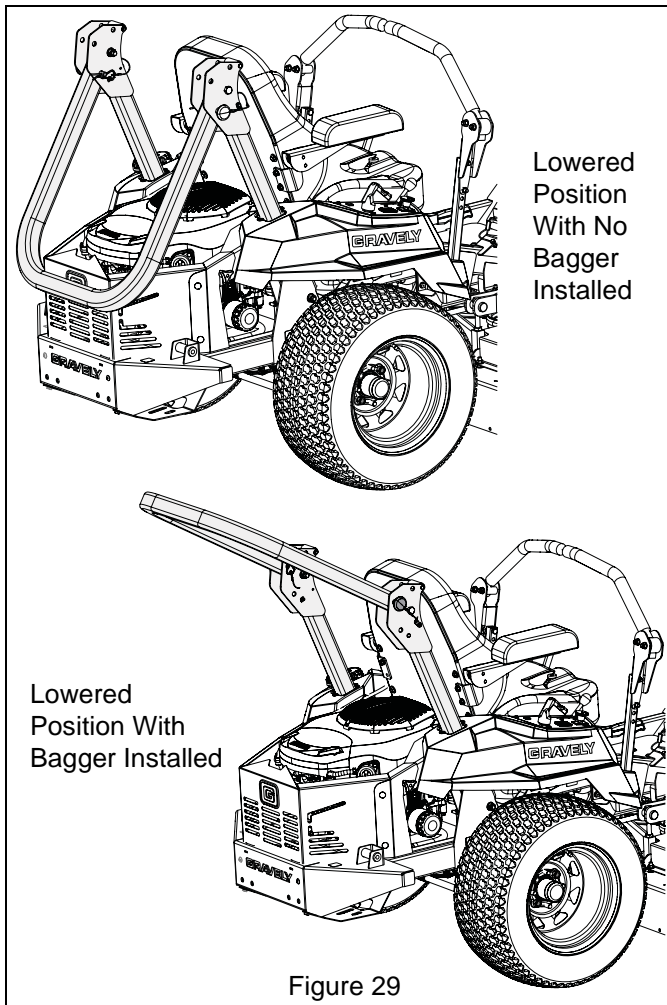


Figure 29

Models That Require New Seat Plate

The following models require a new seat plate (part number 04995651) to install this ROPS Kit:

Model	Serial Number
991150	000101 – 102
991152	000101 – 103
991154	000101 – 103
991156	000101 – 102
991160	000101 – 103
991162	000101 – 166
991164	000101 – 359
991166	000101

IMPORTANT: Register Your ROPS Kit

You or the dealer you purchased this kit from must register your kit at the time of purchase. Know the model and serial number of your ROPS Kit and register online at www.ariens.com or www.gravely.com. See Figure 30 for label location.

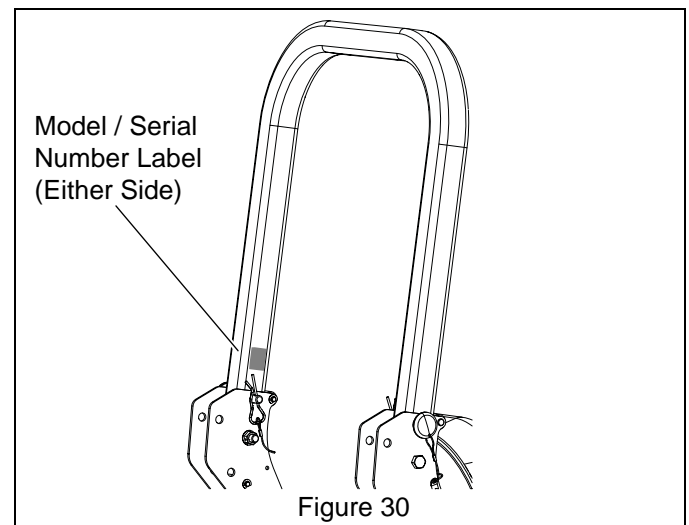


Figure 30

Model Number

89100900

Serial Number

Record your serial number here.