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Count on it.

Service Manual

TIMECUTTER® Service Manual

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8111 Lyndale Avenue South
Bloomington, MN 55420

Original Instructions (EN)
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Revision History

Preface

This service manual was written expressly for Toro service technicians. The Toro Company has made every effort to make the information in this manual complete and correct.

Basic shop safety knowledge and mechanical/electrical skills are assumed. The Table of Contents lists the systems and the related topics covered in this manual.

We are hopeful that you will find this manual a valuable addition to your service shop. If you have any questions or comments regarding this manual, please contact us at the following address:

The Toro Company

RLC/SWS Customer Care Department

8111 Lyndale Avenue South

Bloomington, MN 55420

The Toro Company reserves the right to change product specifications or make changes to this manual without notice.

Service Procedure Icons

The following icons appear throughout this Service Manual to bring attention to specific important details of a service procedure.

Critical Process

This icon is used to highlight:

- Installing safety equipment (shields, guards, seat belts, brakes, and R.O.P.S. components) that may have been removed
- Dimensions or settings that must be maintained for proper machine operation
- A specific fastener tightening sequence
- Component orientation that may not be obvious

Critical Torque

This icon is used to highlight an assembly torque requirement that is different than what is recommended in the Standard Torque Tables.

Fluid Specifications

This icon is used to highlight fluid specifications and capacities that are less common, and may not appear on the machine service decal or in the machine *Operator's Manual.*

Note: Refer to the service decal on the machine and the machine *Operator's Manual* for commonly used fluid specifications and capacities.

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Chapter 1

Safety

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Safety Instructions

DANGER

This safety symbol means danger. When you see this symbol, carefully read the instructions that follow. Failure to obey the instructions could cause serious permanent injury, disability, or death.

WARNING

This safety symbol means warning. When you see this symbol, carefully read the instructions that follow. Failure to obey the instructions can result in serious injury.

CAUTION

This safety symbol means caution. When you see this symbol, carefully read the instructions that follow. Failure to obey the instructions can result in minor to moderate injury and/or damage to property or equipment.

Think Safety First

Avoid unexpected starting of engine…

Always turn off the engine, remove the ignition key and disconnect the spark plug wire(s) before cleaning, adjusting, or repair.

Avoid lacerations and amputations…

Stay clear of all moving parts whenever the engine is running. Treat all normally moving parts as if they were moving whenever the engine is running or has the potential to start.

Avoid burns…

Do not touch the engine, muffler, or other components, which may be hot during operation, while the unit is running or shortly after it has been running.

Avoid fires and explosions…

Use extreme care in handling fuel. It is flammable and its vapors are explosive. Extinguish all cigarettes, cigars, pipes, and other sources of ignition. Avoid spilling fuel and never smoke while working with any type of fuel or lubricant. Wipe up any spilled fuel or oil immediately. Never remove the fuel cap or add fuel when the engine is running. Always use approved, labeled containers for storing or transporting fuel and lubricants. Do not add or drain fuel in an enclosed space. Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or other appliance.

Avoid asphyxiation…

Do not operate an engine in a confined area without proper ventilation.

Avoid injury from batteries…

Think Safety First (continued)

Battery acid is poisonous and can cause burns. Avoid contact with skin, eyes and clothing. Battery gases can explode. Keep cigarettes, sparks and flames away from the battery.

Avoid injury due to inferior parts…

Use only original equipment parts to ensure that important safety criteria are met.

Avoid injury to bystanders…

Always clear the area of bystanders before starting or testing powered equipment.

Avoid injury due to projectiles…

Always clear the area of sticks, rocks or any other debris that could be picked up and thrown by the powered equipment.

Avoid modifications…

Never alter or modify any part unless it is a factory approved procedure.

Avoid unsafe operation…

Always test the safety interlock system after making adjustments or repairs on the machine. Refer to the Electrical section in this manual for more information.

Avoid electrical shock…

Never touch electrical wires or components while the engine is running. They can be sources of shock. De-energize the system if you are having to do repairs. If testing electrical components ensure you are working in a dry environment.

Hydraulic System...

Release all pressure in the hydraulic system before performing any work on the system. Keep your body and hands away from pin-hole leaks or nozzles that eject hydraulic fluid under high pressure. Do not use your hands to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate under the skin and cause serious injury. Seek medical attention right away if hydraulic fluid gets in the skin.

Personal Protective Equipment…

Tie back long hair, and do not wear loose clothing or jewelry. Use appropriate personal protective equipment (PPE) for protecting yourself from potential hazards in the environment in which you will work. Each process outlined in this manual may need different PPE to protect the service person. Use the proper PPE for the task at hand.

Tools…

All tools should be in proper working order. Do not use tools that are broken or in disrepair. Use the proper tool for the proper application.

Lifts, Hoists, and Jacks…

All lifts, hoists, and jacks should be used in accordance with the manufacturer information. Inspect lifts, hoists, and jacks prior to use. Do not overload lifts, hoists, and jacks. Do not work under a suspended load. Ensure chock blocks are used on equipment that can move. Use lifts or jacks and jack stands that are rated to support the total weight of the machine and any attachments. Do not rely on jacks to support the machine. If you are unsure of the operation of any lifts, hoists, and jacks do not use.

Fire Extinguishers…

Think Safety First (continued)

The proper class of fire extinguisher should be used in case of fire.

Class A extinguishers are for ordinary combustible materials such as paper, wood, cardboard, and most plastics. The numerical rating on these types of extinguishers indicates the amount of water it holds and the amount of fire it can extinguish. Geometric symbol (green triangle).

Class B fires involve flammable or combustible liquids such as gasoline, kerosene, grease and oil. The numerical rating for class B extinguishers indicates the approximate number of square feet of fire it can extinguish. Geometric symbol (red square).

Class C fires involve electrical equipment, such as appliances, wiring, circuit breakers and outlets. Never use water to extinguish class C fires - the risk of electrical shock is far too great! Class C extinguishers do not have a numerical rating. The C classification means the extinguishing agent is non-conductive. Geometric symbol (blue circle).

ABC fire extinguishers are a dry chemical type used for multiple purposes. See above information for description. Ensure fire extinguishers are serviceable and replace any that are discharged or out of inspection dates

Chapter 2

Specifications and Maintenance

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Specifications

Model	74685	74687	74690	74694
Deck Size	107 cm (42 inches)			127 cm (50 inches)
Deck Construction	Stamped		Fabricated	
HOC Type	3 Point			
HOC Range	3.81–11.43 cm (1.5-4.5 inches)			
Engine	Toro Single	Toro Twin		
Engine Model	LC1P92F-1 (CE)	LC2P77F	LC2P77F(49 ST)	
Engine Displacement	452cc	708cc		
Engine RPM	2600 ± 100 rpm	2850 ± 100 rpm		
Fuel Tank Cap	11 L (3 gallons)			
Hydro Transaxle	Hydro-Gear ZT-2100			
Suspension	N/A		MYRIDE®	
Bagger Capacity	8 Bushel			
Battery Size	230 CCA			

Model	75742TA	75745TA	75755TA	74710
Deck Size	107 cm (42 inches)		127 cm (50 inches)	81 cm (32 inches)
Deck Construction	Stamped	Fabricated		Stamped
HOC Type	3 Point			
HOC Range	3.81–11.43 cm (1.5-4.5 inches)			
Engine	Toro Twin			Toro Single
Engine Model	LC2P77F	LC2P77F (49 ST)		LC1P92F-1 (DOM,50ST)
Engine Displacement	708cc			452cc
Engine RPM	3300 ± 100 rpm			
Fuel Tank Cap	11 L (3 gallons)			
Hydro Transaxle	Hydro-Gear ZT-2100		Hydro-Gear ZT-2200 Long Axle	Hydro-Gear ZT-2100
Suspension	N/A	MYRIDE®		N/A
Bagger Capacity	8 Bushel			
Battery Size	230 CCA			195 CCA

Model	75740	75741	75742	75743
Deck Size	107 cm (42 inches)			
Deck Construction	Stamped			Fabricated
HOC Type	3 Point			
HOC Range	3.81–11.43 cm (1.5-4.5 inches)			
Engine	Toro Single	Kawasaki Twin	Toro Twin	Kawasaki Twin
Engine Model	LC1P92F-1 (DOM,50ST)	FR600V-_S04-R (CARB)	LC2P77F	FR691V-AS26-R

Engine Displacement	452cc	603cc	708cc	726cc
Engine RPM	3300 ± 100 rpm	3250 ± 100 rpm	3300 ± 100 rpm	3250 ± 100 rpm
Fuel Tank Cap	11 L (3 gallons)			
Hydro Transaxle	Hydro-Gear ZT-2100			
Suspension	N/A			MYRIDE®
Bagger Capacity	8 Bushel			
Battery Size	230 CCA			

Model	**75745**	**75750**	**75751**	**75753**
Deck Size	107 cm (42 inches)	127 cm (50 inches)		
Deck Construction	Fabricated			
HOC Type	3 Point			
HOC Range	3.81–11.43 cm (1.5-4.5 inches)			
Engine	Toro Twin	Kawasaki Twin	Kohler Twin	Kawasaki Twin
Engine Model	LC2P77F(49 ST)	FR691V-_S07-R	PS-KT735-3084	FR691V-AS26-R
Engine Displacement	708cc	726cc	725cc	726cc
Engine RPM	3300 ± 100 rpm			3250 ± 100 rpm
Fuel Tank Cap	11 L (3 gallons)			
Hydro Transaxle	Hydro-Gear ZT-2100			
Suspension	MYRIDE®	N/A		
Bagger Capacity	8 Bushel			
Battery Size	230 CCA			

Model	**75755**	**75754**	**75757**	**75759**	**75760**
Deck Size	127 cm (50 inches)	137 cm (54 inches)		127 cm (50 inches)	152 cm (60 inches)
Deck Construction	Fabricated				
HOC Type	3 Point				4 Point
HOC Range	3.81–11.43 cm (1.5-4.5 inches)				
Engine	Toro Twin		Kawasaki Twin		Toro Twin
Engine Model	LC2P77F(49 ST)		FR691V-AS26-R	FR691V-_S07-R	LC2P77F
Engine Displacement	708cc		726cc		708cc
Engine RPM	3300 ± 100 rpm		3250 ± 100 rpm	3300 ± 100 rpm	3600 ± 100 rpm
Fuel Tank Cap	11 L (3 gallons)				
Hydro Transaxle	Hydro-Gear ZT-2200 Long Axle	Hydro-Gear ZT-2200		Hydro-Gear ZT-2200 Long Axle	Hydro-Gear ZT-2800
Suspension	MYRIDE®				N/A
Bagger Capacity	8 Bushel				
Battery Size	230 CCA				

Torque Specifications

The recommended fastener torque values are listed in the following tables. For critical applications, as determined by Toro, either the recommended torque or a torque that is unique to the application is clearly identified and specified in the service manual.

These torque specifications for the installation and tightening of fasteners shall apply for all fasteners which do not have a specific requirement identified in the service manual. The following factors shall be considered when applying torque: cleanliness of the fastener, use of a thread sealant (Loctite), degree of lubrication on the fastener, presence of a prevailing torque feature, hardness of the surface underneath of the fastener's head, or similar condition which affects the installation.

As noted in the following tables, torque values should be reduced by 25% for lubricated fasteners to achieve the similar stress as a dry fastener. Torque values may also have to be reduced when the fastener is threaded into aluminum or brass. The specific torque value should be determined based on the aluminum or brass material strength, fastener size, length of thread engagement, etc.

The standard method of verifying torque shall be performed by marking a line on the fastener (head or nut) and mating part, then back off fastener 1/4 of a turn. Measure the torque required to tighten the fastener until the lines match up.

Fastener Identification

Inch Series Bolts and Screws

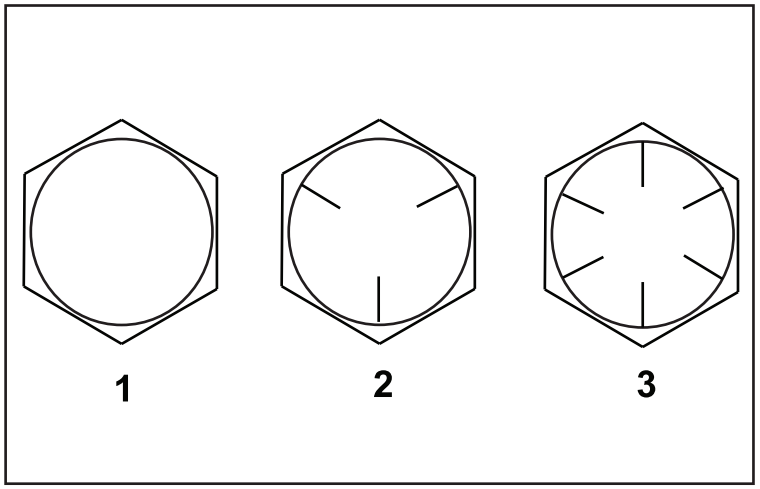

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Figure 1

1. Grade 1
2. Grade 5
3. Grade 8

Metric Bolts and Screws

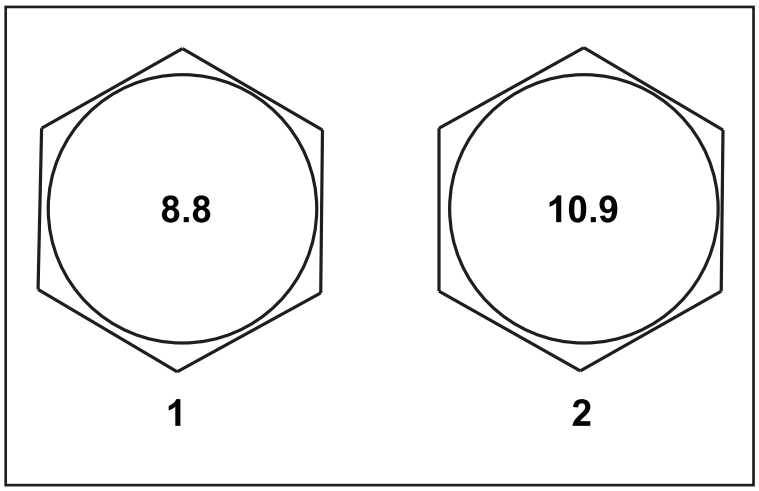

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Figure 2

1. Class 8.8
2. Class 10.9

Standard Torque for Dry, Zinc Plated, and Steel Fasteners (Inch Series)

Thread Size	Grade 1, 5, & 8 Fasteners with Thin Height Nuts	SAE Grade 1 Bolts, Screws, Studes & Sems with Regular Height Nuts (SAE Grade 2 or Better Nut)		SAE Grade 5 Bolts, Screws, Studs & Sems with Regular Height Nuts (SAE Grade 5 or Better Nut)		SAE Grade 8 Bolts, Screws, Studs & Sems with Regular Height Nuts (SAE Grade 8 or Better Nut)	
	in-lb	in-lb	N • cm	in-lb	N • cm	in-lb	N • cm
#6-32 UNC	10 ± 2	13 ± 2	147 ± 23	15 ± 2	169 ± 23	23 ± 3	260 ± 34
#6-40 UNF				17 ± 2	192 ± 23	25 ± 3	282 ± 34
#8-32 UNC	13 ± 2	25 ± 5	282 ± 30	29 ± 3	328 ± 34	41 ± 5	463 ± 56
#8-36 UNF				31 ± 4	350 ± 45	43 ± 5	486 ± 56
#10-24 UNC	18 ± 2	30 ± 5	339 ± 56	42 ± 5	475 ± 56	60 ± 6	678 ± 68
#10-32 UNF				48 ± 5	542 ± 56	68 ± 7	768 ± 79
1/4-20 UNC	48 ± 7	53 ± 7	599 ± 79	100 ± 10	1130 ± 113	140 ± 15	1582 ± 169
1/4-28 UNF	53 ± 7	65 ± 10	734 ± 113	115 ± 12	1299 ± 136	160 ± 17	1808 ± 192
5/16-18 UNC	115 ± 15	105 ± 15	1186 ± 169	200 ± 25	2260 ± 282	300 ± 30	3390 ± 339
5/16-24 UNF	138 ± 17	128 ± 17	1446 ± 192	225 ± 25	2542 ± 282	325 ± 33	3672 ± 373
	ft-lb	ft-lb	N • m	ft-lb	N • m	ft-lb	N • m
3/8-16 UNC	16 ± 2	16 ± 2	22 ± 3	30 ± 3	41 ± 4	43 ± 5	58 ± 7
3/8-24 UNF	17 ± 2	18 ± 2	24 ± 3	35 ± 4	47 ± 5	50 ± 6	68 ± 8
7/16-14 UNC	27 ± 3	27 ± 3	37 ± 4	50 ± 5	68 ± 7	70 ± 7	95 ± 9
7/16-20 UNF	29 ± 3	29 ± 3	39 ± 4	55 ± 6	75 ± 8	77 ± 8	104 ± 11
1/2-13 UNC	30 ± 3	48 ± 7	65 ± 9	75 ± 8	102 ± 11	105 ± 11	142 ± 15
1/2-20 UNF	32 ± 4	53 ± 7	72 ± 9	85 ± 9	115 ± 12	120 ± 12	163 ± 16
5/8-11 UNC	65 ± 10	88 ± 12	119 ± 16	150 ± 15	203 ± 20	210 ± 21	285 ± 28
5/8-18 UNF	75 ± 10	95 ± 15	129 ± 20	170 ± 18	230 ± 24	240 ± 24	325 ± 33
3/4-10 UNC	93 ± 12	140 ± 20	190 ± 27	265 ± 27	359 ± 37	375 ± 38	508 ± 52
3/4-16 UNF	115 ± 15	165 ± 25	224 ± 34	300 ± 30	407 ± 41	420 ± 43	569 ± 58
7/8-9 UNC	140 ± 20	225 ± 25	305 ± 34	430 ± 45	583 ± 61	600 ± 60	813 ± 81
7/8-14 UNF	155 ± 25	260 ± 30	353 ± 41	475 ± 48	644 ± 65	667 ± 66	904 ± 89

Note: Reduce torque values listed in the table above by 25% for lubricated fasteners. Lubricated fasteners are defined as threads coated with a lubricant such as oil, graphite, or thread sealant such as Loctite.

Torque values my have to be reduced when installing fasteners into threaded aluminum or brass. The specific torque value should be determined based on the fastener size, the aluminum or base material strength, length of thread engagement, etc.

The nominal torque values listed above for Grade 5 and 8 fasteners are based on 75% of the minimum proof load specified in SAE J429. The tolerance is approximately ± 10% of the nominal torque value. Thin nuts include jam nuts.

Standard Torque for Dry, Zinc Plated, and Steel Fasteners (Metric Series)

Thread Size	Class 8.8 Bolts, Screws, Studs with Regular Height Nuts (Class 8 or Stronger Nuts)		Class 10.9 Bolts, Screws, Studs with Regular Height Nuts (Class 10 or stronger Nuts)	
	in-lb	N • cm	in-lb	N • cm
M5 X 0.8	57 ± 6	644 ± 68	78 ± 8	881 ± 90
M6 X 1.0	96 ± 10	1085 ± 113	133 ± 14	1503 ± 158
	ft-lb	**N • m**	**ft-lb**	**N • m**
M8 X 1.25	19 ± 2	26 ± 3	28 ± 3	38 ± 4
M10 X 1.5	38 ± 4	52 ± 5	54 ± 6	73 ± 8
M12 X 1.75	66 ± 7	90 ± 10	93 ± 10	126 ± 14
M16 X 2.0	166 ± 17	255 ± 23	229 ± 23	310 ± 31
M20 X 2.5	325 ± 33	440 ± 45	450 ± 46	610 ± 62

Note: Reduce torque values listed in the table above by 25% for lubricated fasteners. Lubricated fasteners are defined as threads coated with a lubricant such as oil, graphite, or thread sealant such as Loctite.

Torque values may have to be reduced when installing fasteners into threaded aluminum or brass. The specific torque value should be determined based on the fastener size, the aluminum or base material strength, length of thread engagement, etc.

The nominal torque values listed above are based on 75% of the minimum proof load specified in SAE J1199. The tolerance is approximately ± 10% of the nominal torque value. Thin height nuts include jam nuts.

SAE Grade 8 Steel Set Screws

Thread Size	Recommended Torque	
	Square Head	Hex Socket
1/4 - 20 UNC	140 ± 20 in-lb	73 ± 12 in-lb
5/16 - 18 UNC	215 ± 35 in-lb	145 ± 20 in-lb
1/2 - 13 UNC	75 ± 15 ft-lb	50 ± 10 ft-lb
3/8 - 16 UNC	35 ± 10 ft-lb	18 ± 3 ft-lb

Wheel Bolts and Lug Nuts

Thread Size	Recommended Torque**	
7/16 - 20 UNF Grade 5	65 ± 10 ft-lb	88 ± 14 N • m
1/2 - 20 UNF Grade 5	80 ± 10 ft-lb	108 ± 14 N • m
M12 X 1.25 Class 8.8	80 ± 10 ft-lb	108 ± 14 N •m
M12 X 1.5 Class 8.8	80 ± 10 ft-lb	108 ± 14 N • m

**For steel wheels and non-lubricated fasteners.

Thread Cutting Screws (Zinc Plated Steel)

Type 1, Type 23, or Type F	
Thread Size	**Baseline Torque***
No. 6 - 32 UNC	20 ± 5 in-lb
No. 8 - 32 UNC	30 ± 5 in-lb
No. 10 - 24 UNC	38 ± 7 in-lb
1/4 - 20 UNC	85 ± 15 in-lb
5/16 - 18 UNC	110 ± 20 in-lb
3/8 - 16 UNC	200 ± 100 in-lb

*Hole size, material strength, material thickness and finish must be considered when determining specific torque values. All torque values are based on non-lubricated fasteners.

Conversion Factors

in-lb X 11.2985 = N • cm

ft-lb X 1.3558 = N • m

N • cm X 0.08851 = in-lb

N • cm X 0.73776 = ft-lb

Thread Cutting Screws (Zinc Plated Steel)

Threads Size	Threads per Inch		Baseline Torque*
	Type A	Type B	
No. 6	18	20	20 ± 5 in-lb
No. 8	15	18	30 ± 5 in-lb
No. 10	12	16	38 ± 7 in-lb
No. 12	11	14	85 ± 15 in-lb

*Hole size, material strength, material thickness and finish must be considered when determining specific torque values. All torque values are based on non-lubricated fasteners.

Equivalents and Conversions

Decimal and Millimeter Equivalents

Fractions	Decimals	mm	Fractions	Decimals	mm
1/64	0.015625	0.397	**33/64**	0.515625	13.097
1/32	0.03125	0.794	**16/32**	0.53125	13.484
3/64	0.046875	1.191	**35/64**	0.546875	13.891
1/16	0.0625	1.588	**9/16**	0.5625	14.288
5/64	0.078125	1.984	**37/64**	0.578125	14.684
3/32	0.9375	2.381	**19/32**	0.59375	15.081
1/8	0.1250	3.175	**5/8**	0.6250	15.875
9/64	0.140625	3.572	**41/64**	0.640625	16.272
5/32	0.15625	3.969	**21/32**	0.65625	16.669
11/64	0.171875	4.366	**43/64**	0.671875	17.066
3/16	0.1875	4.762	**11/64**	0.6875	17.462
13/64	0.203125	5.159	**45/64**	0.703125	17.859
7/32	0.21875	5.556	**23/32**	0.71875	18.256
15/64	0.234375	5.953	**47/64**	0.734375	18.653
1/4	0.2500	6.350	**3/4**	0.7500	19.050
17/64	0.265625	6.747	**49/64**	0.765625	19.447
9/32	0.28125	7.144	**25/32**	0.78125	19.844
19/64	0.296875	7.541	**51/64**	0.796875	20.241
5/16	0.3125	7.541	**13/16**	0.8125	20.638
21/64	0.328125	8.334	**53/64**	0.828125	21.034
11/32	0.34375	8.731	**27/32**	0.84375	21.431
23/64	0.359375	9.128	**55/64**	0.859375	21.828
3/8	0.3750	9.525	**7/8**	0.8750	22.225
25/64	0.390625	9.922	**57/64**	0.890625	22.622
13/32	0.40625	10.319	**29/32**	0.90625	23.019
27/64	0.421875	10.716	**59/64**	0.921875	23.416
7/16	0.4375	11.112	**15/16**	0.9375	23.812
29/64	0.453125	11.509	**61/64**	0.953125	24.209
15/32	0.46875	11.906	**31/32**	0.96875	24.606
31/64	0.484375	12.303	**63/64**	0.984375	25.003
1/2	0.5000	12.700	**1**	1.000	25.400
1 mm = 0.03937 in.			**0.001 in. = 0.0254 mm**		

U.S. to Metric Conversions

	To Convert	Into	Multiply By
Linear Measurement	Miles	Kilometers	1.609
	Yards	Meters	0.9144
	Feet	Meters	0.3048
	Feet	Centimeters	30.48
	Inches	Meters	0.0254
	Inches	Centimeters	2.54
	Inches	Millimeters	25.4
Area	Square Miles	Square Kilometers	2.59
	Square Feet	Square Meters	0.0929
	Square Inches	Square Centimeters	6.452
	Acre	Hectare	0.4047
Volume	Cubic Yards	Cubic Meters	0.7646
	Cubic Feet	Cubic Meters	0.02832
	Cubic Inches	Cubic Centimeters	16.39
Weight	Tons (Short)	Metric Tons	0.9078
	Pounds	Kilograms	0.4536
	Ounces	Grams	28.3495
Pressure	Pounds/Square Inch	Kilopascal	6.895
Work	Foot-Pounds	Newton-Meters	1.356
	Foot-Pounds	Kilogram-Meters	0.1383
	Inch-Pounds	Kilogram-Centimeters	1.152144
Liquid Volume	Quarts	Liters	0.9463
	Gallons	Liters	3.785
Liquid Flows	Gallons/Minute	Liters/Minute	3.785
Temperature	Fahrenheit	Celsius	1. Subtract by 32°
			2. Multiply by 5/9

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GEARS

The Systematic approach to defining, diagnosing and solving problems.

G

Gather Information

- Information reported by the customer
- Information observed by you
- Establish the what, where and when of the issue

E

Evaluate Potential Causes

- Consider possible causes of the problem to develop a hypothesis
- Narrow down the focus of the problem

A

Assess Performance

- Ensure you have all the necessary tools for testing
- Test all potential causes of the failure
- Reevaluate and create new hypotheses if necessary

R

Repair

- Return the unit to service by repairing, rebuilding or replacing

S

Solution Confirmation

- Did the issue go away
- Was the root cause of the issue correctly repaired
- Are there any other new symptoms

General Troubleshooting

Problem	Possible Cause	Corrective Action
The starter does not crank	The blade control switch (PTO) is engaged.	Move the blade-control switch (PTO) to the disengaged position.
	The parking brake is not engaged.	Move the motion control levers to the neutral lock (park) position.
	The battery is dead.	Charge the battery.
	The electrical connections are corroded or loose.	Check the electrical connections for good contact.
	A switch is worn or damaged.	Test and replace faulty switch.
	The fuse is blown.	Replace the fuse.
The engine does not start, starts hard, or fails to keep running	The fuel tank is empty.	Fill the fuel tank.
	The throttle is not in the correct position.	Be sure that the throttle control is always in the fast positions.
	There is dirt in the fuel filter.	Replace the fuel filter.
	There is dirt, water, or stale fuel in the fuel system.	Clean and flush the fuel system.
	The air cleaner is dirty.	Clean or replace the air cleaner element.
	The seat switch is not functioning properly.	Check the seat switch and replace if faulty.
	The electrical connections are corroded, loose, or damaged.	Check the electrical connections for good contact. Clean the connector terminals thoroughly with the electrical contact cleaner and apply dielectric grease.
	The spark plug is fouled or improperly gapped.	Adjust or replace the spark plug.
	The spark plug wire is not connected.	Check the spark plug wire connection.
	A switch is worn or damaged.	Test and replace faulty switch.
Engine loses power	The engine load is excessive.	Reduce the ground speed or raise height-of-cut.
	The air cleaner is dirty.	Clean or replace the air cleaner element.
	The oil level in the crankcase is low.	Add oil to the crankcase.
	The cooling fins and air passages above the engine are plugged.	Remove the obstruction and thoroughly clean cooling fins and the air passages.
	The fuel tank vent system is plugged	Inspect the fuel tank vent system for obstruction and repair system.
	There is dirt in the fuel filter.	Replace the fuel filter.
	There is dirt, water, or stale fuel in the fuel system.	Clean and flush the fuel system.

General Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
The engine overheats	The engine load is excessive.	Reduce the ground speed or raise height-of-cut.
	The oil level in the crankcase is low.	Add oil to the crankcase.
	The cooling fins and the air passages above the engine are plugged.	Remove the obstruction and thoroughly clean cooling fins and the air passages.
The mower pulls to the left or right (with levers fully forward)	The tracking needs adjustment.	Adjust the tracking. View the Operator's Manual for the procedure.
	Smart speed shift forks are not both on the motion control linkage.	Remove the smart speed shift fork realign and install.
	The tire pressure in the drive tires is not correct.	Adjust the tire pressure in the drive tires.
The machine does not drive	The bypass rods are in the manual move position.	Place the bypass rods into the drive position.
	The drive belt is worn, loose, off a pulley, or broken.	Replace the drive belt.
	The tensioner spring is broken or missing.	Replace the spring.
	The hydraulic oil level is low in the transaxle.	Add hydraulic oil to the transaxle.
The machine vibrates abnormally	The cutting blade(s) is/are bent or unbalanced.	Install new cutting blade(s).
	The blade mounting bolt is loose.	Tighten the blade mounting bolt.
	The engine mounting bolts are loose.	Tighten the engine mounting bolts.
	The engine pulley, idler pulley, or blade pulley is loose.	Tighten the appropriate pulley, check to make sure idler springs are not over stretched.
	The engine pulley is damaged.	Replace the engine pulley.
	The blade spindle is bent.	Replace the spindle.
	The motor mount is loose or worn.	Check the mounting bolts.
The machine produces an uneven cutting height	The blade(s) are not sharp.	Sharpen the blade(s).
	The cutting blade(s) are bent.	Install new cutting blade(s).
	The mower deck is not level.	Level the mower deck from side-to-side and front-to-rear.
	The underside of mower is dirty.	Clean the underside of the mower.
	The tire pressure is not correct.	Adjust the tire pressure.
	The blade spindle is bent.	Replace the spindle.
The blades do not rotate	The mower deck belt is damaged, worn, loose, or broken.	Install a new deck belt.
	The mower deck belt is off the pulley.	Install the mower belt on the deck pulley and check the idler pulley, idler arm, and spring for correct position and function.
	The idler spring is broken or missing.	Replace the spring.

General Troubleshooting (continued)

Problem	Possible Cause	Corrective Action
The clutch does not engage	There is a low voltage supply at the clutch.	Check the coil resistance, battery charge, charging system, and wiring connections and replace parts if necessary.
	The coil is damaged.	Replace the clutch.
	There is inadequate current supply.	Repair or replace the clutch lead wire or electrical system. Clean the connector contacts.
	The rotor/armature air gap is too large.	Replace the clutch.
	The blade control switch (PTO) is faulty.	Replace the blade control switch (PTO).

Table of Contents

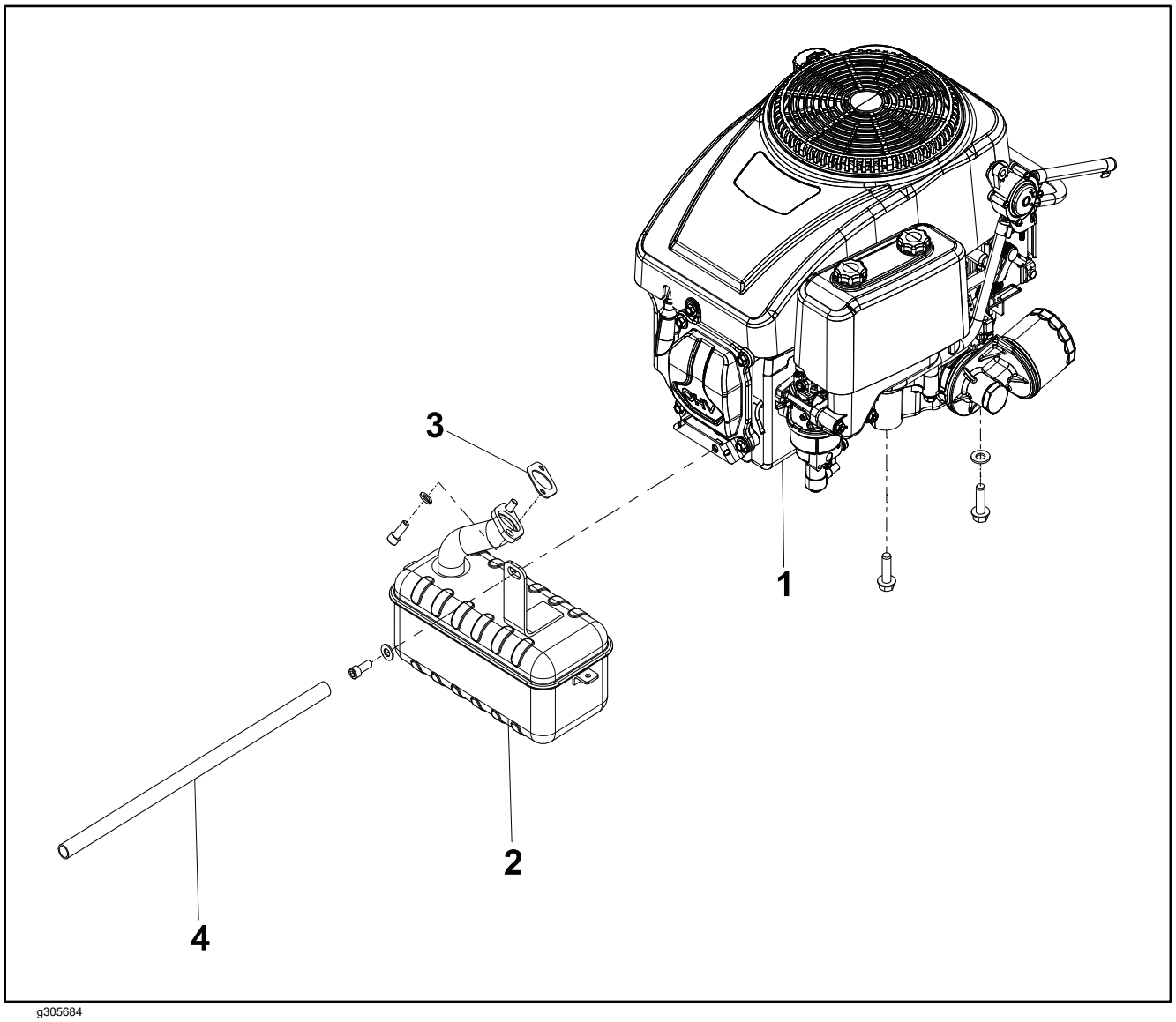
General Information

The TIMECUTTER® series of mowers use 4 different engine combinations; 452cc Toro single cylinder OHV 4 cycle engine (LC1P92F-1), 708cc Toro twin cylinder OHV 4 cycle engine (LC2P77F), 726cc Kawasaki twin cylinder OHV 4 cycle engine (FR691V), and 725cc Kohler twin cylinder OHV 4 cycle engine (PS-KT735).

See the Toro Twin Cylinder Engine Service Manual for servicing the engine. All other engines, see the manufacturer's website.

Service and Repairs

Engine Assembly 1

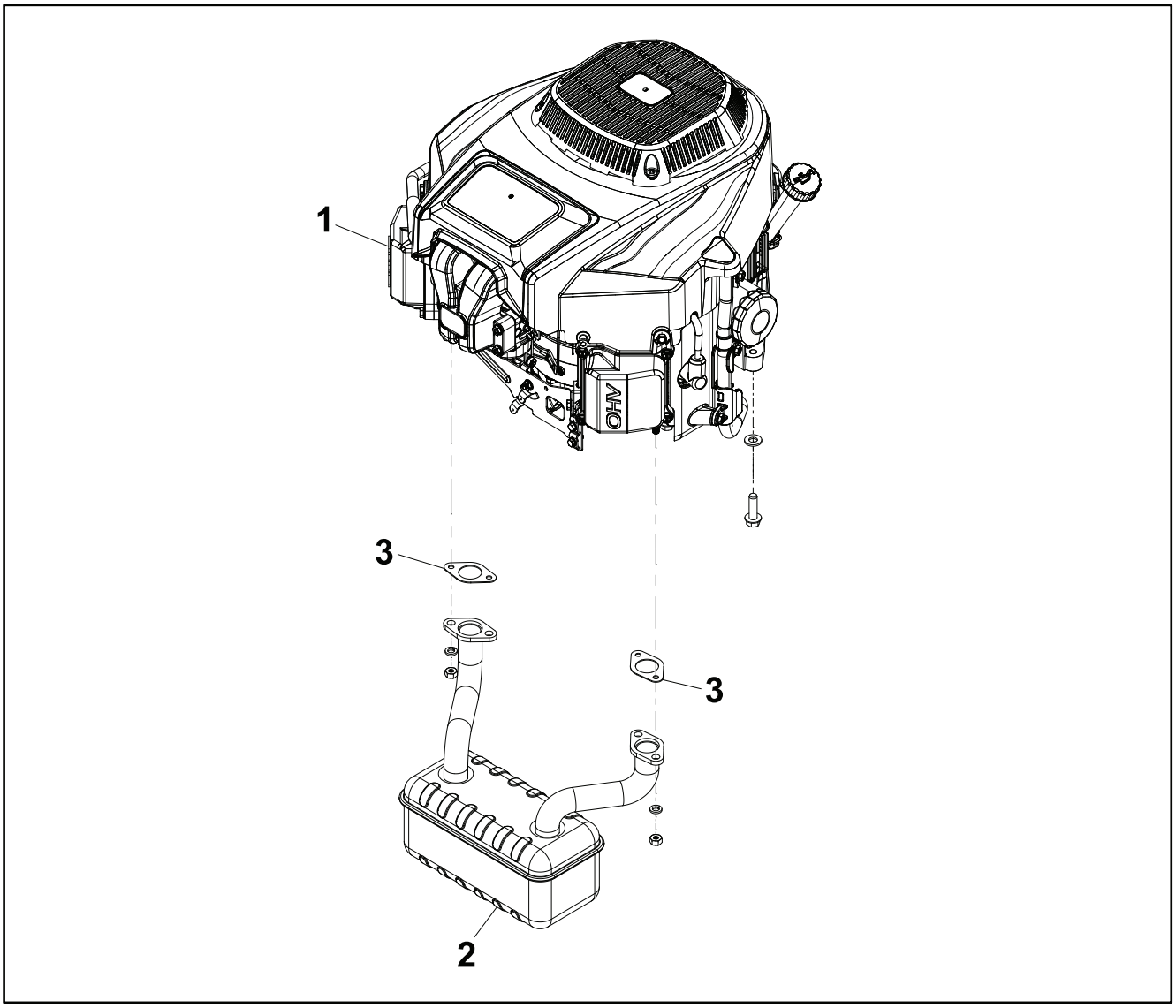


g305684

Figure 3

1. LC1P92F-1 Engine
2. Muffler
3. Exhaust Gasket
4. Oil Drain Tube

Engine Assembly 2

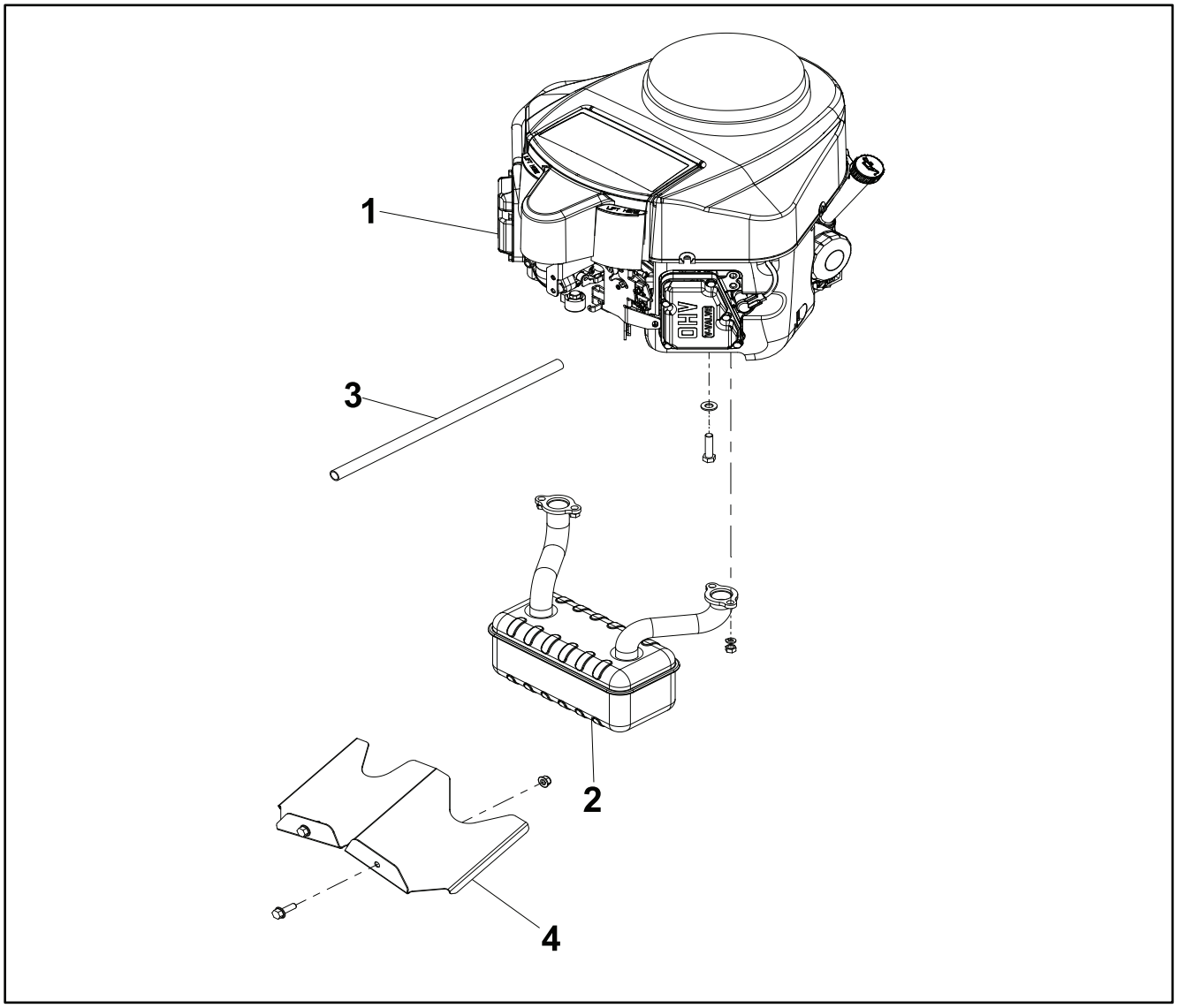


g305686

Figure 4

1. 2P77F Engine
2. Muffler
3. Exhaust Gasket

Engine Assembly 3

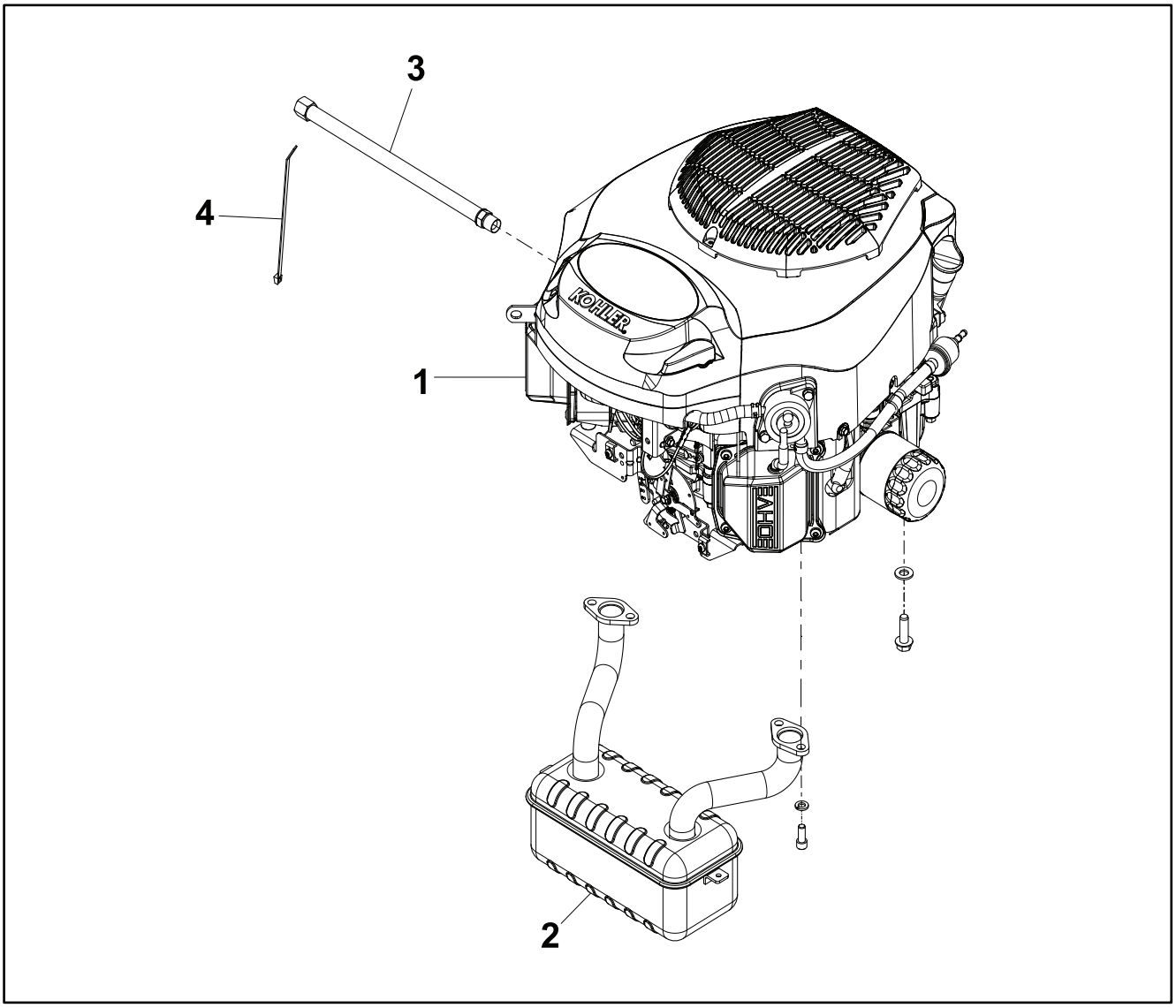


g305687

Figure 5

1. Kawasaki Engine
2. Muffler
3. Oil Drain Tube
4. Heat Shield

Engine Assembly 4



g305691

Figure 6

1. Kohler Engine
2. Muffler
3. Oil Drain Hose
4. Cable Tie

Engine Replacement

Engine Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Drain the engine oil.
4. Using pliers, slide the hose clamp away from the fuel filter connection to the fuel hose. Remove the fuel hose from the fuel filter. Clamp the fuel hose to prevent access fuel drainage.

   Note: May need a drain pan for access fluid.

g300615

Figure 7

5. Remove the fuel tank vent hose from the fuel tank vent orifice.

g300616

Figure 8

6. Disconnect the engine to chassis wiring harness.

g300617

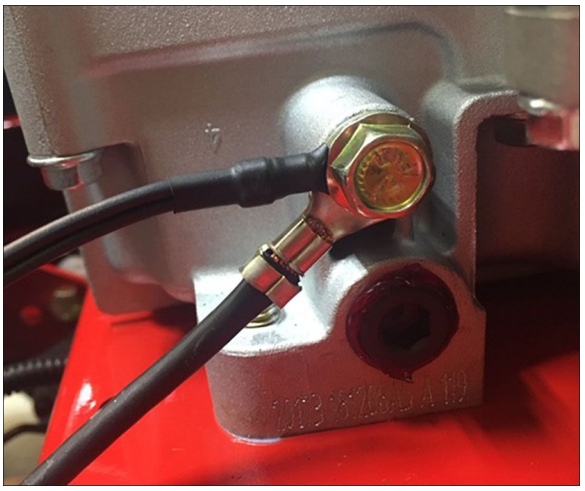
Figure 9

7. Remove the 10 mm nut securing the starter power wire to the starter.

g300618

Figure 10

8. Remove 13 mm HH bolt securing the battery cable ground wire and the chassis harness ground wire to the engine block. Remove the ground wires from the engine block.



g300619

Figure 11

9. Remove 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Remove the muffler shield and rear engine guard.

g300621

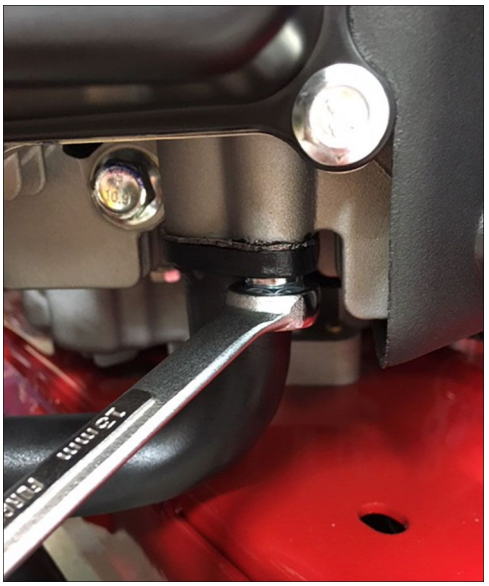
Figure 12

10. Remove 8 mm HH bolt securing the throttle and choke cables to the throttle control plate. Remove the throttle and choke cables from the throttle control plate.

g300620

Figure 13

11. Remove 4 (13 mm) nuts with lock washers securing the muffler to the engine. Remove the muffler from the engine.



g300622

Figure 14

12. Remove the deck tensioner spring from the spring hook.

g300623

Figure 15

13. Using an appropriate lifting device, raise the machine. Remove the deck belt from the clutch pulley.
14. Disconnect the wiring to the clutch.

g300624

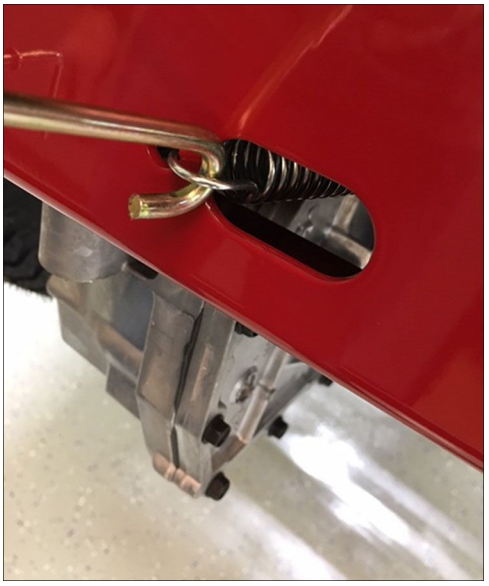
Figure 16

15. Remove the 5/8 hex bolt securing the clutch to the crankshaft of the engine. Remove the clutch.

g300625

Figure 17

16. Remove the hydro belt tensioner spring from the spring anchor point on the chassis.

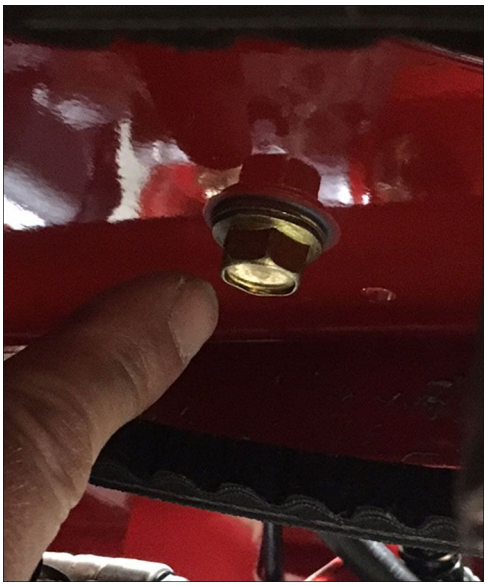


g300671

Figure 18

17. Relieve tension from the engine pulley. Slide the hydro belt off the engine pulley. Remove engine pulley from the crankshaft.
18. Remove the 4 hex bolts (9/16 inch) securing the engine to the chassis.

    Note: Three of the bolts will have a flat washer, the 4th bolt going through the clutch anchor will not have a flat washer.



g300672

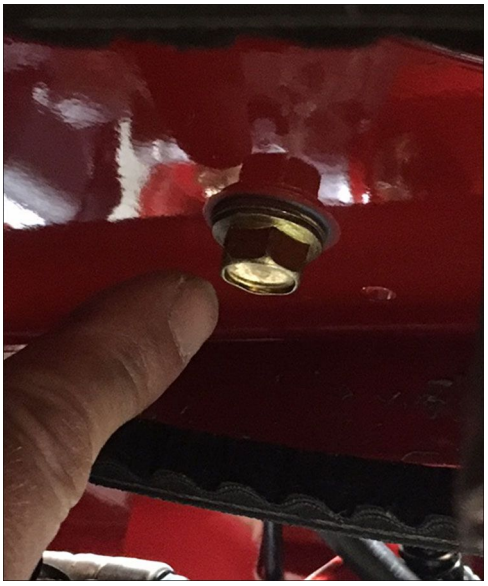
Figure 19

19. Lower the machine to the ground. Remove the engine from the chassis.

Engine Installation

1. Install the engine onto the chassis. Loosely install the 4 hex bolts (9/16 inch), 3 bolts have a flat washer the 4th bolt going through the clutch anchor does not have a flat washer.

2. Using an appropriate lifting device, raise the machine. Torque hex bolts to 45–56 N • m (400–500 in-lb).

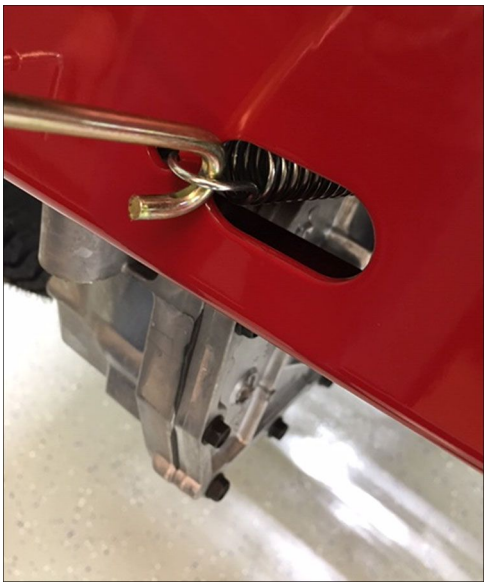


g300672

Figure 20

3. Install the engine pulley to the crankshaft. Slide the hydro belt onto the engine pulley. Add tension to the engine pulley.

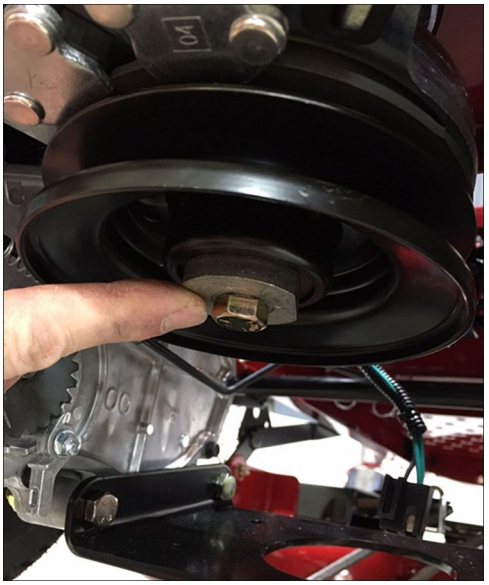
4. Install the hydro belt tensioner spring to the spring anchor point on the chassis.



g300671

Figure 21

5. Install the clutch. Install the 5/8 hex bolt securing the clutch to the crankshaft of the engine. Torque bolt to 67.5–81 N • m (50–60 ft-lb).



g300625

Figure 22

6. Connect the wiring to the clutch.

g300624

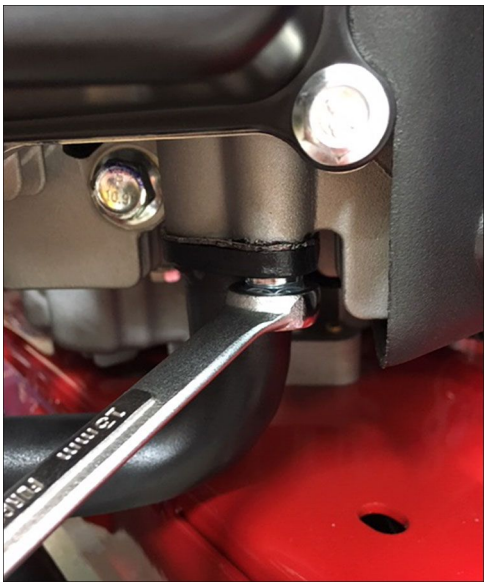
Figure 23

7. Install the deck belt to the clutch pulley. Using an appropriate lifting device, lower the machine.
8. Install the deck tensioner spring to the spring hook.

g300623

Figure 24

9. Install the muffler to the engine. Secure with 4 (13 mm) nuts with lock washers. Torque nuts to 17–19 N • m (150–170 in-lb).



g300622

Figure 25

10. Install the throttle and choke cables to the throttle control plate. Secure with 8 mm HH bolt securing the throttle and choke cables to the throttle control plate.

g300620

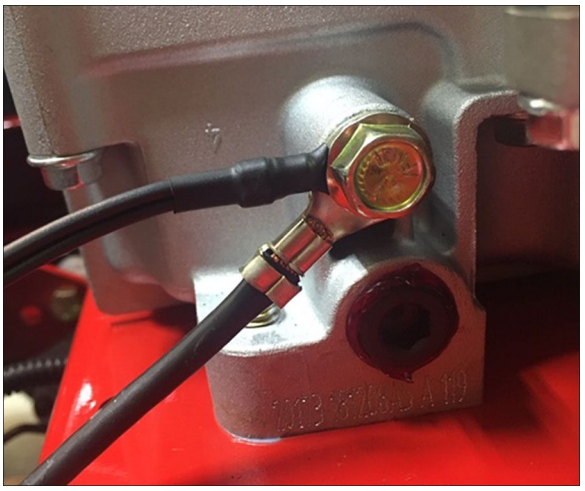
Figure 26

11. Install the muffler shield and rear engine guard. Secure with 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Torque screws to 17–22.5 N • m (150–200 in-lb).

g300621

Figure 27

12. Install the ground wires to the engine block. Secure with 13 mm HH bolt securing the battery cable ground wire and the chassis harness ground wire to the engine block. Torque bolt to 22.5–25 N • m (200–225 in-lb).



g300619

Figure 28

13. Install the 10 mm nut securing the starter power wire to the starter. Torque nut to 10.5–11.5 N • m (96–105 in-lb).

g300618

Figure 29

14. Connect the engine to chassis wiring harness.

g300617

Figure 30

15. Install the fuel tank vent hose to the fuel tank vent orifice.

g300616

Figure 31

16. Remove the clamp from the fuel hose. Install the fuel hose from the fuel filter. Using pliers, slide the hose clamp onto the fuel filter connection to the fuel hose.

g300615

Figure 32

17. Add engine oil.
18. Connect the positive battery cable first, then the negative battery cable to the battery.

Muffler Replacement

Muffler Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.

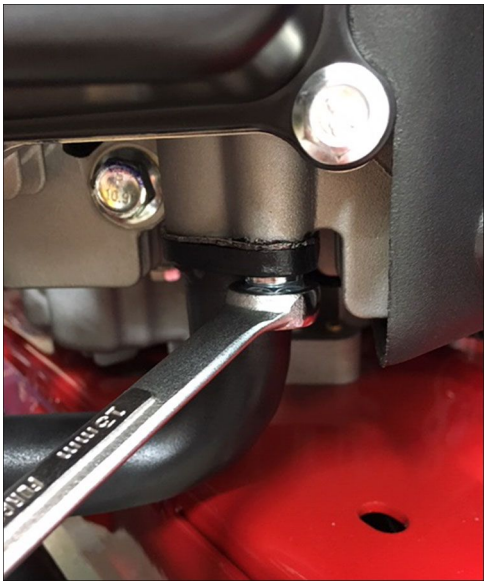
Muffler Removal (continued)

2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Remove 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Remove the muffler shield and rear engine guard.

g300621

Figure 33

4. Remove 4 (13 mm) nuts with lock washers securing the muffler to the engine. Remove the muffler from the engine.



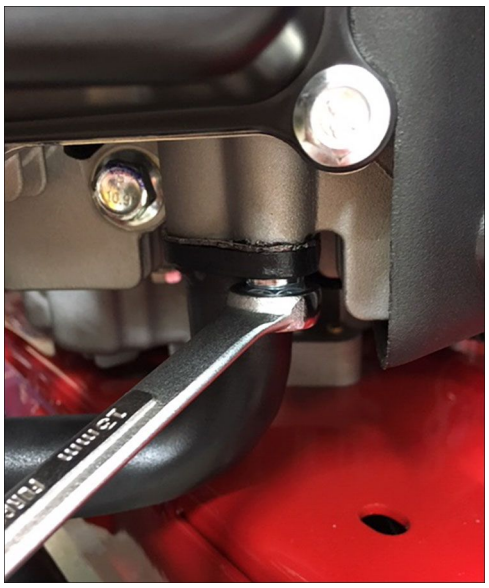
g300622

Figure 34

Muffler Installation

Muffler Installation (continued)

1. Install the muffler to the engine. Secure with 4 (13 mm) nuts with lock washers. Torque nuts to 17–19 N • m (150–170 in-lb).



g300622

Figure 35

2. Install the muffler shield and rear engine guard. Secure with 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Torque screws to 17–22.5 N • m (150–200 in-lb).

g300621

Figure 36

3. Connect the positive battery cable first, then the negative battery cable to the battery.

Air Filter Cartridge Replacement

Air Filter Cartridge Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Lift the air cleaner cover door.

g300685

Figure 37

3. Remove the air filter cartridge. Replace as necessary.

g300686

Figure 38

Air Filter Cartridge Installation

1. Install the air filter cartridge onto the engine.

g300686

Figure 39

2. Lower the air cleaner cover door.

g300685

Figure 40

Table of Contents

General Information

The TIMECUTTER® series uses a common frame. There are 2 different configurations of this frame a MYRIDE® suspension platform and a conventional solid platform. The frame is constructed from 10 gauge steel and now accommodates a relief in the rear crossmember for aid in easier drive belt replacement.

Service and Repairs

Chassis Assembly 1

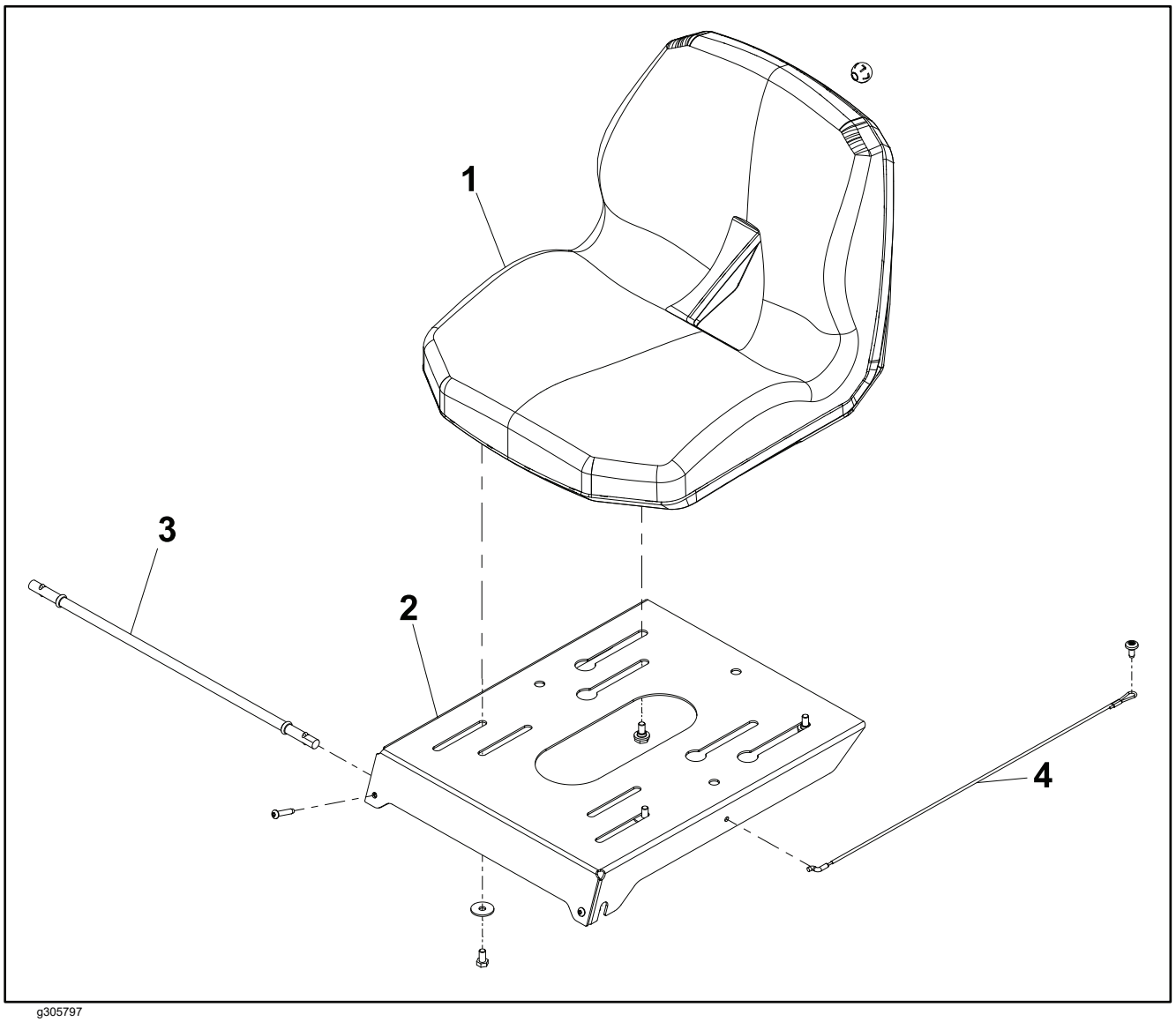
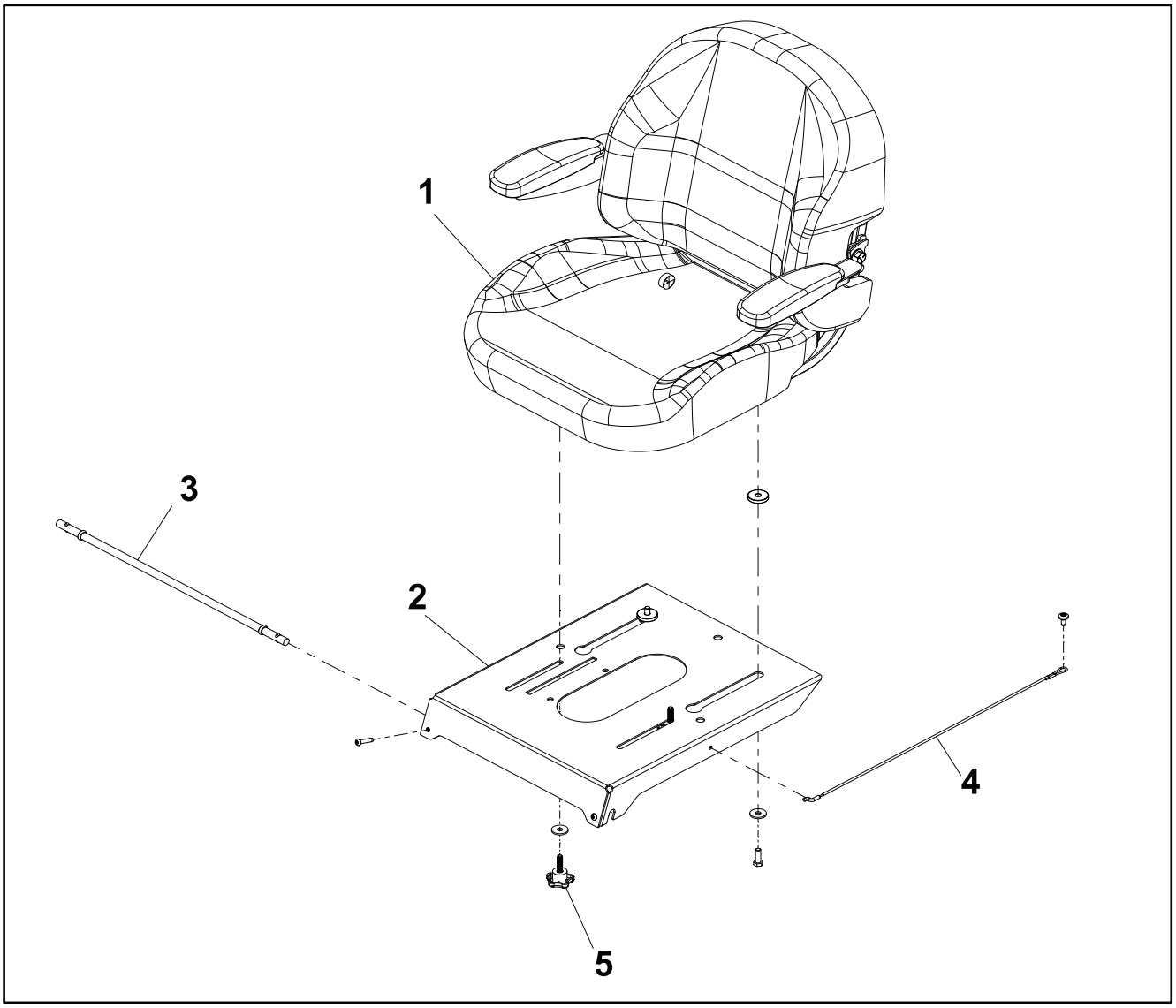


Figure 41

1. Seat
2. Seat Pan
3. Pivot Rod
4. Lanyard Cable

Chassis Assembly 2

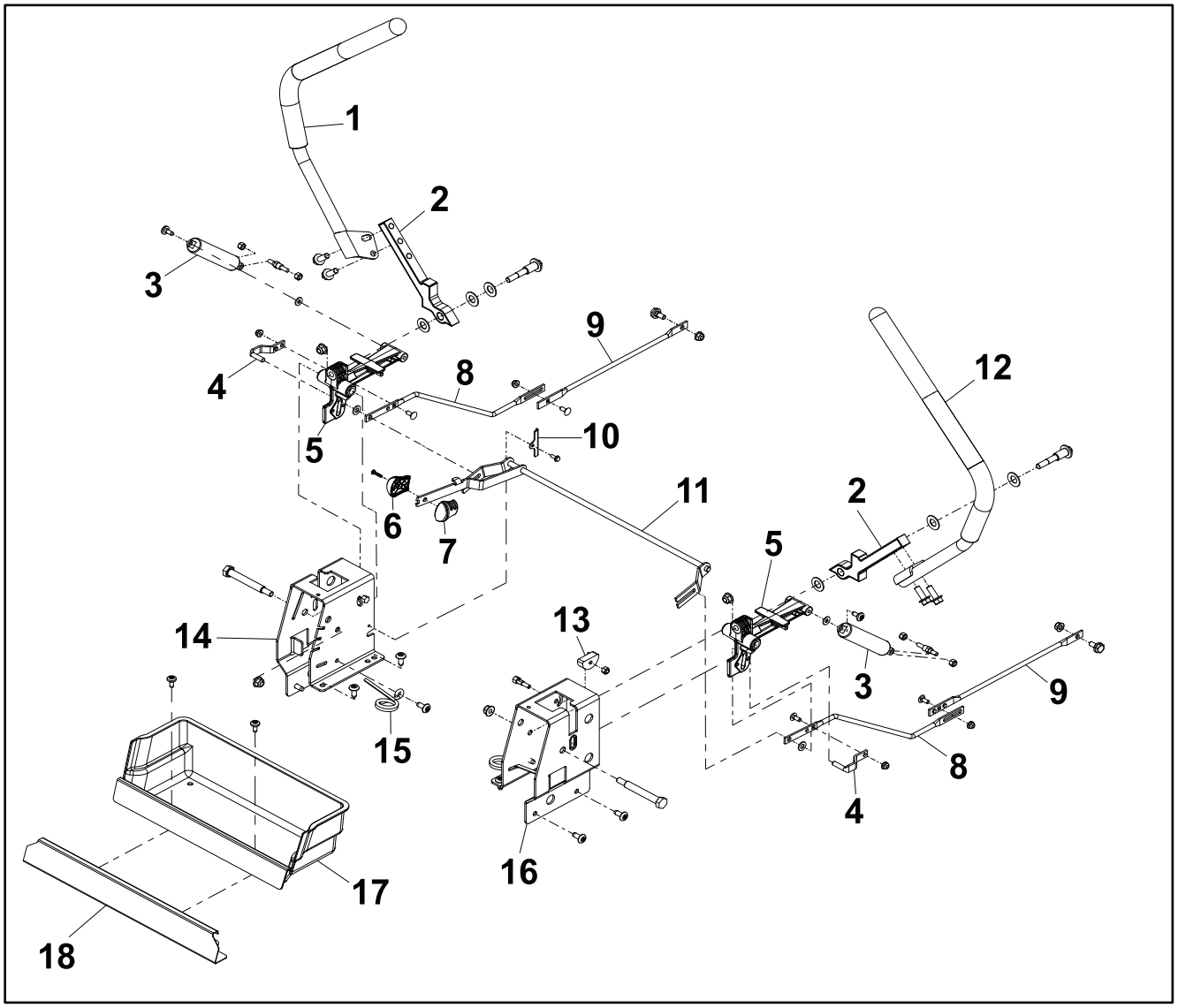


g305817

Figure 42

1. Seat
2. Seat Pan
3. Pivot Rod
4. Lanyard Cable
5. Knob

Chassis Assembly 3

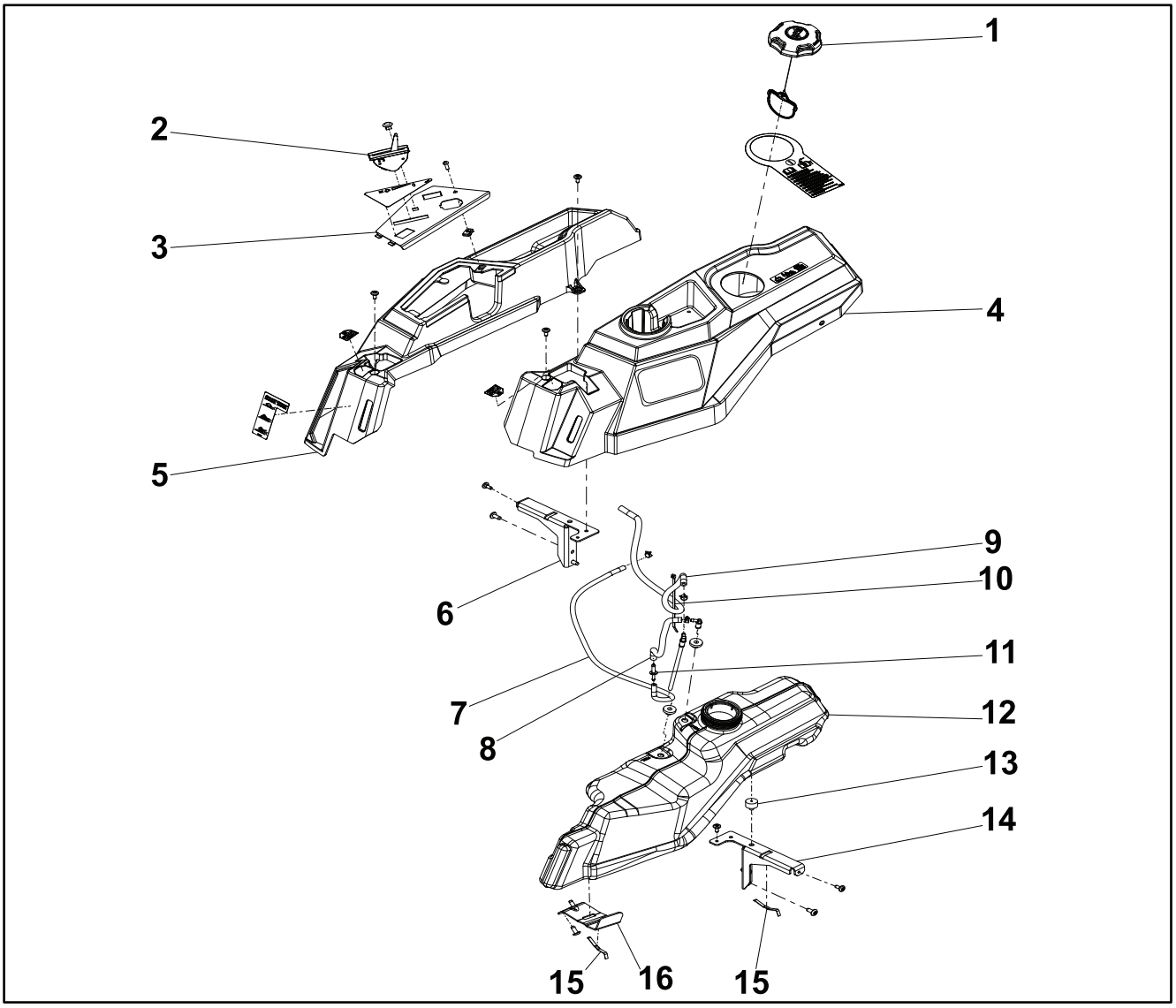


g306183

Figure 43

1. RH Handle Control
2. Control Arm
3. Non-Cavitating Damper
4. Hydro Rod Pin
5. Actuator Arm Asm.
6. RH Knob
7. LH Knob
8. Front Hydro Rod
9. Rear Hydro Rod
10. Retainer Plate
11. Speed Control Asm.
12. LH Control Handle
13. Eccentric
14. RH Control Plate Box
15. Torsion Spring
16. LH Control Plate Box
17. Storage Box
18. Kick Plate

Chassis Assembly 4

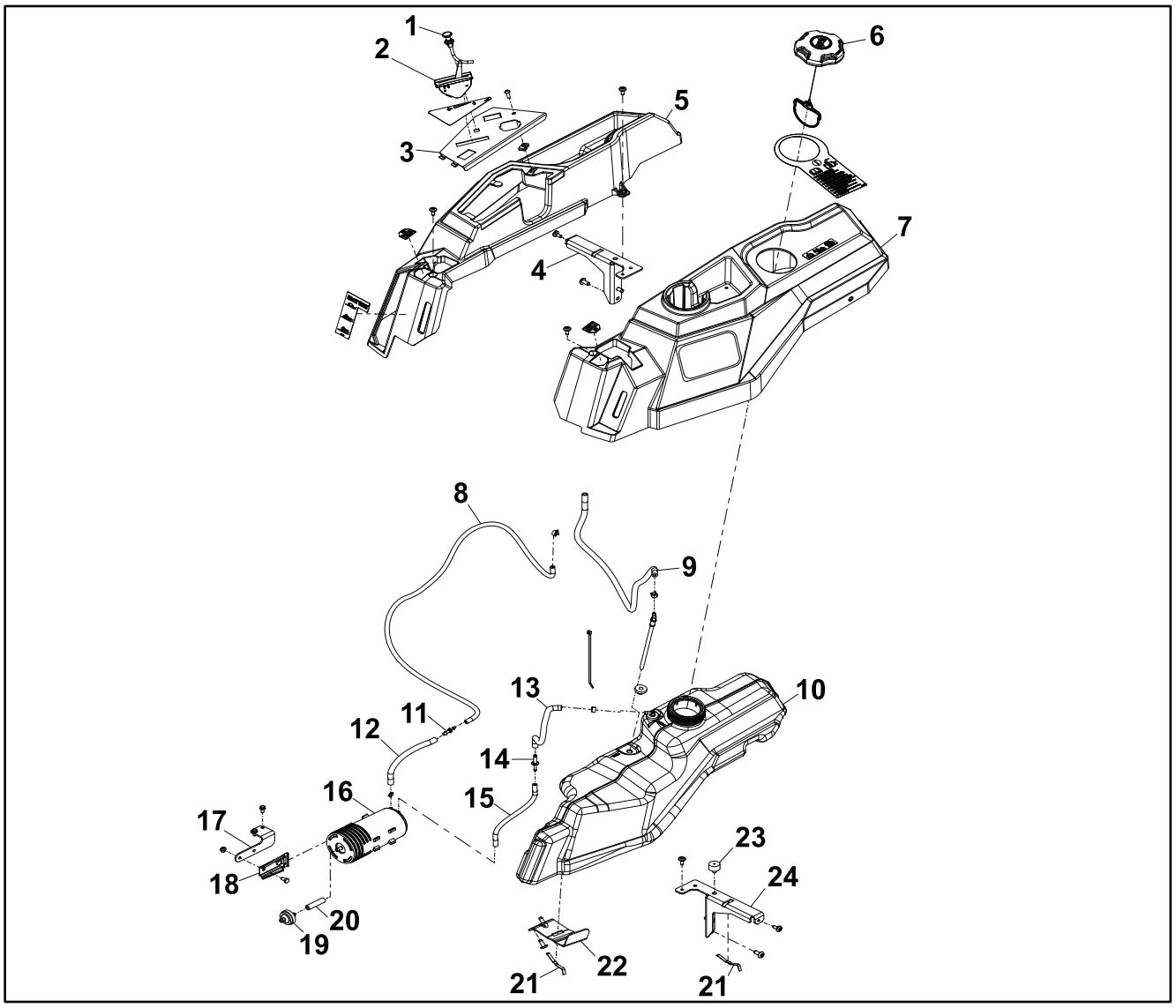


g306185

Figure 44

1. Ratcheting Fuel Cap
2. Throttle and Choke Cable
3. Control Panel
4. LH Pod
5. RH Pod
6. RH Support Pod
7. Fuel Hose
8. Fuel Hose
9. Fuel Hose
10. Cable Tie
11. Orifice Adaptor
12. Fuel Tank Asm.
13. Grommet Bumper
14. LH Pod Support
15. Spring
16. Fuel Tank Support

Chassis Assembly 5

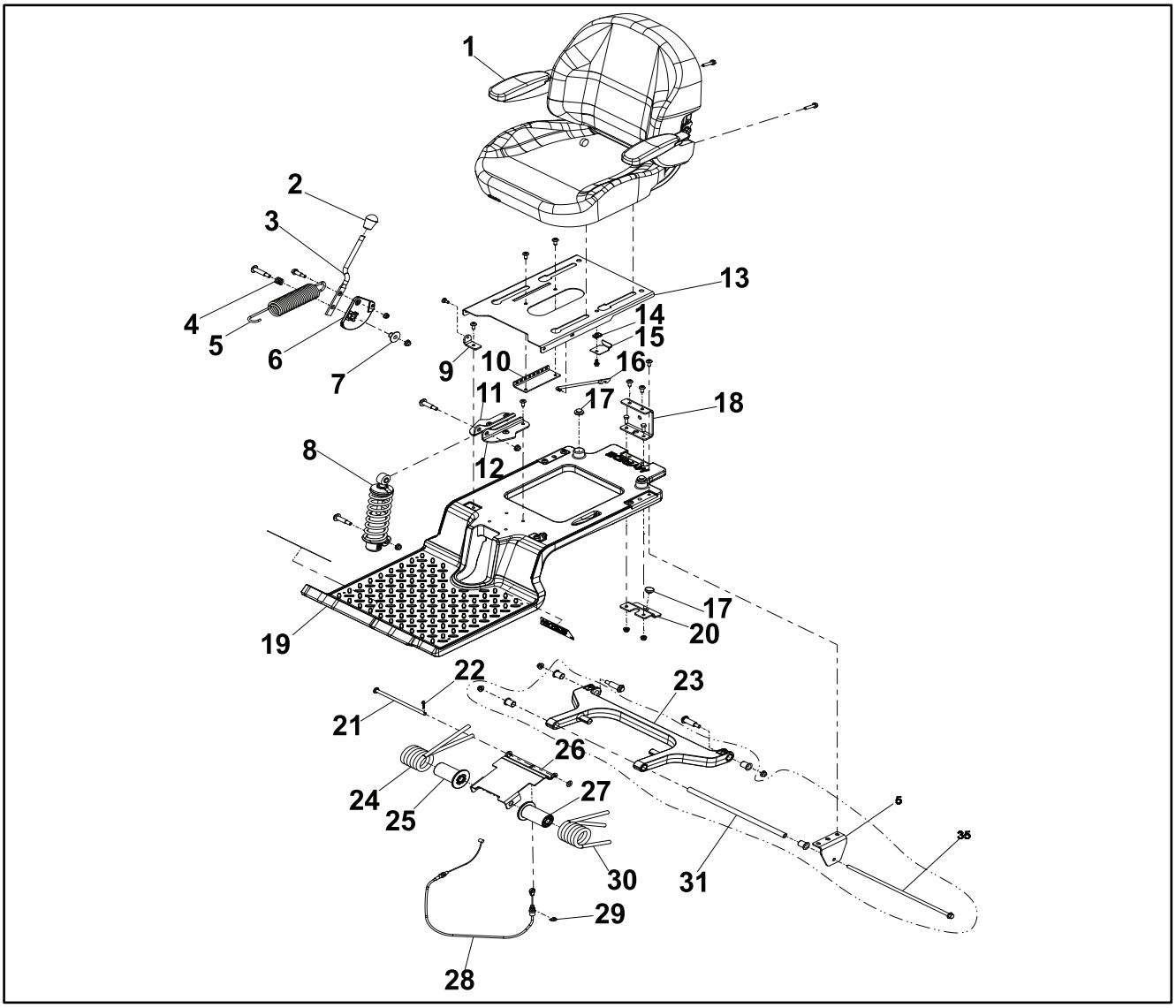


g306369

Figure 45

1. Choke Cable
2. Throttle Cable
3. Control Panel
4. RH Support Pod
5. RH Pod
6. Ratcheting Fuel Cap
7. LH Pod
8. Tank Vent Hose
9. Fuel Hose
10. Fuel Tank Asm.
11. Straight Fitting
12. Fuel Hose
13. Fuel Hose
14. Orifice Adaptor
15. Fuel Hose
16. Carbon Canister
17. Carbon Canister Bracket
18. Carbon Canister Bracket
19. Inline Fuel Filter
20. Fuel Hose
21. Spring
22. Fuel Tank Support
23. Grommet Bumper
24. LH Pod Support

Chassis Assembly 6

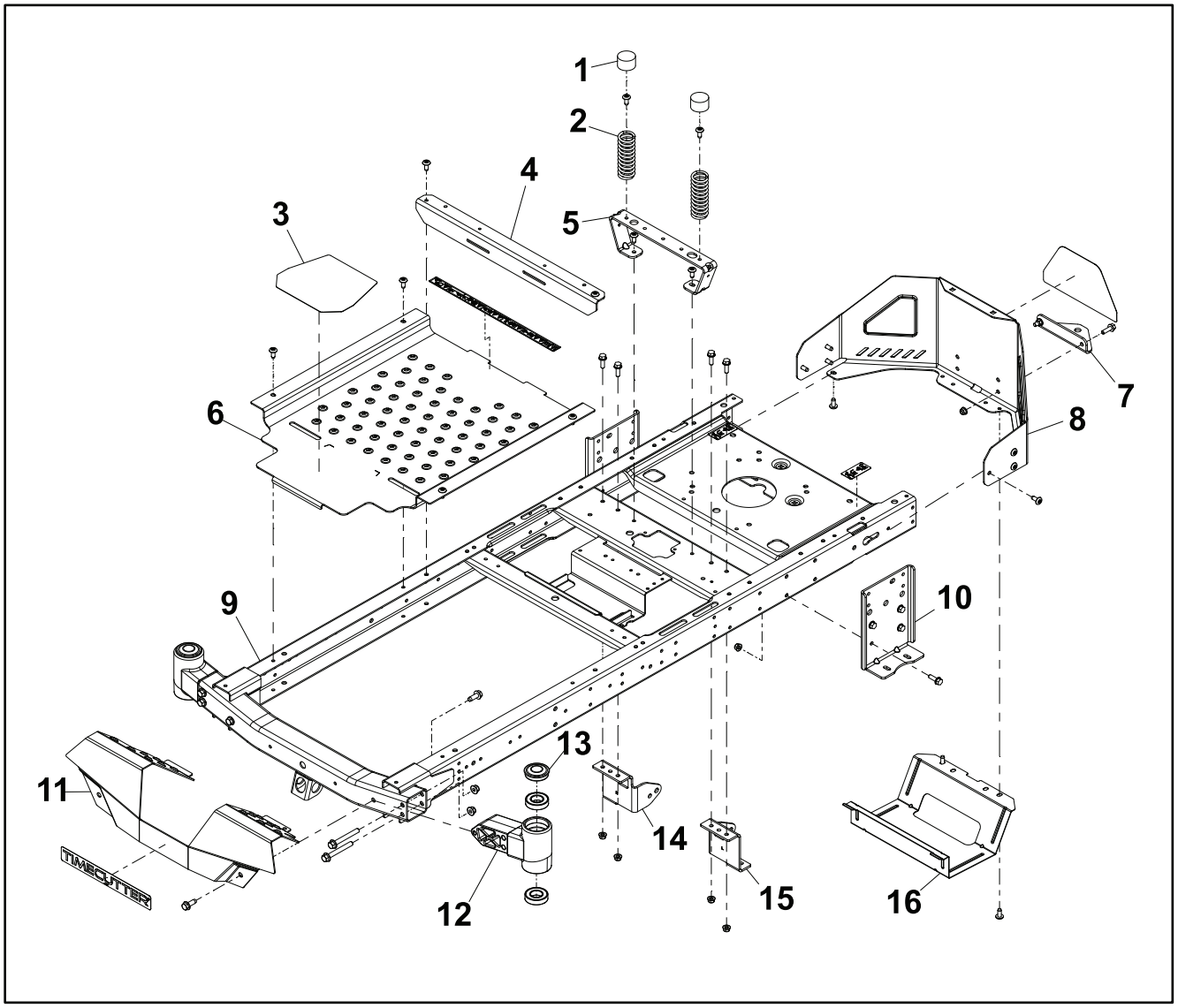


g306612

Figure 46

1. Seat Base Asm.
2. Lever Knob
3. Adjustment Lever
4. Compression Spring
5. Extension Spring
6. Cam Pulley
7. Flange Bushing
8. Shock/Spring Asm.
9. Seat Bracket
10. Seat Latch Bracket
11. RH Upper Shock Bracket Mount
12. LH Upper Shock Bracket Mount
13. Seat Pan
14. Clip
15. Seat Stop Bracket
16. Seat Prop Rod
17. Seat Bumper
18. Cable Bracket
19. Subframe
20. Lower Bracket
21. Adjustment Rod
22. Cotter Pin
23. Swing Arm
24. RH Torsion Spring
25. Spring Retainer
26. Adjuster Plate
27. Spring Retainer
28. MYRIDE® Adjustment Cable
29. External Retaining Spring
30. LH Torsion Spring
31. Spacer Tube

Chassis Assembly 7

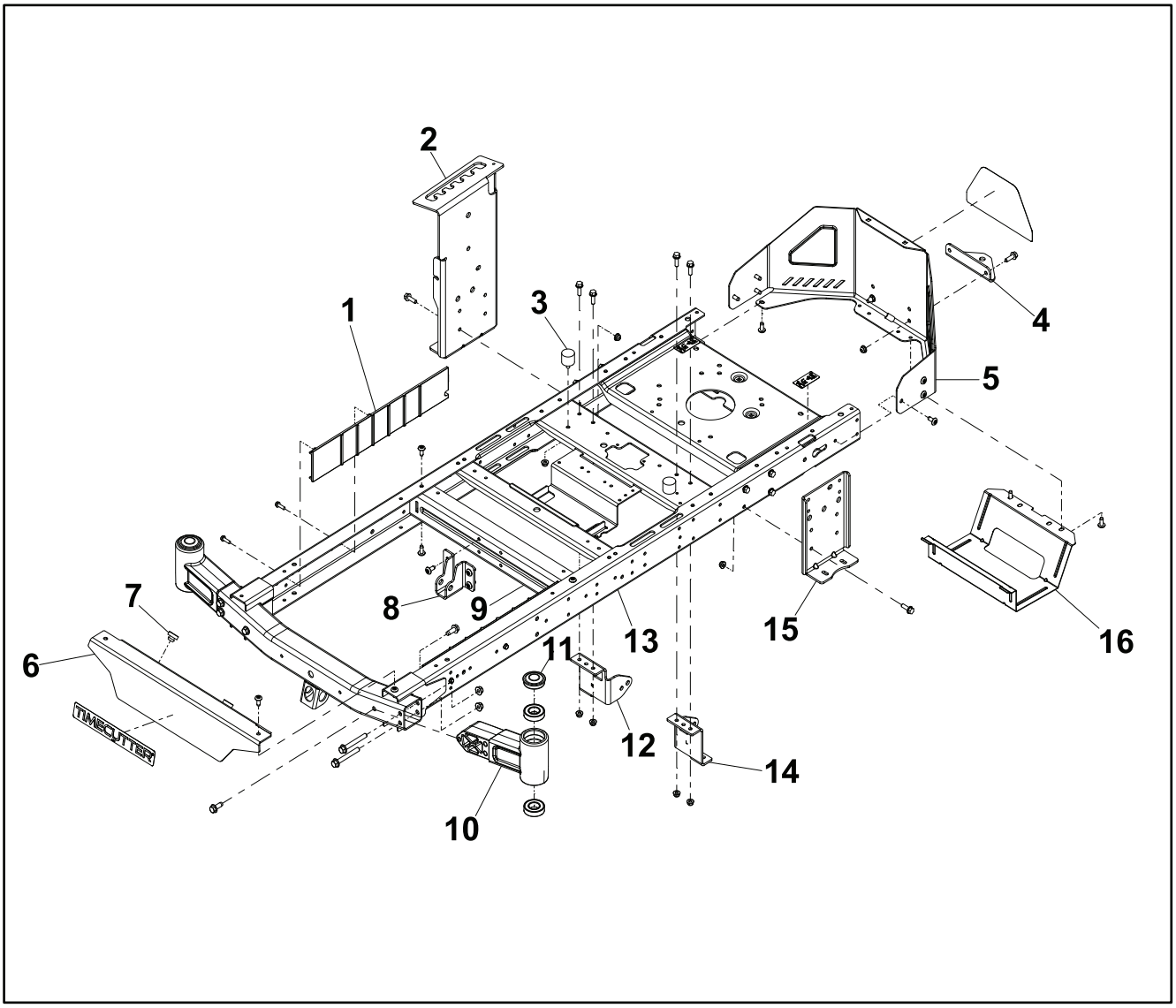


g306653

Figure 47

1. Protector Cap
2. Compression Spring
3. Floor Pan
4. Cross Brace
5. Seat Support
6. Floor Pan
7. Hitch Bracket
8. Engine Guard
9. TIMECUTTER® Frame Weldment
10. Hydro Plate Mount
11. Footrest
12. Axle Stub Asm.
13. Grease Cap
14. Right Front Hydro Mount
15. Left Front Hydro Mount
16. Muffler Guard

Chassis Assembly 8

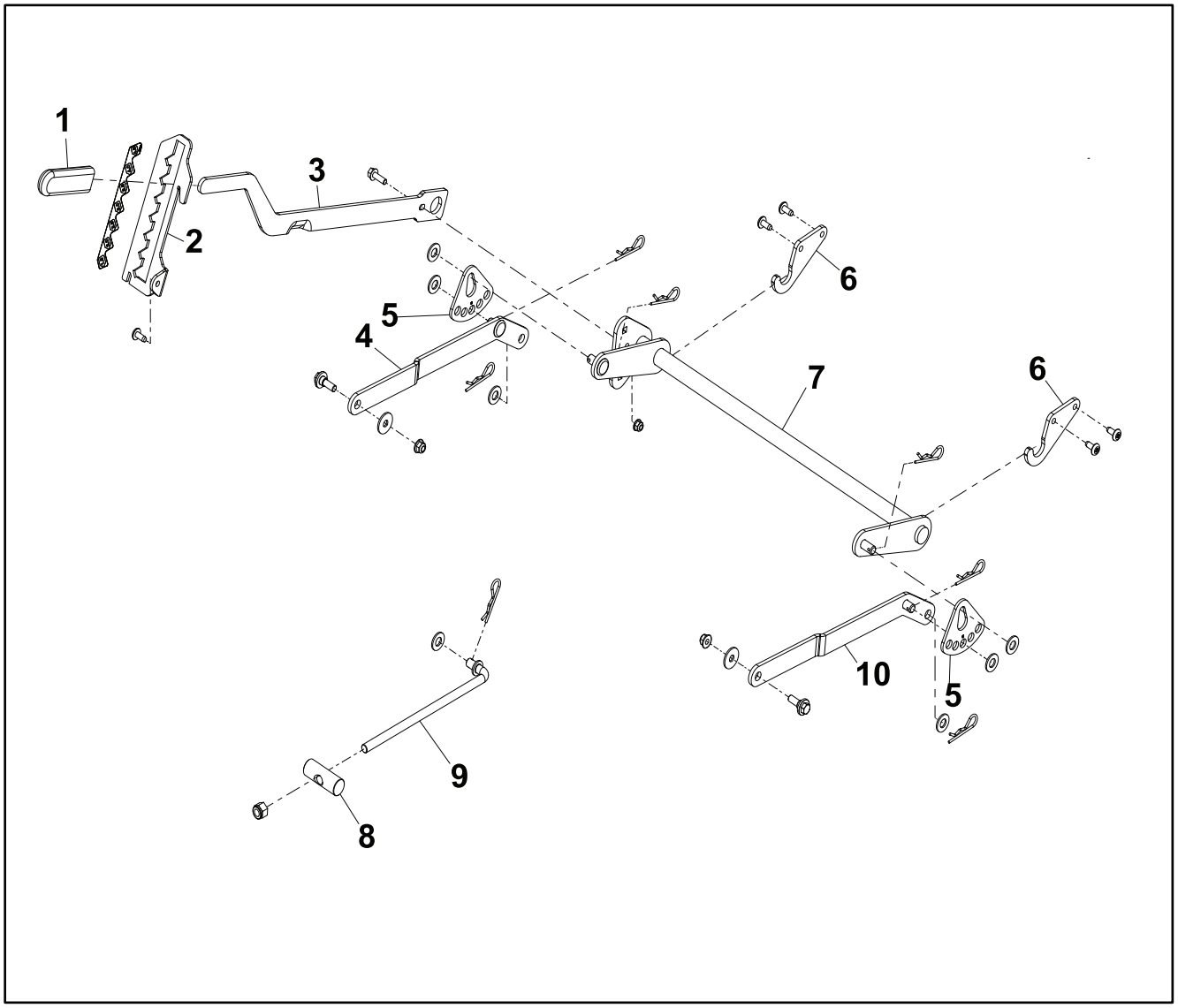


g306654

Figure 48

1. Rail Guard
2. RH Hydro Mount Plate
3. Rubber Bumper
4. Hitch Bracket
5. Engine Guard
6. Footrest
7. Seat Bumper
8. Lower Damper Mount Bracket
9. Lower Cross Brace
10. Axle Stub Asm.
11. Grease Cap
12. Right Front Hydro Mount
13. TIMECUTTER® Frame Weldment
14. Left Front Hydro Mount
15. Hydro Mount Plate
16. Muffler Guard

Chassis Assembly 9

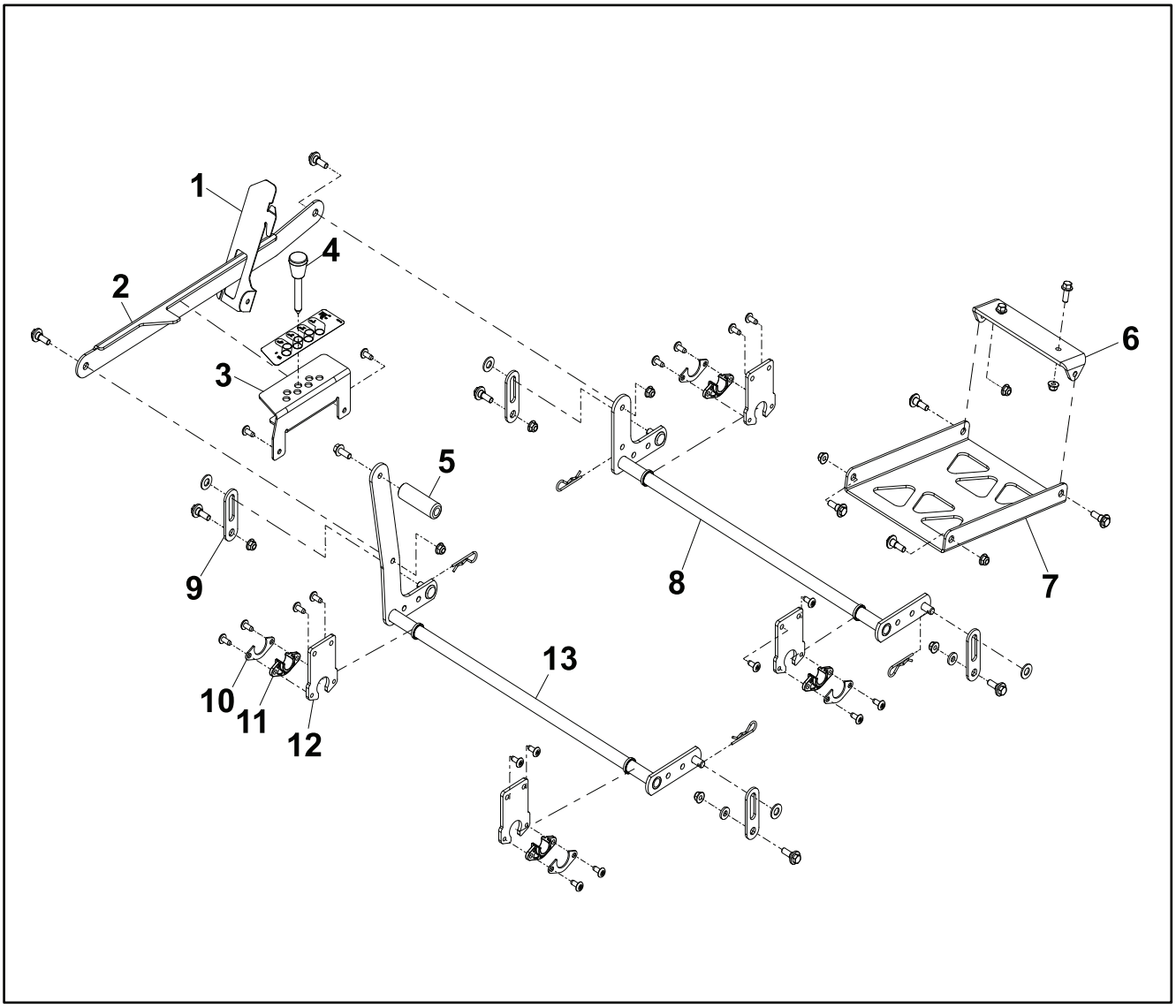


g306655

Figure 49

1. Lever Grip
2. HOC Bracket
3. Lift Lever
4. RH Arm Asm.
5. HOC Adjustment Plate
6. Decklift Pivot Bracket
7. Deck Lift Asm.
8. Pivot Pin
9. Deck Mount Rod
10. LH Arm Asm.

Chassis Assembly 10

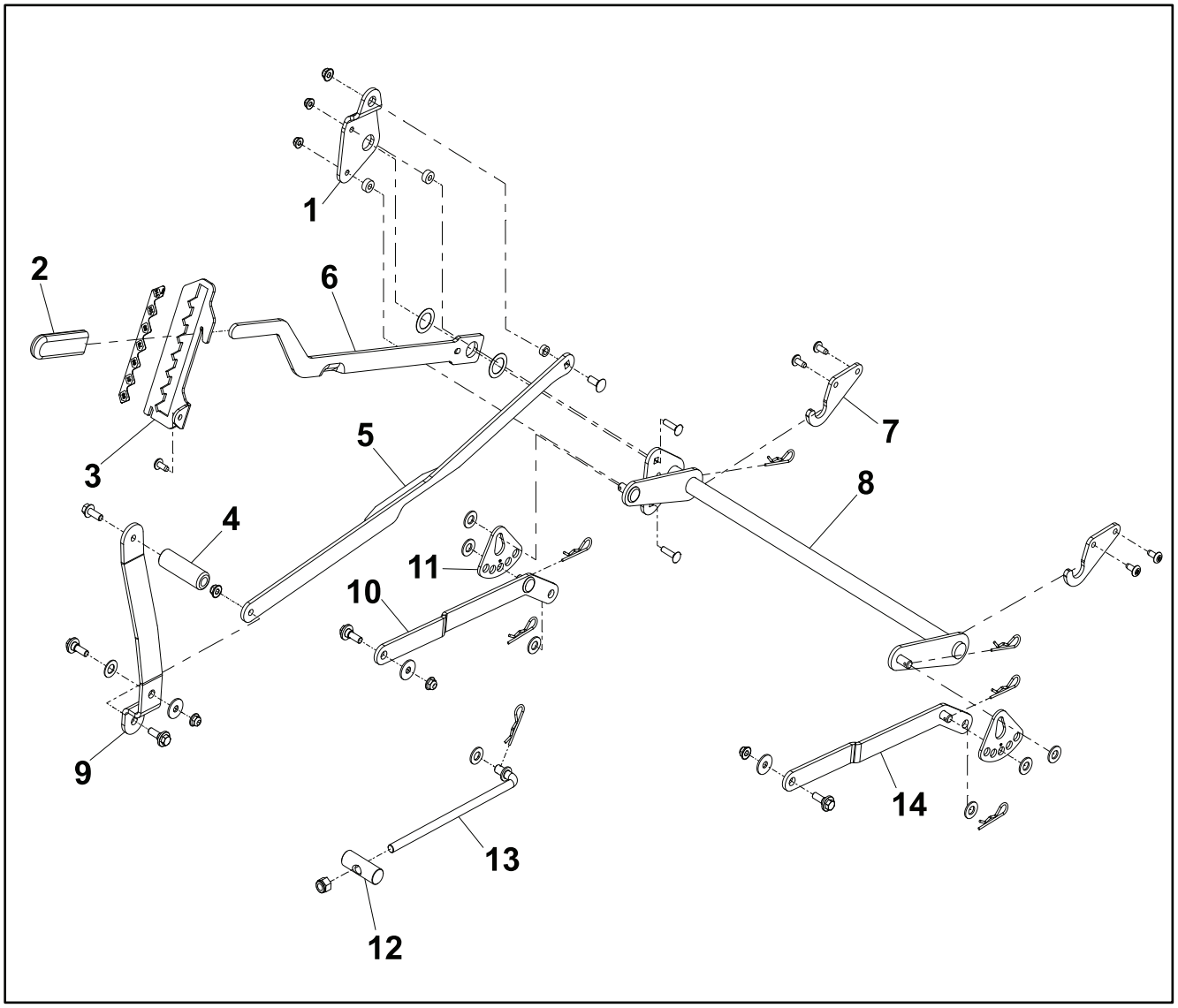


g306690

Figure 50

1. HOC Bracket
2. HOC Link
3. HOC Bracket
4. HOC Pin
5. Foot Pedal
6. Pan Mount
7. Pivot Deck Pan
8. Rear Pivot Asm.
9. Deck Lift Link
10. Deck Lift Gusset
11. Flange Bearing
12. Shaft Cross Support
13. Front Pivot Asm.

Chassis Assembly 11

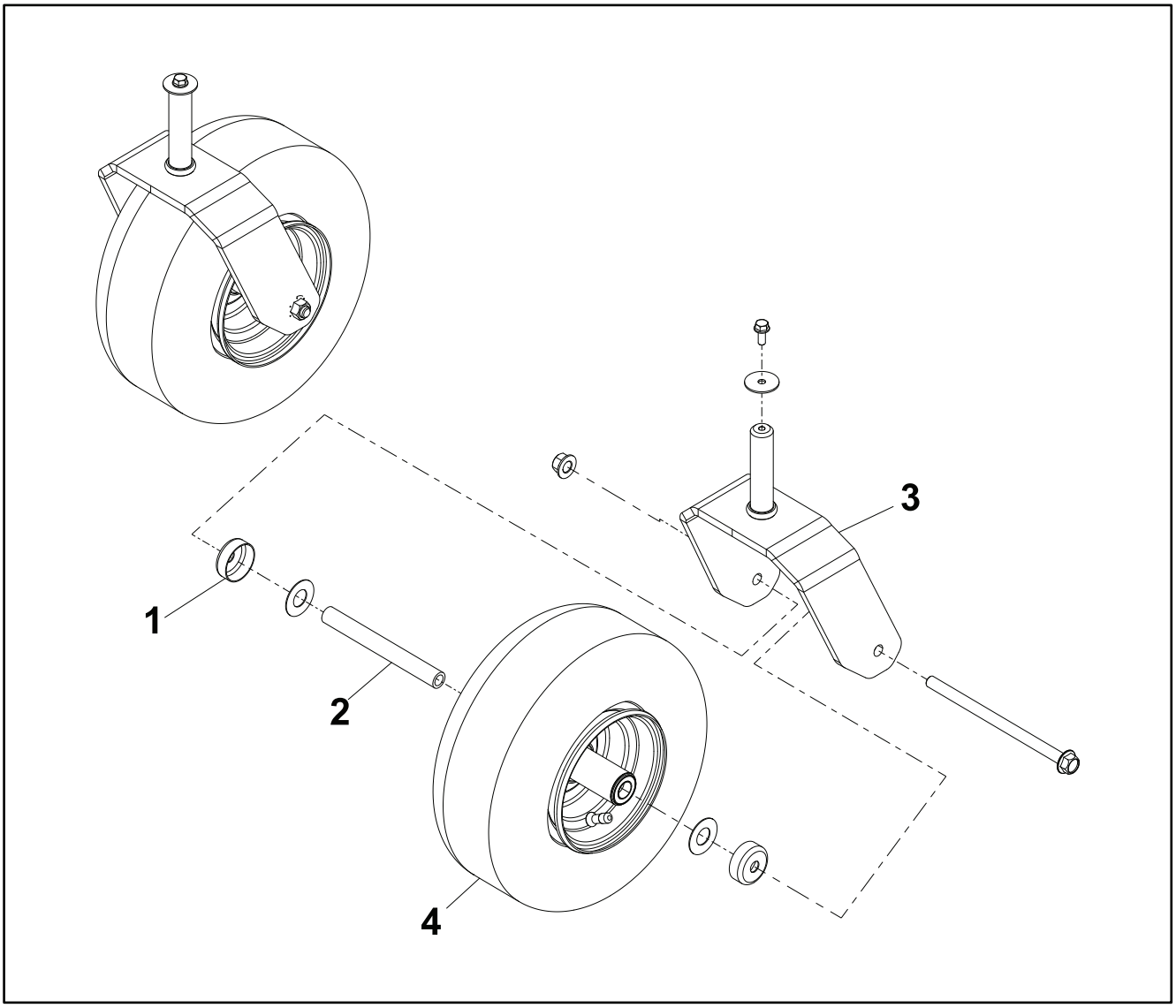


g306691

Figure 51

1. Foot Lift Pedal
2. Lever Grip
3. HOC Bracket
4. Foot Lift Pedal
5. Link
6. Lift Lever
7. Deck Lift Pivot Bracket
8. Deck Lift Asm.
9. Lift Pedal
10. RH Arm Asm.
11. HOC Adjustment Plate
12. Pivot Pin
13. Deck Mount Rod
14. LH Arm Asm.

Chassis Assembly 12



g306775

Figure 52

1. Seal Guard
2. Wheel Spanner
3. Fork Asm.
4. Tire Asm.

Caster Fork Replacement

Caster Fork Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Using an appropriate lifting device, raise the front of the machine off the floor.
3. Remove the ¾ inch bolt and nut securing the wheel to the caster fork. Remove the wheel from the machine.

g300687

Figure 53

4. Using a flat head screw driver, remove the top dust cover.

g308652

Figure 54

5. Remove the ½ inch bolt securing the caster fork to stub shaft.
6. Remove the caster fork from the stub shaft.

Caster Fork Installation

1. Install the caster fork to the stub shaft.

2. Install the ½ inch bolt securing the caster fork to the stub shaft. Torque bolt to 22.5–25 N • m (200–225 in-lb).

g300689

Figure 55

3. Install the top dust cover.

4. Install the wheel to the machine. Secure with the ¾ inch bolt and nut securing the wheel to the caster fork. Torque bolt and nut to 36.5–50 N • m (27–37 ft-lb).

g300687

Figure 56

5. Lower the front of the machine to the floor.

Caster Wheel Bushing Replacement

Caster Wheel Bushing Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Using an appropriate lifting device, raise the front of the machine off the floor.
3. Remove the ¾ inch bolt and nut securing the wheel to the caster fork. Remove the wheel from the machine.

g300687

Figure 57

4. Remove the center axle from the bushings.

g300700

Figure 58

5. Using a hammer and punch, remove the bushings from the wheel (2 bushings and 1 axle per wheel).
6. Inspect bushings and axle, replace as necessary.

Caster Wheel Bushing Installation

1. Install the bushings to the wheel (2 bushings and 1 axle per wheel).
2. Install the center axle to the bushings.

g300700

Figure 59

3. Install the wheel to the machine. Secure with a ¾ inch bolt and nut securing the wheel to the caster fork. Torque bolt and nut to 36.5–50 N • m (27–37 ft-lb).

g300687

Figure 60

4. Lower the machine to the floor.

Stub Shaft Replacement

Stub Shaft Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.

2. Using an appropriate lifting device, raise the front of the machine off the floor.
3. Remove the ¾ inch bolt and nut securing the wheel to the caster fork. Remove the wheel from the machine.

g300687

Figure 61

4. Using a flat head screw driver, remove the top dust cover.

g300688

Figure 62

5. Remove the ½ inch bolt securing the caster fork to stub shaft. Remove the caster fork from the stub shaft.
6. Remove the 4 (9/16 inch) nut and bolt (3 front, 1 back) securing the stub shaft to the front axle asm.

Stub Shaft Removal (continued)

g300752

Figure 63

7. Remove the stub shaft from the front axle asm.

g300753

Figure 64

8. Remove the bearings from the stub shaft, inspect and replace as necessary.

Stub Shaft Installation

1. Install the bearings to the stub shaft.
2. Install the stub shaft to the front axle asm.

g300753

Figure 65

3. Install the 4 (9/16 inch) nut and bolt (3 front, 1 back) securing the stub shaft to the front axle asm. Hand tighten all fasteners.

g300752

Figure 66

4. Lower the machine to the floor. The weight of the machine should be on the ground before tightening hardware.

5. Tighten the 2 bolts with nuts first, then tighten the self-tapping screws last (rear before front). Torque bolts with nuts and screws to 36.5–44.5 N • m (27–33 ft-lb).

6. Install the caster fork to the stub shaft. Secure with ½ inch bolt securing the caster fork to the stub shaft. Torque the bolt to 36.5–44.5 N • m (27–33 ft-lb).

7. Install the dust cover.

g300688

Figure 67

8. Install the wheel to the machine. Secure with the ¾ inch bolt and nut securing the wheel to the caster fork. Torque the bolt to 36.5–50 N • m (27–37 ft-lb).

g300687

Figure 68

Pod Replacement

Pod Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Flip the seat forward.
3. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.

4. Remove the fuel cap on the LH side pod.
5. Move the motion control from the neutral lock to the neutral position.
6. Remove the LH pod from the machine.

   Note: The LH and RH pod removal are the same except the RH pod has the control panel and smart speed knob.

7. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 69

8. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

g301692

Figure 70

9. Remove the RH pod from the machine.

Pod Installation

1. Place the RH pod into position on the machine.
2. Install the control panel. Hand tighten with the screw securing the control panel to the RH pod.

g301692

Figure 71

3. Install the smart speed knob to the smart speed lever. Hand tighten with the screw securing the smart speed knob to the smart speed lever.

g301691

Figure 72

4. Place the LH pod into position on the machine.
5. Move the motion control from the neutral position to the neutral lock position.
6. Install the fuel cap on the LH side pod.
7. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).
8. Flip the seat back into position.

Fuel Tank Replacement

Fuel Tank Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Flip the seat forward.
3. Using a T–30 torque bit, remove the 3 screws (per pod) securing the pod to the pod support brackets.
4. Remove the fuel cap on the LH side pod.
5. Move the motion control from the neutral lock to the neutral position.
6. Remove the LH pod from the machine.
7. Install the fuel cap to the LH pod to prevent fuel spill. Fully tighten.

g301703

Figure 73

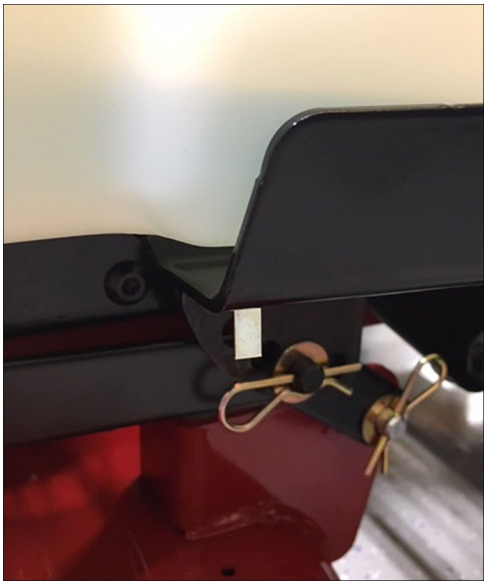
8. Remove the spring clamps securing the fuel hose and the fuel vent hose. Remove the fuel hose and fuel vent hose from the fuel tank fittings. Cap all hoses.

   Note: The fuel tank labels both vent and fuel ports and line orientation.

g301704

Figure 74

9. Remove the 2 strap fasteners from the bottom of the fuel tank. Remove the fuel tank from the chassis.

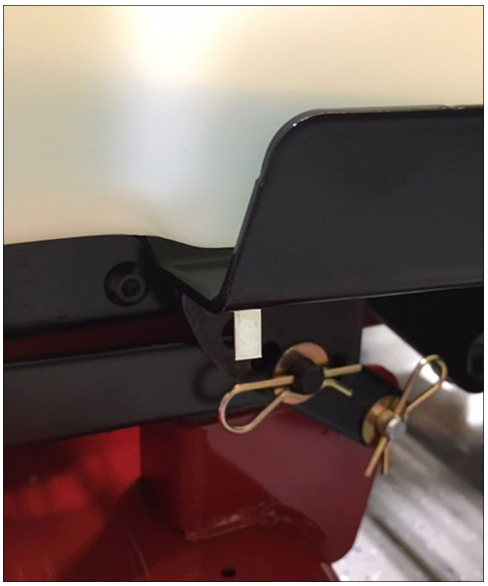


g301705

Figure 75

Fuel Tank Installation

1. Install the fuel tank to the chassis. Secure with the 2 strap fasteners at the bottom of the fuel tank.



g301705

Figure 76

2. Remove the cap from the hoses. Install the fuel hose and fuel vent hose to the fuel tank fittings. Secure with spring clamps.

   Note: The fuel hose and fuel vent hose ports and hose orientation are labeled on the fuel tank.

g301704

Figure 77

3. Remove the fuel cap from the LH pod.
4. Install the LH pod into position on the machine.
5. Move the motion control from the neutral position to the neutral lock.
6. Install the fuel cap on the LH side pod.

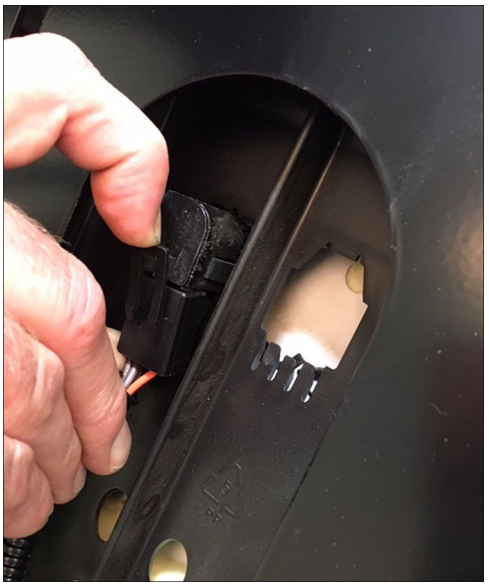
7. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).

8. Flip the seat back into position.

Seat Assembly Replacement

Seat Assembly Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Flip the seat forward and remove the seat switch connection.



g301716

Figure 78

3. Flip the seat back to the operator position.
4. Remove the 2 (T–27) screws from the front of the seat pan.

g301717

Figure 79

5. Lift and remove the seat from the seat rod.

Seat Assembly Removal (continued)

g301718

Figure 80

Seat Assembly Installation

1. Install the seat onto the seat rod.

g301718

Figure 81

Seat Assembly Installation (continued)

2. Install the 2 (T–27) screws to the front of the seat pan. Torque screws to 11 N • m (100 in-lb).

g301717

Figure 82

3. Install the seat switch connection.

g301716

Figure 83

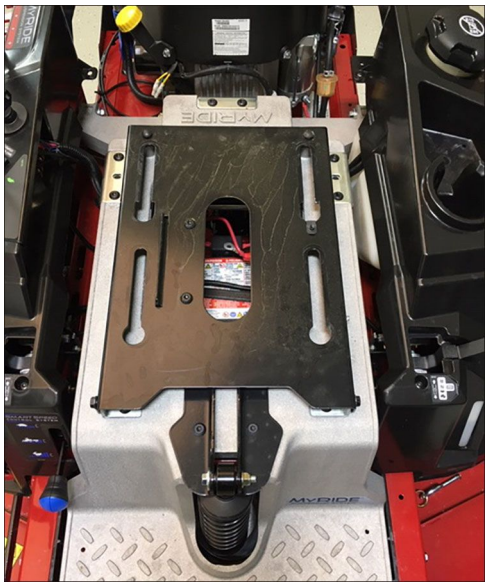
4. Flip the seat back into the operator position.

MYRIDE® Seat/Platform Replacement

MYRIDE® Seat/Platform Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.

2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Lift the seat forward.
4. Disconnect the seat switch.
5. Remove the 3/8 inch head bolt securing the seat stop bracket to the seat mount. Remove the seat stop bracket from the machine.
6. Lower the seat. Slide the seat to the most forward position.
7. Remove the seat from the machine.



g301739

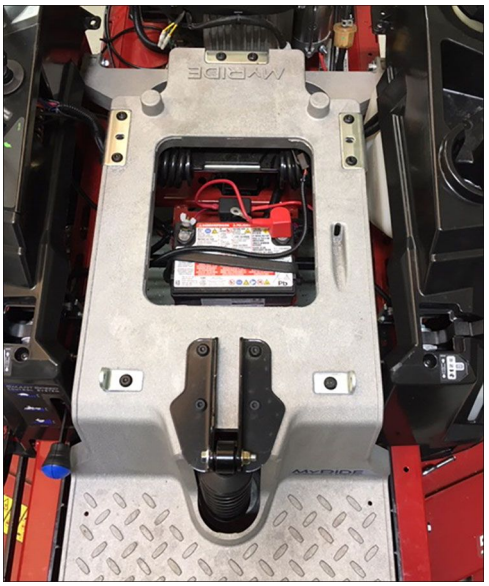
Figure 84

8. Remove the 2 (1/2 inch) bolts securing the seat mount to the MYRIDE® platform.

g301740

Figure 85

9. Remove the seat mount from the machine.



g301741

Figure 86

10. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
11. Move the motion control from the neutral lock to the neutral position.
12. Using a Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 87

13. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

g301692

Figure 88

14. Remove the RH pod from the machine.
15. Move the MYRIDE® adjustment lever to most forward position. Relieve the tension from the MYRIDE® adjustment spring cable.

g301755

Figure 89

16. Remove the MYRIDE® assist spring from the MYRIDE® cam assembly and the frame.

    Note: Long end secures towards the front of the machine.

17. Move the MYRIDE® adjustment lever to the most rearward position. Using a ½ inch wrench, remove the front nut from the MYRIDE® cable. Remove the MYRIDE® cable from the cam assembly.
18. Unscrew the knob. Remove the ½ inch bolt and 9/16 inch nut securing the cam to the chassis.

19. Remove the cable from the cam.

g301756

Figure 90

20. Remove the cam assembly from the machine.

g309644

Figure 91

⚠ CAUTION ⚠

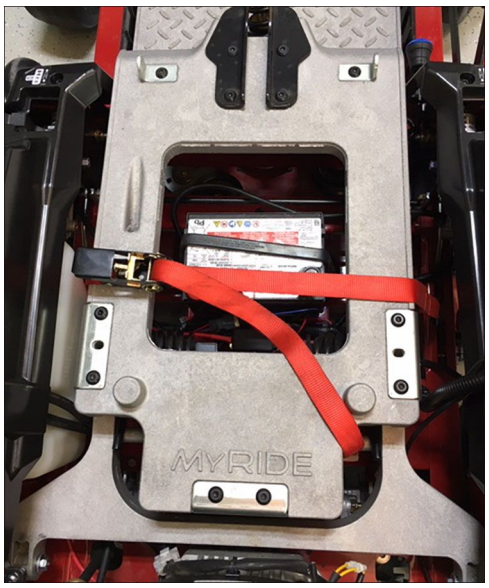
May need assistance to perform next step.

21. Remove the nut securing the top of the front MYRIDE® shock to the MYRIDE® platform.

g301752

Figure 92

22. Using a rachet strap, hook the strap to both frame rails on either side of the MYRIDE® platform.



g301753

Figure 93

g301754

Figure 94

CAUTION

May need assistance to perform next step. Springs are under extreme load.

23. Remove the 2 (1/2 inch) bolts and nuts securing the MYRIDE® stop bracket to the MYRIDE® platform.

g301769

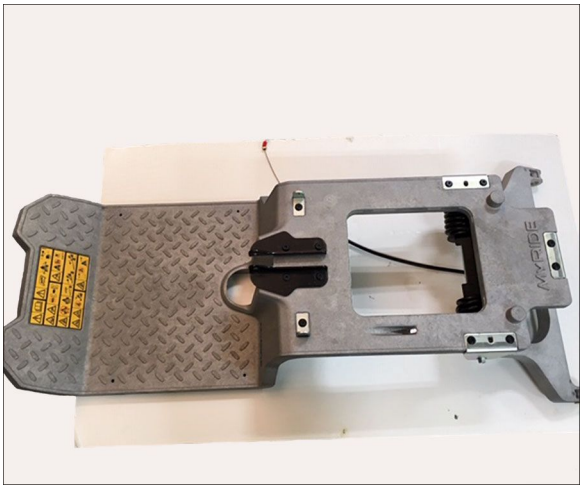
Figure 95

24. Relieve the tension from the MYRIDE® platform by removing the ratchet strap.
25. Remove the 2 (9/16) inch nuts and bolts securing the MYRIDE® trailing to the chassis.

g301770

Figure 96

26. Using an appropriate lifting device, remove the MYRIDE® platform from the machine.

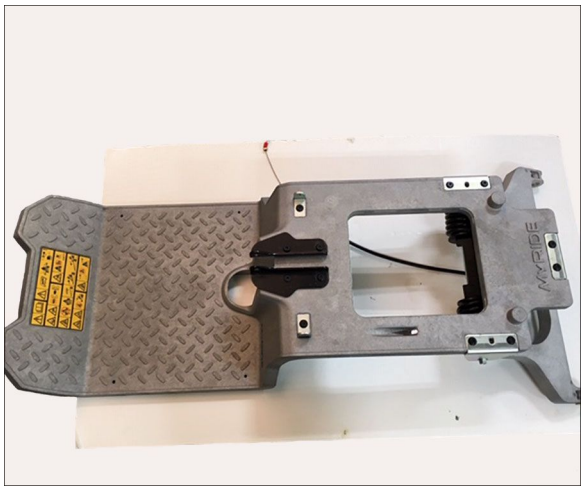


g301771

Figure 97

MYRIDE® Seat/Platform Installation

1. Using an appropriate lifting device, install the MYRIDE® platform onto the machine.



g301771

Figure 98

⚠ CAUTION ⚠

May need assistance to perform next step. Springs are under extreme load.

2. Install the 2 (9/16 inch) inch nuts and bolts securing the MYRIDE® trailing to the chassis. Torque nuts and bolts to 40.5–44.5 N • m (30–33 ft-lb).

g301770

Figure 99

3. Install the 2 (1/2 inch) bolts and nuts securing the MYRIDE® stop bracket to the MYRIDE® platform. Torque the bolts and nuts to 22.5–25 N • m (200–225 in-lb).

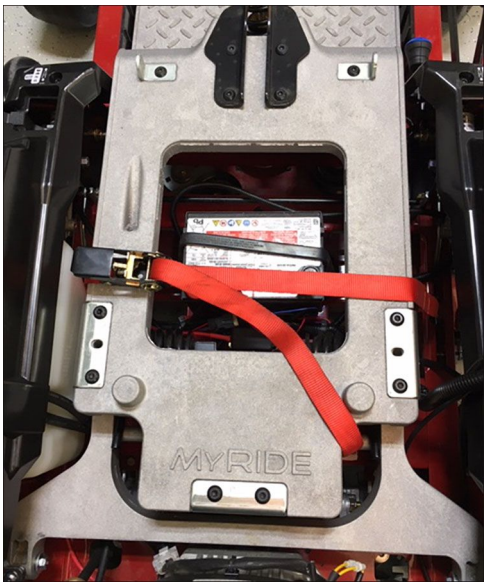
g301769

Figure 100

4. Using a rachet strap, hook the strap to both frame rails on either side of the MYRIDE® platform.

g301754

Figure 101



g301753

Figure 102

CAUTION

May need assistance to perform next step.

5. Push on the rear of the MYRIDE® platfrom and use the rachet strap to compress and secure the torsion springs on the MYRIDE® platform.
6. Install the nut securing the top of the front MYRIDE® shock to the MYRIDE® platform. Torque nut to 40.5–44.5 N • m (30–33 ft-lb).
7. Install the cam assembly onto the machine.
8. Install the cable to the cam.

g301756

Figure 103

9. Screw on the knob until hand tight. Install the ½ inch bolt and 9/16 inch nut securing the cam to the chassis. Torque bolt and nut to 40.5–44.5 N • m (30–33 ft-lb).

10. Install the MYRIDE® cable to the cam assembly. Move the MYRIDE® adjustment lever to the most forward position. Using a ½ inch wrench, install the front nut to the MYRIDE® cable.

g301755

Figure 104

11. Install the MYRIDE® assist spring to the MYRIDE® cam assembly and the frame.

    Note: The long end secures towards the front of the machine.

12. Add tension to the MYRIDE® adjustment spring cable. Move the MYRIDE® adjustment lever to most rearward position.

13. Place the RH pod into position on the machine.

14. Install the control panel. Hand tighten the screw securing the control panel to the RH pod.

g301692

Figure 105

15. Install the smart speed knob to the smart speed lever. Hand tighten the screw securing the smart speed knob to the smart speed lever.

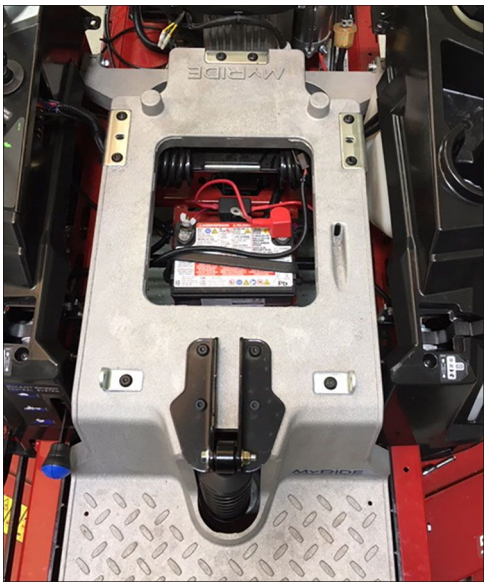
g301691

Figure 106

16. Move the motion control from the neutral position to the neutral lock position.

17. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).

18. Install the seat mount to the machine.



g301741

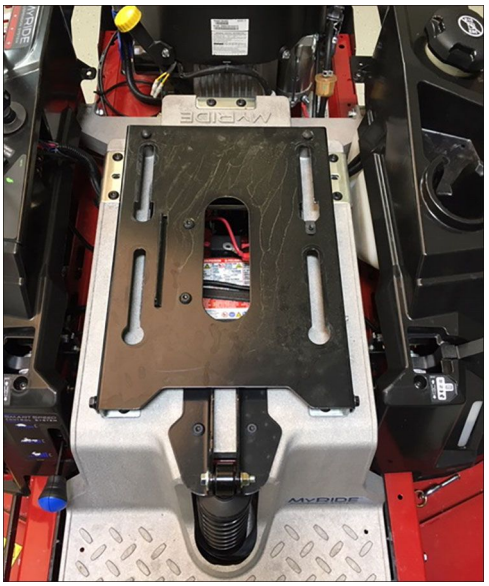
Figure 107

19. Install the 2 (1/2 inch) bolts securing the seat mount to the MYRIDE® platform. Torque bolts to 5.5–6.5 N • m (53–60 in-lb).

g301740

Figure 108

20. Install the seat onto the machine.

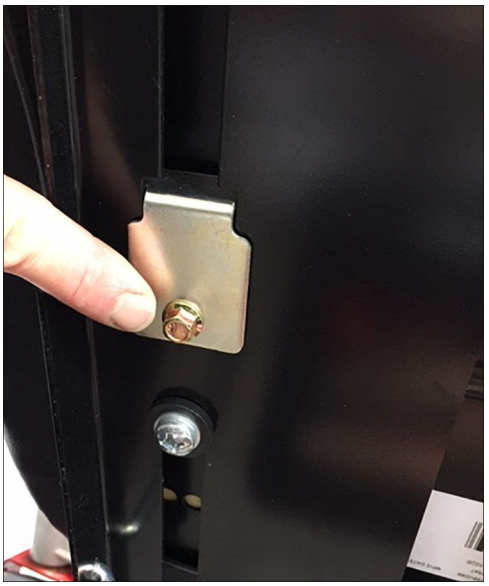


g301739

Figure 109

21. Slide the seat to most rearward position. Lower the seat.

22. Install the seat stop bracket to the machine. Install the 3/8 inch head bolt securing the seat stop bracket to the seat mount. Torque head bolt to 11 N • m (100 in-lb).



g301774

Figure 110

23. Connect the seat switch.

g301773

Figure 111

24. Lower the seat forward.
25. Connect the positive battery cable first, then the negative battery cable to the battery.

Steering Control Box Replacement

Steering Control Box Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. To relieve tension on deck lift handle, place wood blocks (2x4 inches) under each side of the deck. Lower the deck until tension is relieved from the lift handle.
3. Flip the seat forward and remove the seat switch connection.

g301716

Figure 112

4. Flip the seat back to the operator position.
5. Remove the 2 (T-27) screws from the front of the seat pan.

g301717

Figure 113

6. Lift and remove the seat from the seat rod.

g301718

Figure 114

7. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
8. Remove the fuel cap on the LH side pod.
9. Move the motion control from the neutral lock to the neutral position.
10. Remove the LH pod from the machine.

    Note: LH and RH pod removal are the same except the RH pod has the control panel and smart speed knob.
11. Reinstall the fuel cap to the LH pod to prevent fuel spill. Fully tighten.

g301703

Figure 115

12. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 116

13. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

g301692

Figure 117

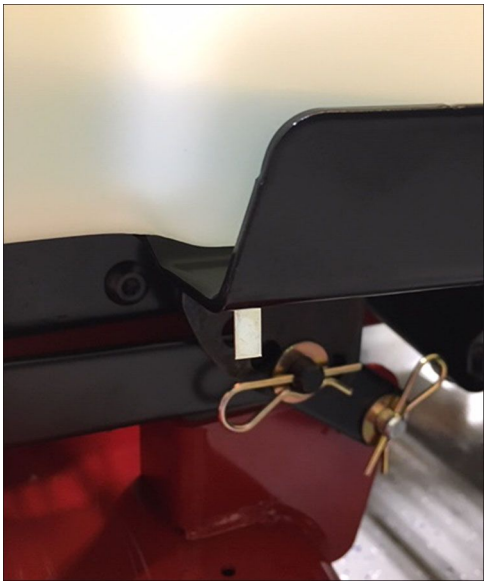
14. Remove the RH pod from the machine.
15. Remove the spring clamps securing the fuel hose and the fuel vent hose. Remove the fuel hose and fuel vent hose from the fuel tank fittings. Cap all hoses.

    Note: The fuel tank labels both vent and fuel ports and line orientation.

g301704

Figure 118

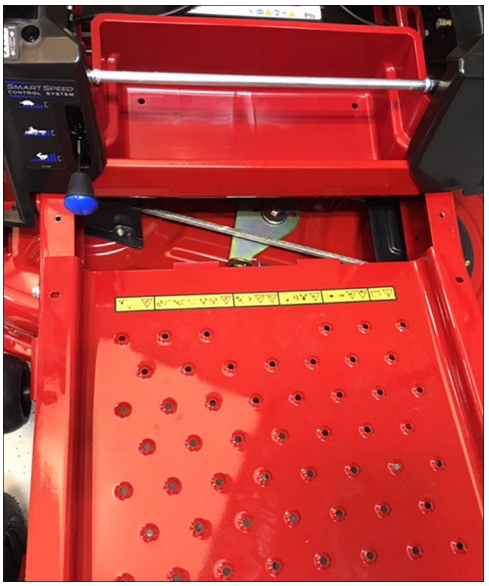
16. Remove the 2 strap fasteners from the bottom of the fuel tank. Remove the fuel tank from the chassis.



g301705

Figure 119

17. Remove the 2 front pod mounting screws (T-30).
18. Remove the 2 screws (T-20) securing the cubbie to the chassis.



g301788

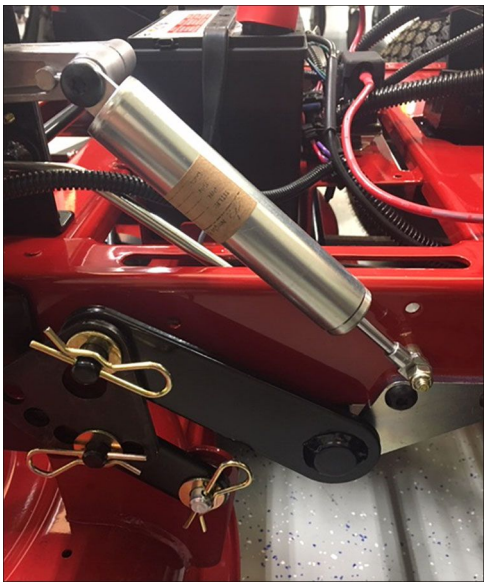
Figure 120

19. Move the smart speed selector to the turtle/trim position.
20. Remove the cubbie by lifting the front of each pod to maneuver the cubbie away from the chassis.
21. Remove the 2 (9/16 inch) bolts per motion control arm.

g301789

Figure 121

22. Remove the top T-30 screw and 7/16 inch nut securing the damper to the chassis and motion control actuator.



g301790

Figure 122

23. Remove the motion control neutral switch from the steering control box by depressing the tabs on either side of the switch. Remove the switch from the control box.

g301791

Figure 123

g301792

Figure 124

24. Remove the 5/16 inch screw (1 per mount) securing the 2 speed selector rod retaining mounts.

g301793

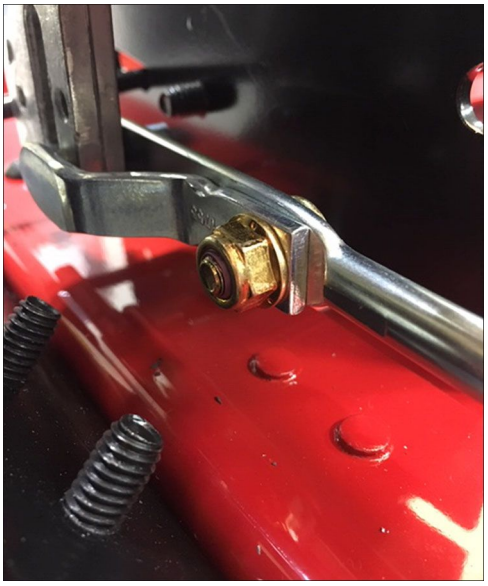
Figure 125

25. Pull back on the speed selector rod lift and remove the speed selector rod from the machine.

g301896

Figure 126

26. Remove the 7/16 inch nut securing the motion control rod to the motion control actuator. Remove the motion control rod.



g301897

Figure 127

27. Remove the 4 (T–30) screws (4 per control box) securing the steering control box to the chassis. Remove the steering control box and seat rod from the machine.

    Note: When removing the RH steering control box, remove the T-30 screw securing the height-of-cut bracket to the chassis.

Steering Control Box Removal (continued)

g301898

Figure 128

Steering Control Box Disassembly

1. Remove the T-30 screw securing the return to neutral from reverse spring to the steering control box. Remove the return to neutral from reverse spring.

g301930

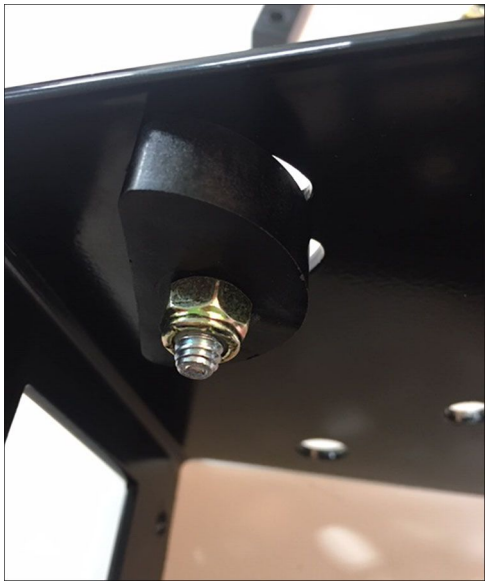
Figure 129

2. Remove the 9/16 inch nut and ¾ inch bolt securing the actuator arm to the steering control box. Remove the actuator arm from the steering control box.

g301931

Figure 130

3. Remove the 9/16 inch nut and bolt securing the lower motion control lever to the motion control actuator.

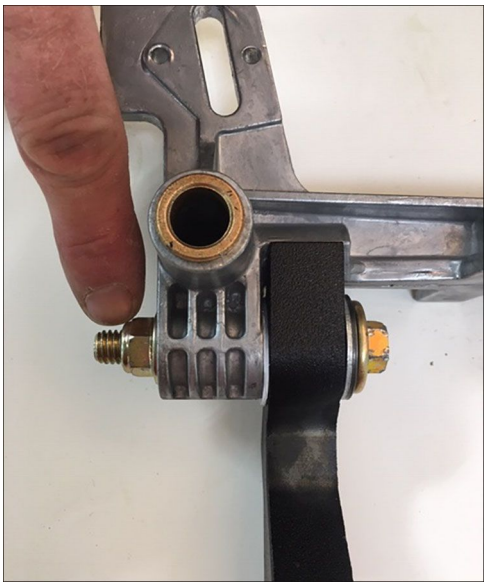


g301932

Figure 131

4. Remove the 7/16 inch nut and bolt securing the tracking adjustment block to the steering control box.

Steering Control Box Disassembly (continued)

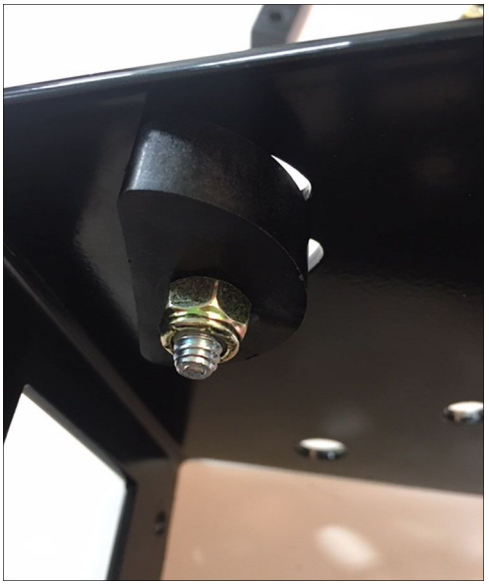


g301933

Figure 132

Steering Control Box Assembly

1. Install the 7/16 inch nut and bolt securing the tracking adjustment block to the steering control box. Torque nut and bolt to 11 N • m (100 in-lb).



g301932

Figure 133

2. Install the 9/16 inch nut and bolt securing the lower motion control lever to the motion control actuator. Torque nut and bolt to 40.5–44.5 N • m (30–33 ft-lb).

3. Install the actuator arm in the steering control box. Install the 9/16 inch nut and ¾ inch bolt securing the actuator arm to the steering control box. Torque nut and bolt to 40.5–44.5 N • m (30–33 ft-lb).

g301931

Figure 134

4. Install the return to neutral to the reverse spring. Install the T-30 screw securing the return to neutral from reverse spring to the steering control box. Torque screw to 11 N • m (100 in-lb).

g301930

Figure 135

Steering Control Box Installation

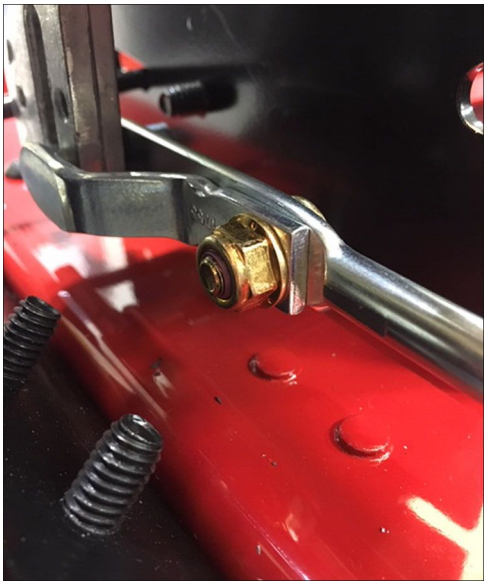
1. Install the steering control box and seat rod to the machine. Install the 4 (number 30 torque) screws (4 per control box) securing the steering control box to the chassis. Torque screws to 17–22.5 N • m (150–200 in-lb).

   Note: When installing the RH steering control box, install the T-30 screw securing the height-of-cut bracket chassis.

g301898

Figure 136

2. Install the motion control rod. Install the 7/16 inch nut securing the motion control rod to the motion control actuator. Torque nut to 11 N • m (100 in-lb).



g301897

Figure 137

3. Install the speed selector rod to the machine.

g301896

Figure 138

4. Install the 5/16 inch screw (1 per mount) securing the 2 speed selector rod retaining mounts. Torque screw to 4.5–5 N • m (42–47 in-lb).

g301793

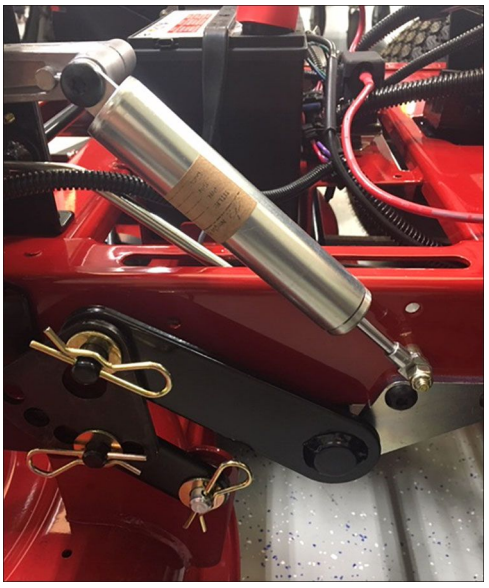
Figure 139

5. Install the switch into the control box by depressing the tabs on either side of the switch.

g301791

Figure 140

6. Install the top T-30 screw and 7/16 inch nut securing the damper to the chassis and motion control actuator. Torque screw and nut to 11 N • m (100 in-lb).



g301790

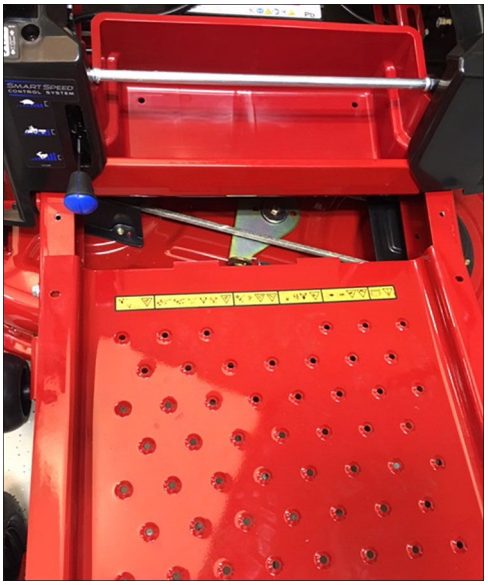
Figure 141

7. Install the 2 (9/16 inch) bolts per motion control arm. Torque bolts to 40.5–44.5 N • m (30–33 ft-lb).

g301789

Figure 142

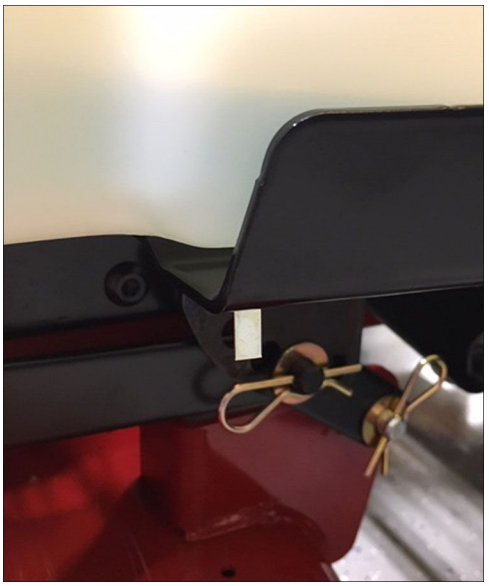
8. Install the cubbie onto the machine.
9. Move the smart speed selector to the trim/turtle position.
10. Install the 2 screws (T–20) securing the cubbie to the chassis. Torque screws to 11 N • m (100 in-lb).



g301788

Figure 143

11. Install the fuel tank to the chassis. Secure with the 2 strap fasteners at the bottom of the fuel tank.



g301705

Figure 144

12. Install the 2 front pod mounting screws (T–30). Torque screws to 11 N • m (100 in-lb).

13. Remove the cap from the hoses. Install the fuel hose and fuel vent hose to the fuel tank fittings. Secure with spring clamps.

    Note: The fuel hose and fuel vent hose ports and hose orientation are labeled on the fuel tank.

g301704

Figure 145

14. Place the RH pod into position on the machine.

15. Install the control panel. Hand tighten with the screw securing the control panel to the RH pod.

g301692

Figure 146

16. Install the smart speed knob to the smart speed lever. Hand tighten with the screw securing the smart speed knob to the smart speed lever.

g301691

Figure 147

17. Place the LH pod into position on the machine.
18. Move the motion control from the neutral position to the neutral lock position.
19. Install the fuel cap on the LH side pod.
20. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).
21. Flip the seat back into position.
22. Install the seat onto the seat rod.

g301718

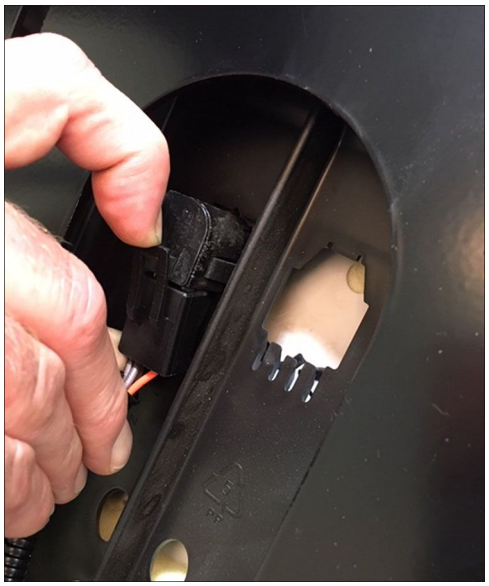
Figure 148

23. Install the 2 (T–27) screws to the front of the seat pan. Torque screws to 11 N • m (100 in-lb).

g301717

Figure 149

24. Install the seat switch connection.



g301716

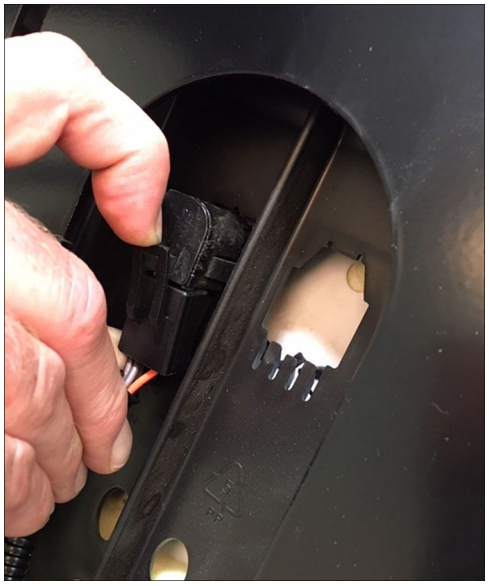
Figure 150

25. Flip the seat back into the operator position.

Motion Control Actuator Replacement

Motion Control Actuator Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. To relieve tension on deck lift handle, place wood blocks (2x4 inches) under each side of the deck. Lower the deck until tension is relieved from the lift handle.
3. Flip the seat forward and remove the seat switch connection.



g301716

Figure 151

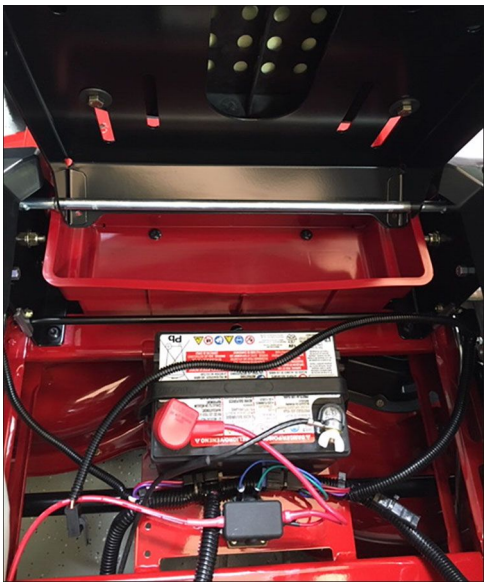
4. Flip the seat back to the operator position.

5. Remove the 2 (T-27) screws from the front of the seat pan.

g301717

Figure 152

6. Lift and remove the seat from the seat rod.



g301718

Figure 153

7. Using T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
8. Remove the fuel cap on the LH side pod.
9. Move the motion control from the neutral lock to the neutral position.
10. Remove the LH pod from the machine.

    Note: The LH and RH pod removal are the same except the RH pod has the control panel and smart speed knob.

11. Reinstall the fuel cap to the LH pod to prevent fuel spill. Fully tighten.

g301703

Figure 154

12. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 155

13. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

g301692

Figure 156

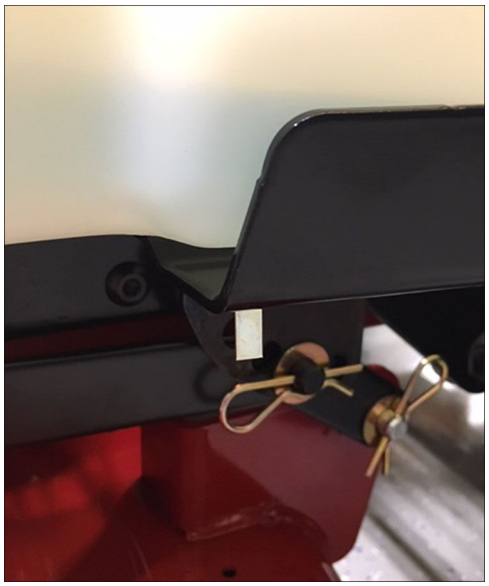
14. Remove the RH pod from the machine.
15. Remove the spring clamps securing the fuel hose and the fuel vent hose. Remove the fuel hose and fuel vent hose from the fuel tank fittings. Cap all hoses.

    Note: The fuel tank labels both vent and fuel ports and line orientation.

g301704

Figure 157

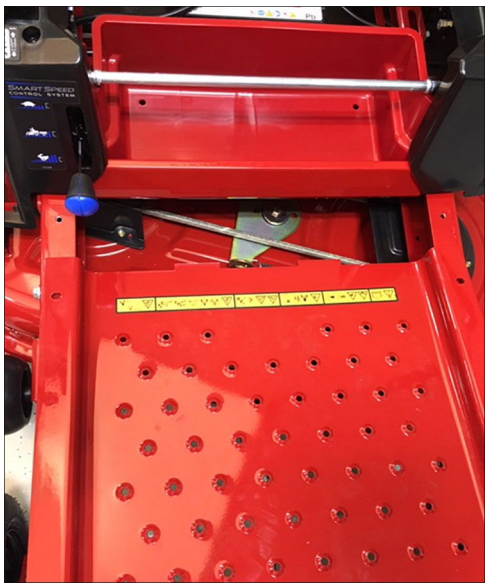
16. Remove the 2 strap fasteners from the bottom of the fuel tank. Remove the fuel tank from the chassis.



g301705

Figure 158

17. Remove the 2 front pod mounting screws (T-30).
18. Remove the 2 screws (T-20) securing the cubbie to the chassis.



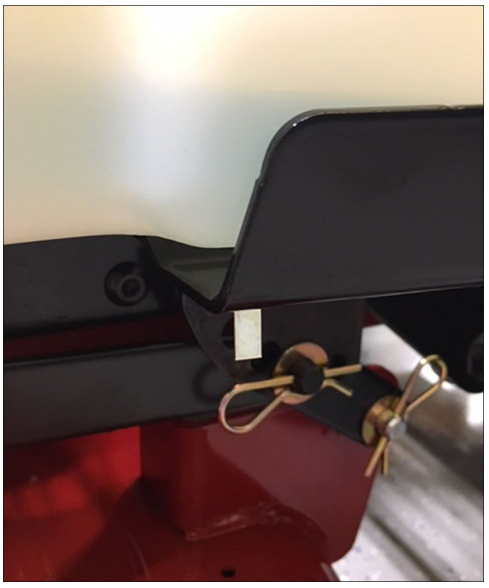
g301788

Figure 159

19. Move the smart speed selector to the trim/turtle position.
20. Remove the cubbie by lifting the front of each pod to maneuver the cubbie away from the chassis.
21. Remove the 2 (9/16 inch) bolts per motion control arm.
22. Remove the top T-30 screw and 7/16 inch nut securing the damper to the chassis and motion control actuator.
23. Disconnect the motion control neutral switch from the steering control box by depressing the tabs on either side of the switch. Disconnect the switch from the connector.
24. Remove the motion control actuator from the machine.

Motion Control Actuator Installation

1. Install the motion control actuator onto the machine.
2. Connect the switch to the connector. Install the motion control neutral switch into the steering control box by depressing the tabs on either side of the switch.
3. Install the top T-30 screw and 7/16 inch nut securing the damper to the chassis and motion control actuator. Torque screw and nut to 11 N • m (100 in-lb).
4. Install the 2 (9/16 inch) bolts per motion control arm. Torque bolt to 40.5–44.5 N • m (30–33 ft-lb).
5. Install the cubbie by lifting the front of each pod to maneuver the cubbie onto the chassis.
6. Move the smart speed selector to the trim/turtle position.
7. Install the 2 screws (T-20) securing the cubbie to the chassis. Torque screws to 11 N • m (100 in-lb).
8. Install the 2 (T-30) front pod mounting screws. Torque the screws to 11 N • m (100 in-lb).
9. Install the fuel tank to the chassis. Install the 2 strap fasteners to the bottom of the fuel tank.



g301705

Figure 160

10. Uncap the hoses. Install the fuel hose and fuel vent hose to the fuel tank fittings. Install the spring clamps securing the fuel hose and the fuel vent hose.

    Note: The fuel tank labels both vent and fuel ports and line orientation.

g301704

Figure 161

11. Install the RH pod to the machine.
12. Move the control panel into position on the machine. Using a Philips head screw driver, hand tighten the screw securing the control panel to the RH pod.

g301692

Figure 162

13. Install the smart speed knob to the smart speed lever. Using a Philips head screw driver, hand tighten the screw securing the smart speed knob to the smart speed lever.

g301691

Figure 163

14. Reinstall the fuel cap to the LH pod to prevent fuel spill. Fully tighten.

g301703

Figure 164

15. Install the LH pod to the machine.

    Note: The LH and RH pod install are the same except the RH pod has the control panel and smart speed knob.

16. Move the motion control from the neutral lock to the neutral position.
17. Remove the fuel cap on the LH side pod.
18. Using a T–30 torque bit, install the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
19. Lift and install the seat to the seat rod.

g301718

Figure 165

20. Install the 2 (T-27) screws to the front of the seat pan. Torque screw to 11 N • m (100 in-lb).

g301717

Figure 166

21. Flip the seat forward.
22. Install the seat switch connection and flip the seat into the operator's position.
23. Raise the deck until tension is added to the lift handle. Remove the wood blocks (2x4 inches) under each side of the deck.

Smart Speed Assembly Replacement

Smart Speed Assembly Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. To relieve tension on deck lift handle, place wood blocks (2x4 inches) under each side of the deck. Lower the deck until tension is relieved from the lift handle.
3. Flip the seat forward and remove the seat switch connection.

g301716

Figure 167

4. Flip the seat back to the operator position.
5. Remove the 2 (T-27) screws from the front of the seat pan.

g301717

Figure 168

6. Lift and remove the seat from the seat rod.

g301718

Figure 169

7. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
8. Remove the fuel cap on the LH side pod.
9. Move the motion control from the neutral lock to the neutral position.
10. Remove the LH pod from the machine.

    Note: The LH and RH pod removal are the same except the RH pod has the control panel and smart speed knob.
11. Reinstall the fuel cap to the LH pod to prevent fuel spill. Fully tighten.

g301703

Figure 170

12. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 171

13. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

g301692

Figure 172

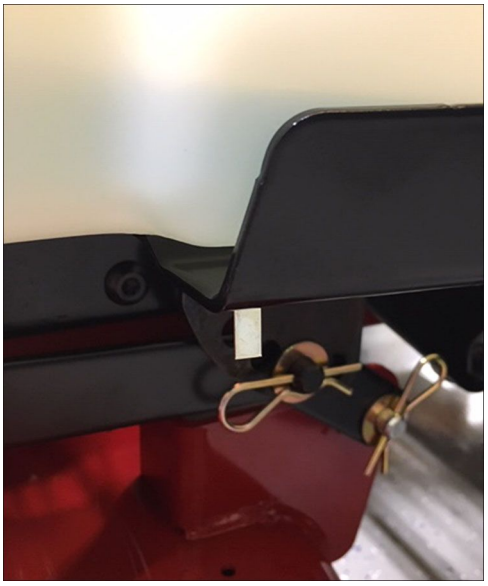
14. Remove the RH pod from the machine.
15. Remove the spring clamps securing the fuel hose and the fuel vent hose. Remove the fuel hose and fuel vent hose from the fuel tank fittings. Cap all hoses.

    Note: The fuel tank labels both vent and fuel ports and line orientation.

g301704

Figure 173

16. Remove the 2 strap fasteners from the bottom of the fuel tank. Remove the fuel tank from the chassis.

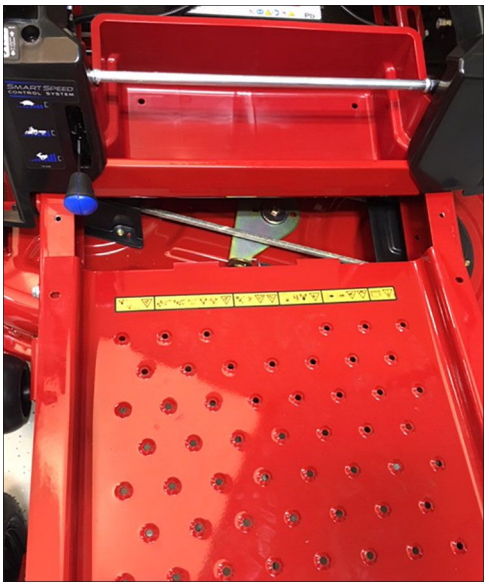


g301705

Figure 174

17. Remove the 2 screws (T-20) securing the cubbie to the chassis.

Smart Speed Assembly Removal (continued)



g301788

Figure 175

18. Move the smart speed selector to the turtle/trim position.
19. Remove the cubbie by lifting the front of each pod to maneuver the cubbie away from the chassis.
20. Remove the 2 (9/16 inch) bolts per motion control arm.
21. Remove the top T-30 screw and 7/16 inch nut securing the damper to the chassis and motion control actuator.
22. Disconnect the motion control neutral connector from the steering control box by depressing the tabs on either side of the switch. Disconnect the switch from the connector.
23. Remove the 5/16 inch screw (1 per mount) securing the 2 speed selector rod retaining mounts.
24. Pull back on the speed selector rod lift and remove the speed selector rod from the machine.

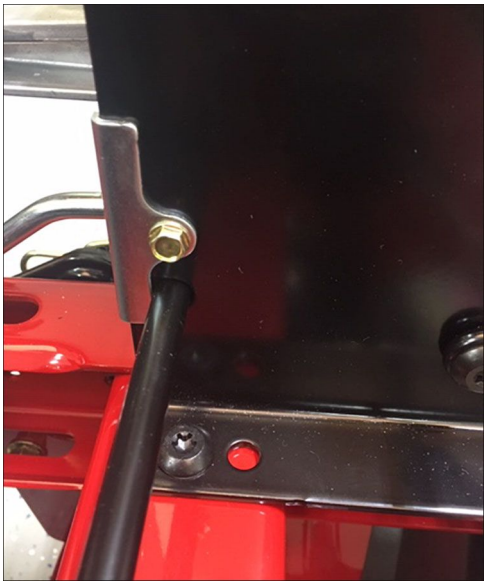
Smart Speed Assembly Installation

1. Install the speed selector rod onto the machine.

g309648

Figure 176

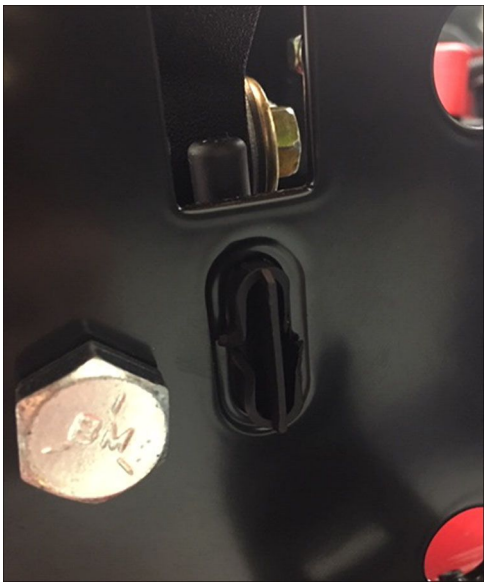
2. Install the 5/16 inch screw (1 per mount) securing the 2 speed selector rod retaining mounts. Torque screw to 4.5–5 N • m (42–47 in-lb).



g309649

Figure 177

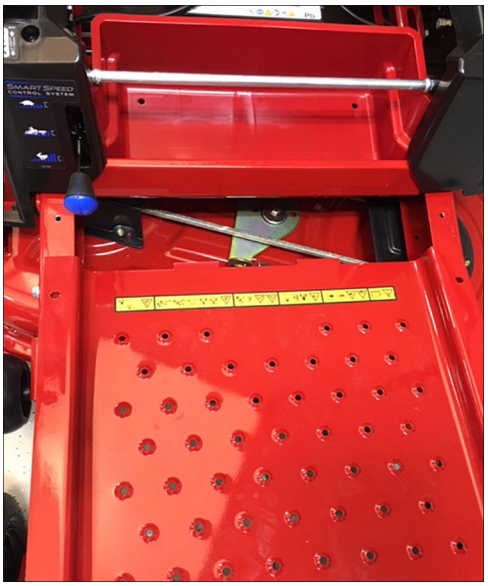
3. Connect the switch to the connector. Connect the motion control neutral connector to the steering control box by depressing the tabs on either side of the switch.



g309652

Figure 178

4. Install the top T-30 screw and 7/16 inch nut securing the damper to the chassis and motion control actuator. Torque screw and nut to 11 N • m (100 in-lb).
5. Install the 2 (9/16 inch) bolts per motion control arm. Torque bolts to 40.5–44.5 N • m (30–33 ft-lb).
6. Install the cubbie by lifting the front of each pod to maneuver the cubbie onto the chassis.
7. Move the smart speed selector to the trim/turtle position.
8. Install the 2 screws (T-20) securing the cubbie to the chassis. Torque screws to 11 N • m (100 in-lb).

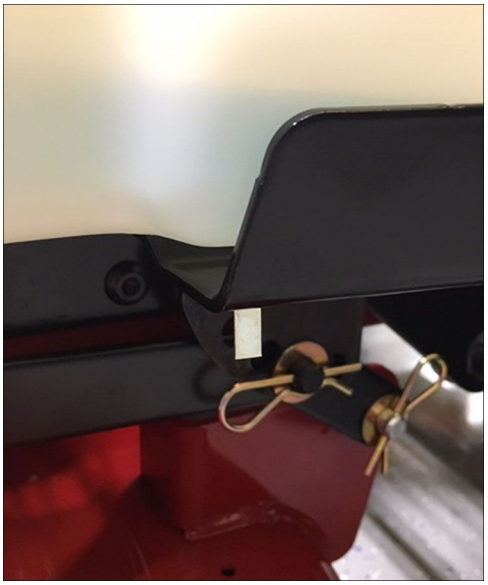


g301788

Figure 179

9. Install the 2 (T-30) front pod mounting screws. Torque screws to 11 N • m (100 in-lb).

10. Install the fuel tank to the chassis. Install the 2 strap fasteners to the bottom of the fuel tank.



g301705

Figure 180

11. Uncap the hoses. Install the fuel hose and fuel vent hose to the fuel tank fittings. Install the spring clamps securing the fuel hose and the fuel vent hose.

    Note: The fuel tank labels both vent and fuel ports and line orientation.

g301704

Figure 181

12. Install the RH pod to the machine.
13. Place the control panel into position on the machine. Using a Philips head screw driver, hand tighten the screw securing the control panel to the RH pod.

g301692

Figure 182

14. Install the smart speed knob to the smart speed lever. Using Philips head screw driver, hand tighten the screw securing the smart speed knob to the smart speed lever.

g301691

Figure 183

15. Remove the fuel cap from the fuel tank.
16. Install the LH pod to the machine.

    Note: The LH and RH pod install are the same except the RH pod has the control panel and smart speed knob.
17. Move the motion control from the neutral lock to the neutral position.
18. Using a T–30 torque bit, install the 3 screws securing the pod to the pod support brackets. Repeat for opposite side. Torque screws to 11 N • m (100 in-lb).
19. Install the fuel cap on the LH side pod.
20. Lift and install the seat to the seat rod.

g301718

Figure 184

21. Install the 2 (T-27) screws to the front of the seat pan. Torque screws to 11 N • m (100 in-lb).

g301717

Figure 185

22. Flip the seat back to the operator position.
23. Flip the seat forward and install the seat switch connection.

g301716

Figure 186

24. Raise the deck until tension is added to the lift handle. Remove the wood blocks (2x4 inches) under each side of the deck.

Rear Engine Guard Replacement

Rear Engine Guard Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable.
3. Remove 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Remove the muffler shield and rear engine guard.

g300621

Figure 187

4. Remove the rear engine guard.

Rear Engine Guard Installation

1. Install the rear engine guard.

2. Install the muffler shield and rear engine guard. Install 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Torque screws to 17–22.5 N • m (150–200 in-lb).

g300621

Figure 188

3. Connect the battery by installing the positive battery cable first, then the negative battery cable.

Deck Lift Assembly 3 Point Replacement

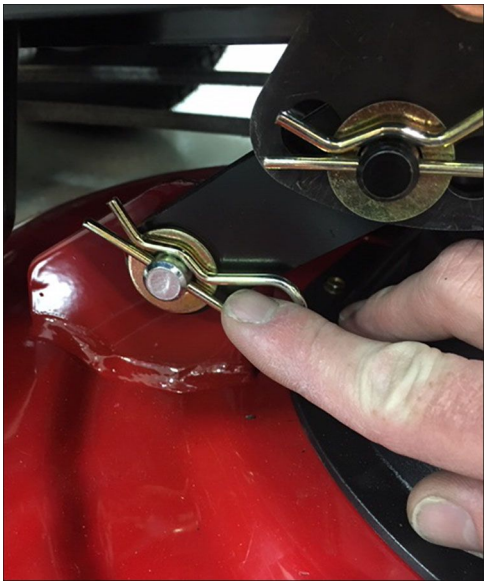
Deck Lift Assembly 3 Point Removal

1. Park the machine on a level surface set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. To relieve tension on deck lift handle, place wood blocks (2x4) under each side of the deck. Lower the deck under tension is relieved from the lift handle.
3. Using a spring puller, remove the deck tension spring from the deck tension spring anchor.

g301964

Figure 189

4. Remove the deck belt from the PTO clutch.
5. Remove the cotter pin and washer (1 per side) from each side of the rear deck weldment securing the rear of deck to the deck lift hanger.



g301965

Figure 190

6. Remove the rear lift arms from the deck weldments.
7. Raise the deck lift handle to the transport position.
8. Remove the cotter pin and washer securing the front deck hanger to front deck weldment. Remove the rod from the deck.

g301966

Figure 191

9. Remove the wood blocks from under the deck.
10. Slide the deck away from the machine.
11. Flip the seat forward.

12. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
13. Move the motion control from the neutral lock to the neutral position.
14. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 192

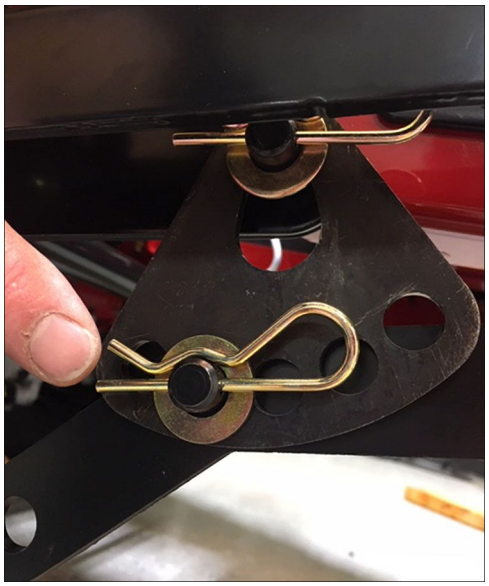
15. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

g301692

Figure 193

16. Remove the RH pod from the machine.
17. Lower the deck lift handle all the way to the bottom.

18. Remove the 2 hair pin and washers to disconnect the lift link from the deck lift bellcrank.



g301967

Figure 194

19. Remove the 9/16 inch bolt and nut securing the lift link to the chassis. Repeat for opposite side.

g301968

Figure 195

20. Raise the deck lift handle, remove the T-30 screw securing the height-of-cut bracket to the chassis.

g301969

Figure 196

21. Remove the 2 screws securing the bellcrank retention bracket to the chassis. Repeat for opposite side.

g301970

Figure 197

Deck Lift Assembly 3 Point Installation

1. Install the 2 screws securing the bellcrank retention bracket to the chassis. Repeat for opposite side. Torque screws to 17–22.5 N • m (150–200 in-lb).

g301970

Figure 198

2. Install the T-30 screw securing the height-of-cut bracket to the chassis. Lower the deck lift handle. Torque screw to 17–22.5 N • m (150–200 in-lb).

g301969

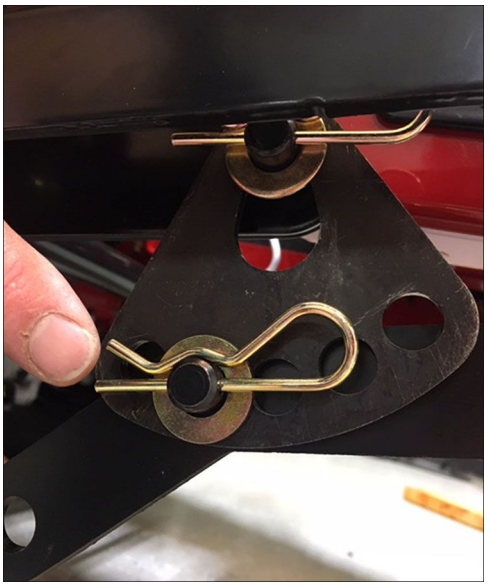
Figure 199

3. Install the 9/16 inch bolt and nut securing the lift link to the chassis. Repeat for opposite side. Torque bolt and nut to 40.5–44.5 N • m (30–33 ft-lb).

g301968

Figure 200

4. Install the 2 hair pin and washers to connect the lift link to the deck lift bellcrank.



g301967

Figure 201

5. Raise the deck lift handle.
6. Place the RH pod into position on the machine.
7. Install the control panel. Hand tighten with the screw securing the control panel to the RH pod.

g301692

Figure 202

8. Install the smart speed knob to the smart speed lever. Hand tighten with the screw securing the smart speed knob to the smart speed lever.

g301691

Figure 203

9. Move the motion control from the neutral position to the neutral lock position.

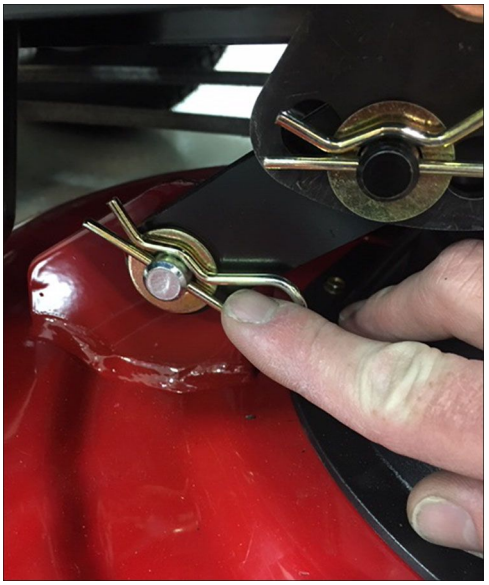
10. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).

11. Flip the seat back into position.
12. Slide the deck into position under the machine.
13. Remove the wood blocks from under the deck.
14. Install the front deck hanger to the deck. Install the cotter pin and washer securing the front deck hanger to front deck weldment.

g301966

Figure 204

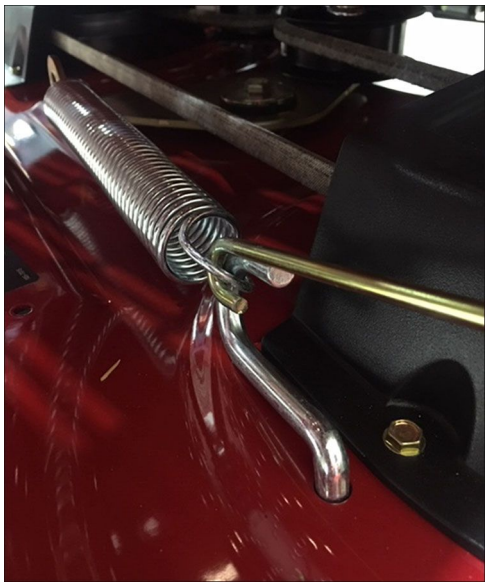
15. Lower the deck lift handle to the lowest position.
16. Install the rear lift arms to the deck weldments.
17. Install the cotter pin and washer (1 per side) to each side of the rear deck weldment securing the rear of deck to the deck lift hanger.



g301965

Figure 205

18. Install the deck belt to the PTO clutch.
19. Using a spring puller, install the deck tension spring to the deck tension spring anchor.



g301964

Figure 206

20. Raise the deck to add tension to the lift handle. Remove the wood blocks (2x4) under each side of the deck.

Deck Lift Assembly 4 Point Replacement

Deck Lift Assembly 4 Point Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Place wood blocks (2x4) under each side of the deck.
3. To relieve tension on the height-of-cut pin, depress the foot lift handle and remove the height-of-cut pin from the height-of-cut gate.
4. Lower the deck onto the wood blocks.
5. Remove the LH 4 (3/8 inch) bolts securing the belt cover to the deck.
6. Using a spring puller, remove the deck tension spring from the deck tension spring anchor.
7. Remove the deck belt from the PTO clutch.
8. Remove the 2 (1/2 inch) bolts and 2 (9/16 inch) nuts securing the rear trailing arm to the deck.

g309653

Figure 207

9. Remove the 2 (9/16 inch) nut and bolt securing the 2 RH lift links to the chassis. Remove the 2 RH lift links.

g309664

Figure 208

10. Remove the 2 cotter pins and washers securing the deck lift links to the deck lift. Repeat for other side.
11. Raise the deck lift into the highest height-of-cut position.
12. Remove the deck from the machine.
13. Remove the 2 (9/16 inch) bolts and nuts securing the center lift link to the front and rear bell cranks. Remove the center lift link.

g309675

Figure 209

14. Flip the seat forward.
15. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets.
16. Move the motion control from the neutral lock to the neutral position.
17. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 210

18. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

Deck Lift Assembly 4 Point Removal (continued)

g301692

Figure 211

19. Remove the RH pod from the machine.
20. Remove the 2 (T-40) bolts securing the height-of-cut gate to chassis. Remove the height-of-cut gate.
21. Remove the 8 (T-40) bolts securing the front and rear bellcranks to the chassis. Remove the belle cranks.

Deck Lift Assembly 4 Point Installation

1. Install the bellecrank. Install the 8 (T-40) bolts securing the front and rear bellcranks to the chassis. Torque bolts to 17–22.5 N • m (150–200 in-lb).
2. Install the height-of-cut gate. Install the 2 (T-40) bolts securing the height-of-cut gate to chassis. Torque bolts to 17–22.5 N • m (150–200 in-lb).
3. Place the RH pod into position on the machine.
4. Install the control panel. Hand tighten with the screw securing the control panel to the RH pod.
5. Install the smart speed knob to the smart speed lever. Hand tighten with the screw securing the smart speed knob to the smart speed lever.
6. Move the motion control from the neutral position to the neutral lock position.
7. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).
8. Flip the seat back into position.
9. Install the center lift link. Install the 2 (9/16 inch) bolts and nuts securing the center lift link to the front and rear bell cranks. Torque bolts and nuts to 40.5–44.5 N • m (30–33 ft-lb).
10. Install the deck to the machine.
11. Lower the deck lift into the lowest position.

Deck Lift Assembly 4 Point Installation (continued)

12. Install the 2 cotter pins and washers securing the deck lift links to the deck lift. Repeat for other side.

13. Install the 2 RH lift links. Install the 2 (9/16 inch) nuts and bolts securing the 2 RH lift links to the chassis. Torque bolts and nuts to 40.5–44.5 N • m (30–33 ft-lb).

14. Install the 2 (1/2 inch) bolts and 2 (9/16 inch) nuts securing the rear trailing arm to the deck. Torque bolts and nuts to 40.5–44.5 N • m (30–33 ft-lb).

15. Install the deck belt to the PTO clutch.

16. Using a spring puller, install the deck tension spring to the deck tension spring anchor.

17. Install the LH 4 (3/8 inch) bolts securing the belt cover to the deck. Torque bolts to 19.5–22.5 N • m (175–200 in-lb).

18. Raise the deck off the wood blocks.

19. Install the height-of-cut pin to the height-of-cut gate. Add tension to the height-of-cut pin.

Front Chassis Storage Box Replacement

Front Chassis Storage Box Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Remove the 2 (9/16 inch) bolt from the front license plate.

g301973

Figure 212

3. Lift up and remove the license plate from the chassis.

g301974

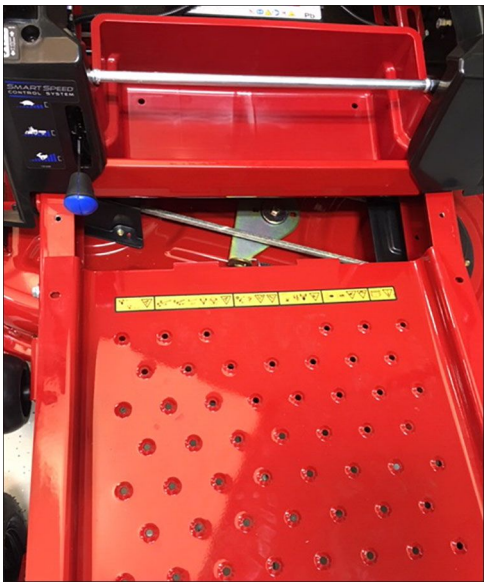
Figure 213

g301975

Figure 214

4. Remove the floor pan from the chassis.
5. Remove the 2 front pod mounting screws (T–30).
6. Remove the 2 screws (T–20) securing the cubbie to the chassis.

Front Chassis Storage Box Removal (continued)



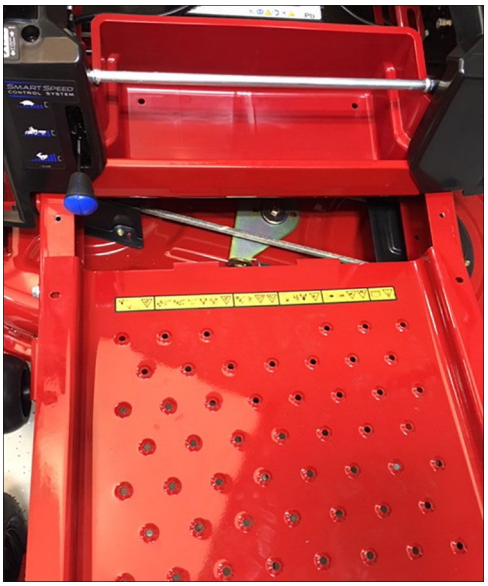
g301788

Figure 215

7. Move the smart speed selector to the turtle/trim position.
8. Remove the cubbie by lifting the front of each pod to maneuver the cubbie away from the chassis.

Front Chassis Storage Box Installation

1. Install the cubbie onto the machine.
2. Move the smart speed selector to turtle/trim position.
3. Install the 2 screws (T–20) securing the cubbie to the chassis. Torque screws to 11 N • m (100 in-lb).



g301788

Figure 216

4. Install the 2 front pod mounting screws (T–30). Torque screws to 11 N • m (100 in-lb).

5. Install the floor pan to the chassis.

6. Install the 4 (T–30) screws securing the floor pan to the chassis. Torque screws to 17–22.5 N • m (150–200 in-lb).

g301975

Figure 217

7. Install the license plate to the chassis.

g301974

Figure 218

8. Install the 2 (9/16 inch) bolt to the front license plate. Torque screws to 22.5–25 N • m (200–225 in-lb).

g301973

Figure 219

Chapter 6

Hydrostatic Drive System

Table of Contents

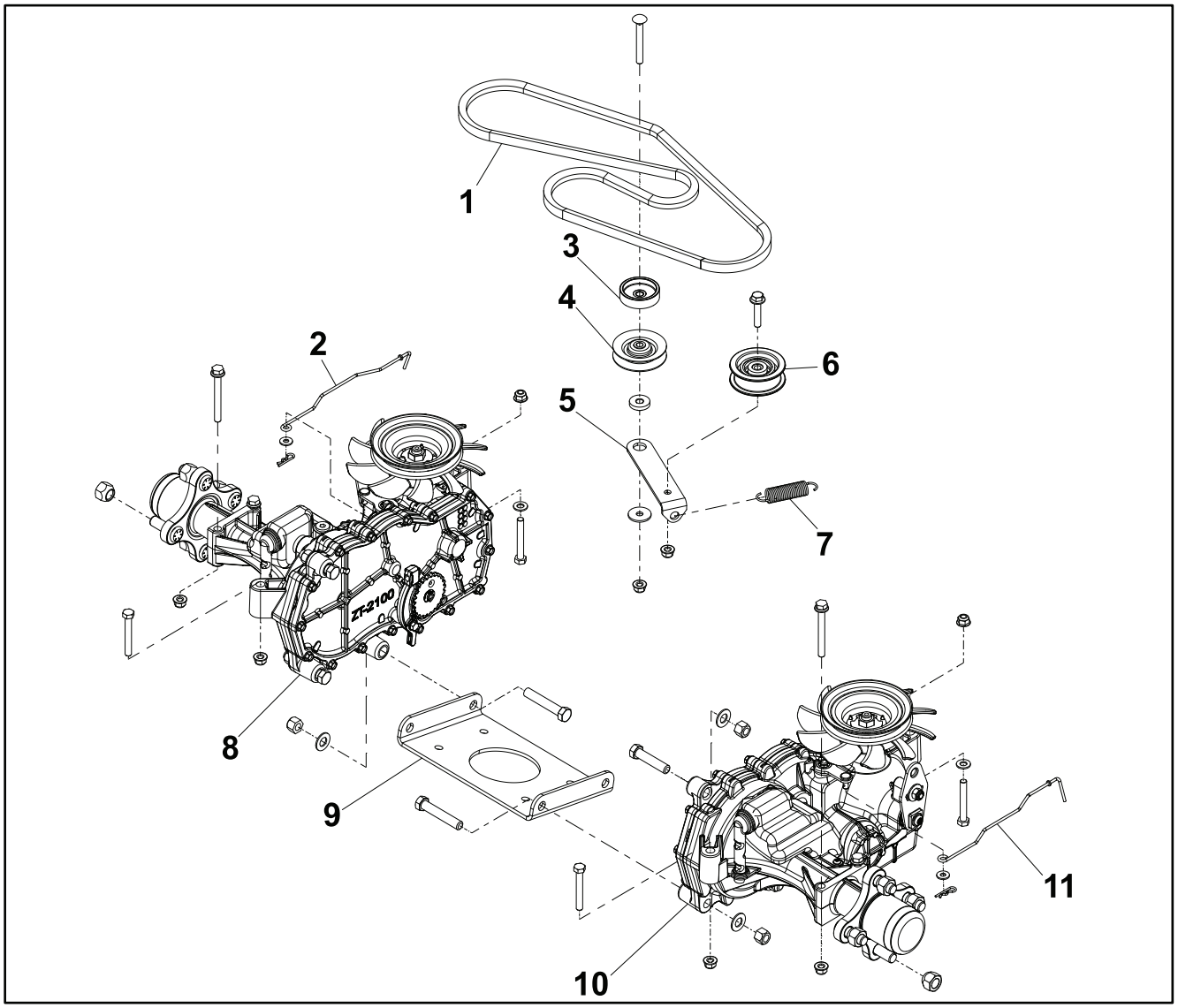
General Information

The TIMECUTTER® series of mowers use Hydro-Gear hydrostatic transaxles. There are 4 different models used; ZT-2100, ZT-2200, ZT-2200 long axle, and ZT-2800. All the drives use the same type of fluid. The oil must have a minimum rating of 9.0 cSt (55 SUS) at 230°F (110°C) with an API classification of SL is recommended. A 20W-50 engine oil has been selected for use by the factory and is recommended for normal operating procedures. An oil volume of 54 fl oz for the ZT-2100 and 56 fl oz for the ZT-2200 should bring the fluid to the correct level in the transaxle.

See the Hydro-Gear manufacturer's manual for servicing.

Service and Repairs

Hydrostatic Drive Asm. 1

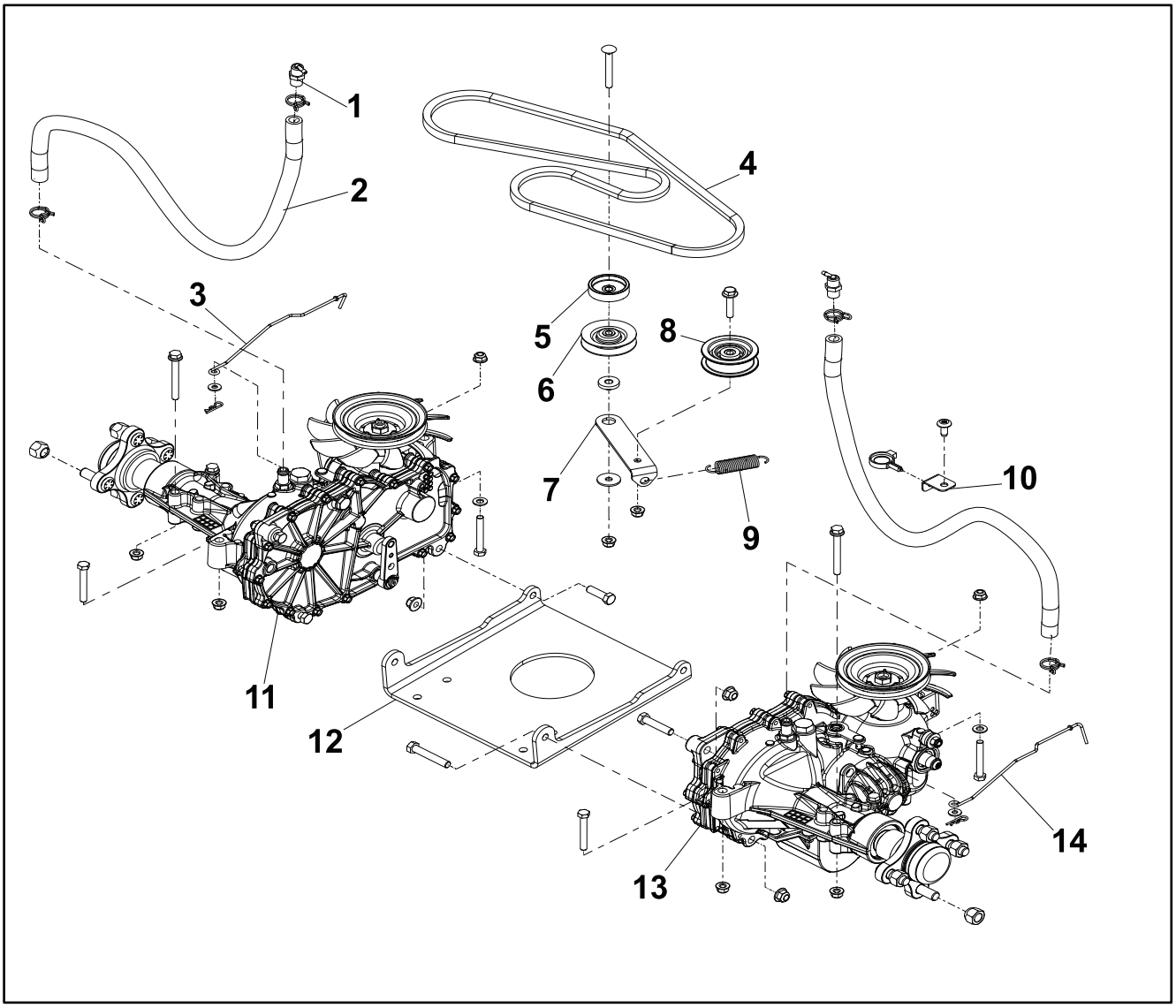


g306748

Figure 220

1. V-belt
2. RH Bypass Rod
3. Spacer
4. Idler
5. Idler Arm
6. Flat Idler Pulley
7. Pedal Return Spring
8. RH Hydro Transaxle Asm.
9. Hydro Cross Plate
10. LH Hydro Transaxle Asm.
11. LH Bypass Rod

Hydrostatic Drive Asm. 2



g306774

Figure 221

1. Breather Kit
2. Hydro Hose
3. RH Bypass Rod
4. V-belt
5. Spacer
6. Idler
7. Idler Arm
8. Flat Idler Pulley
9. Pedal Return Spring
10. Bracket Mount
11. RH Hydro Transaxle Asm.
12. Hydro Plate
13. LH Hydro Transaxle Asm.
14. LH Bypass Rod

Hydro Transaxle Drive Belt Replacement

Hydro Transaxle Drive Belt Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Remove 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Remove the muffler shield and rear engine guard.

g300621

Figure 222

4. Remove the deck tensioner spring from the spring hook.

g300623

Figure 223

5. Using an appropriate lifting device, raise the machine. Remove the deck belt from the clutch pulley.

6. Disconnect the wiring to the clutch.

g300624

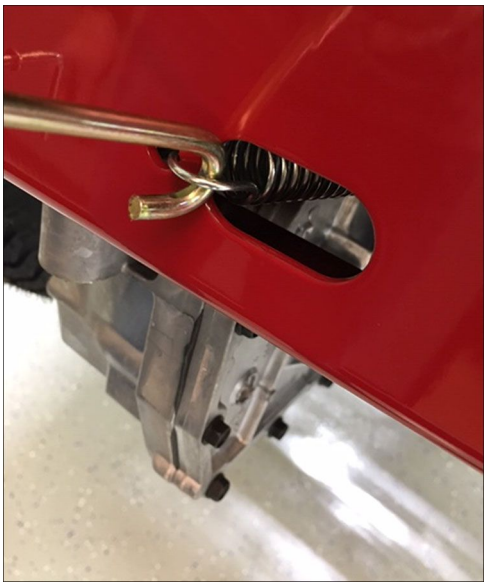
Figure 224

7. Remove the 5/8 hex bolt securing the clutch to the crankshaft of the engine. Remove the clutch.

g300625

Figure 225

8. Remove the hydro belt tensioner spring from the spring anchor point on the chassis.



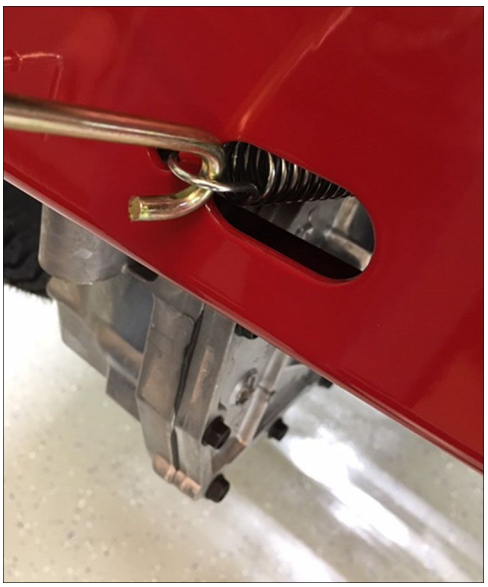
g300671

Figure 226

9. Remove the hydro belt tensioner spring from the spring anchor point on the chassis.
10. Remove the drive belt from the machine.

Hydro Transaxle Drive Belt Installation

1. Install the hydro transaxle drive belt to the machine. Install the hydro transaxle drive belt onto the engine pulley, both transaxle pulleys, fixed idler, and movable idler pulleys.
2. Install the hydro belt tensioner spring to the spring anchor point on the chassis.



g300671

Figure 227

3. Install the clutch. Install the 5/8 hex bolt securing the clutch to the crankshaft of the engine. Torque bolt to 71–81 N • m (53–60 ft-lb).

g300625

Figure 228

4. Connect the wiring to the clutch.

g300624

Figure 229

5. Install the deck belt to the clutch pulley. Using an appropriate lifting device, lower the machine.
6. Install the deck tensioner spring to the spring hook.

g300623

Figure 230

7. Install the muffler shield and rear engine guard. Install 10 (T-40) self-tapping screws securing the rear engine guard and muffler shield to the chassis. Torque screws to 17–22.5 N • m (150–200 in-lb).

g300621

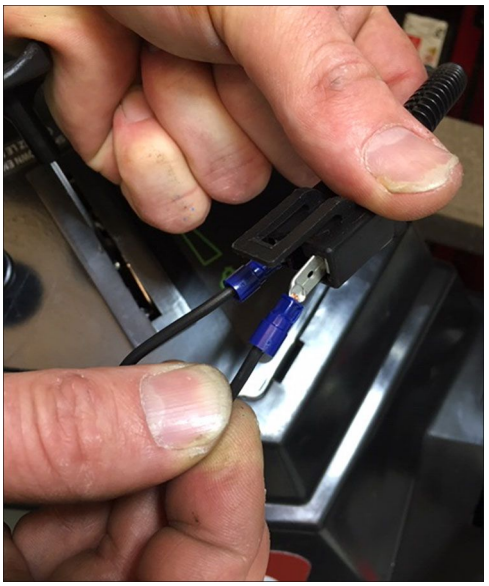
Figure 231

8. Connect the battery by installing the positive battery cable first, then the negative cable to the battery.

Neutral Adjustment

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Using an appropriate lifting device, raise and support the rear of the machine.

3. Remove the 4 (13/16 inch) lug nuts securing rear wheel to the hub. Remove the wheel from the machine.
4. Disconnect the seat switch.



g302064

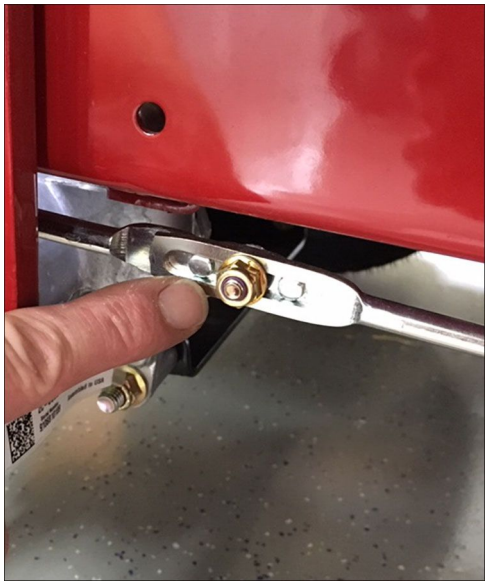
Figure 232

5. Install an appropriate jumper to disable the seat switch.
6. Start the machine.
7. Move the motion control lever until neutral is found. Once neutral is found, install an M8X1.00 nut onto the neutral lock stud for the transmission.

g302065

Figure 233

8. Tighten the nut to lock the neutral position.
9. Loosen the 7/16 inch nut securing the 2 motion control levers.



g302066

Figure 234

10. Adjust the motion control lever to access the parking brake position. Tighten the 7/16 inch nut securing the 2 motion control levers.
11. Repeat for opposite side.
12. Perform the Tracking Adjustment procedure after neutral adjustment has been completed for both sides.
13. Remove the M8X1.00 nut on the neutral lock stud of the transmission.
14. Connect the seat switch.
15. Install the wheel to the machine. Install the 4 (13/16 inch) lug nuts securing the rear wheel to the hub. Torque the lug nuts to 94.5–122 N • m (70–90 ft-lb).

g302065

Figure 235

Air Purging Procedure

Due to the effects air has on efficiency in hydrostatic drive applications, it is critical that it is purged from the system. These purge procedures should be implemented any time a hydrostatic system has been opened to facilitate maintenance or any additional oil has been added to the system.

The following procedures should be performed with the vehicle drive wheels off the ground, then repeated under normal operating conditions Before starting, make sure the transaxle/transmission is at the proper oil level.

1. With the bypass valve open and the engine running, slowly move the directional control in both forward and reverse directions (5 or 6 times), as air is purged from the unit, the oil level will drop.
2. With the bypass valve closed and the engine running, slowly move the directional control in both forward and reverse directions (5 to 6 times). Check the oil level, and add oil as required after stopping the engine.
3. It may be necessary to repeat Steps 1 and 2 until all the air is completely purged from the system. When the transaxle moves forward and reverse at normal speed purging is complete.

Hydro Transaxle Replacement

Hydro Transaxle Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Using an appropriate lifting device, raise the rear of the machine.
4. Remove the 13/16 inch lug nut securing the wheel to the transaxle hub.
5. Remove the wheel from the transaxle hub.
6. Remove the cotter pin and washer securing the dump valve rod to the transaxle. Remove the dump valve rod linkage from the transaxle.

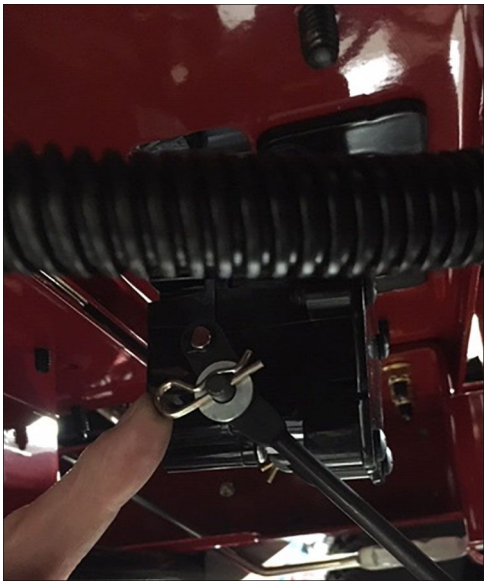
g302067

Figure 236

g302068

Figure 237

7. Remove the cotter pin and washer securing the brake rod linkage to the brake box. Remove the brake rod linkage from the brake box.



g309739

Figure 238

8. Remove the ½ nut and 5/8 bolt securing the motion control linkage to the transaxle. Remove the motion control linkage.

g302069

Figure 239

9. Using a spring puller, remove the hydro transaxle drive belt tension spring.

g302070

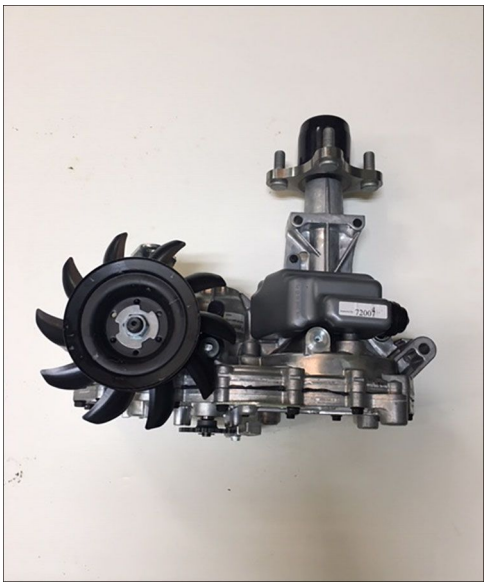
Figure 240

10. Remove the drive belt from the transaxle pulley.

g302071

Figure 241

11. Remove the 4 (1/2 inch) bolts and nuts, 3 (11/16 inch) nuts and 3 (5/8 inch) bolts securing the transaxle to the chassis.

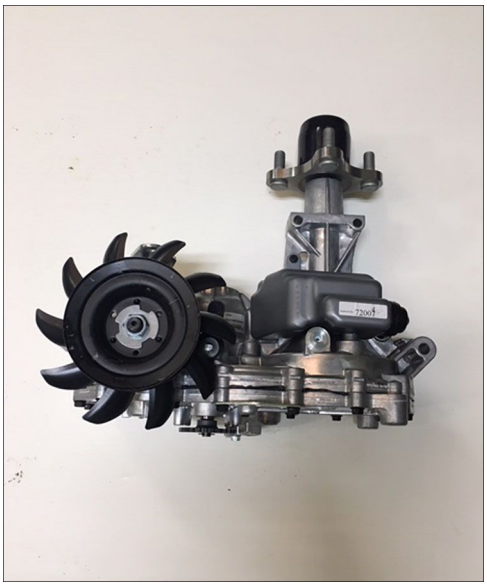


g302073

Figure 242

Hydro Transaxle Installation

1. Install the transaxle to the chassis.



g302073

Figure 243

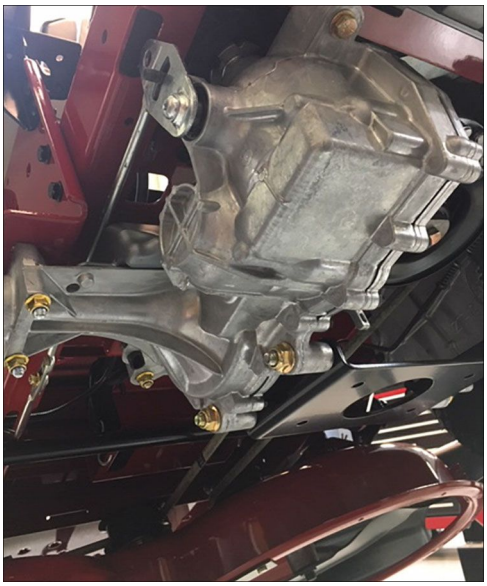
2. Install, but do not tighten, the 4 (1/2 inch) bolts and nuts, 3 (5/8 inch) bolts, and 11/16 inch nut securing the transaxle to the chassis. See torque sequence below.

   A. Torque the (5/8 inch) front inner mounting bolt and (11/16 inch) nut to the frame bracket to 67.5–74.5 N • m (50–55 ft-lb).

   B. Torque the 2 (5/8 inch) bottom mounting bolts and (11/16 inch) nuts to the cross plate to 67.5–74.5 N • m (50–55 ft-lb).

   C. Torque the 2 (1/2 inch) front and rear mid-mounting bolts and nuts to the chassis to 22.5–25 N • m (200–225 in-lb).

   D. Torque the 2 (1/2 inch) axle mounting bolts and nuts to the frame bracket to 22.5–25 N • m (200–225 in-lb).



g302071

Figure 244

3. Install the drive belt to the transaxle pulley.
4. Using a spring puller, install the hydro transaxle drive belt traction spring.

g302070

Figure 245

5. Install the motion control linkage. Install the ½ nut and 5/8 bolt securing the motion control linkage to the transaxle. Torque nut and bolt to 22.5–25 N • m (200–225 in-lb).

g302069

Figure 246

6. Install the brake rod linkage to the brake box. Install the cotter pin and washer securing the brake rod linkage to the brake box.
7. Install the dump valve rod linkage to the transaxle. Install the cotter pin and washer securing the dump valve rod to the transaxle.

g302067

Figure 247

g302068

Figure 248

8. Install the wheel to the transaxle hub.
9. Install the 13/16 inch lug nut securing the wheel to the transaxle hub. Torque lug nut to 94.5–122 N • m (70–90 ft-lb).
10. Using an appropriate lifting device, lower the rear of the machine.
11. Connect the battery by installing the positive battery cable first, then the negative cable to the battery.

Chapter 7

Mower Deck System

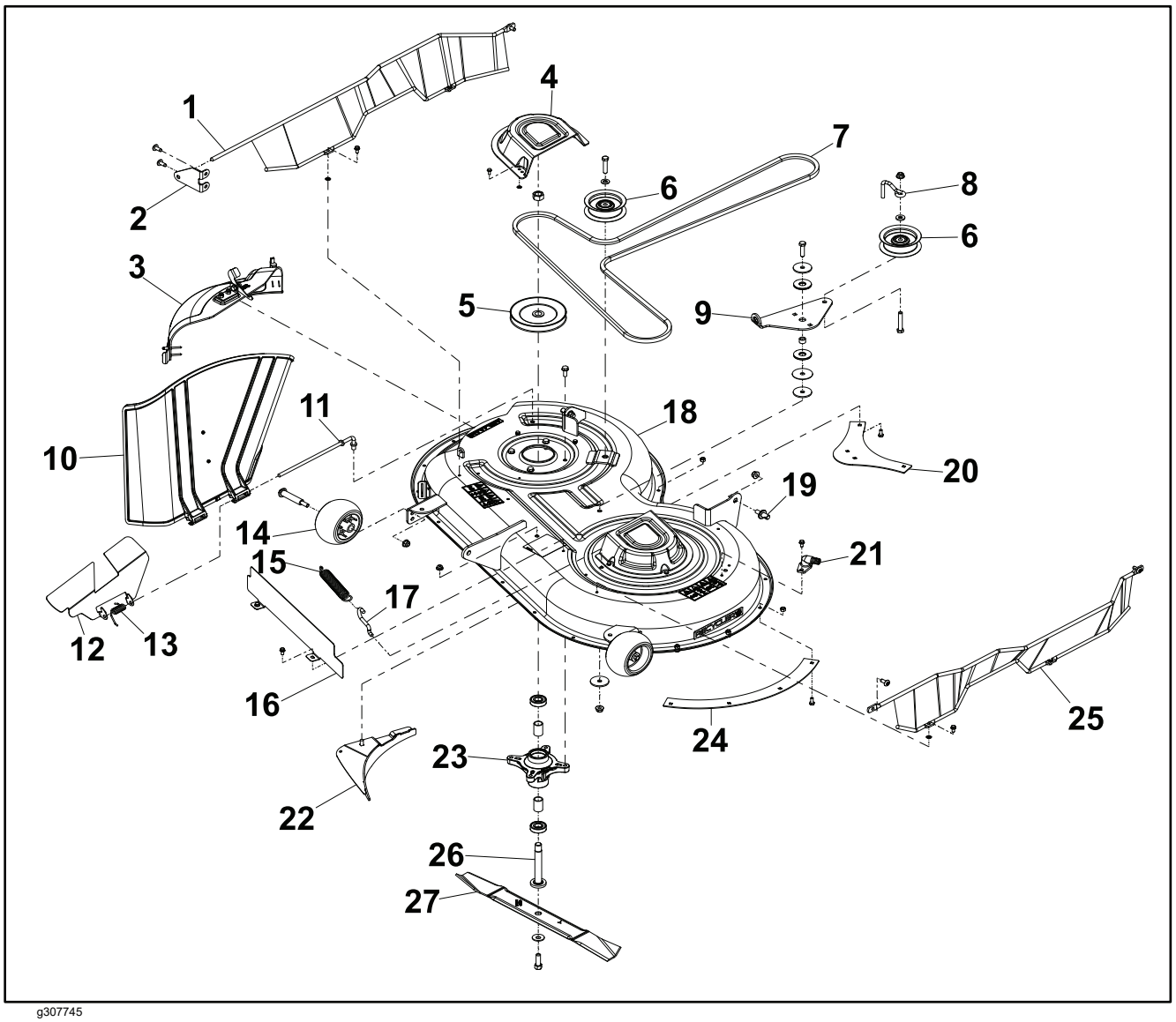
Table of Contents

General Information

The TIMECUTTER® series of mowers uses 5 different deck sizes offering both fabricated and stamped options; 32 inch stamped deck, 42 inch stamped, 42 inch fabricated, 50 inch fabricated, 54 inch fabricated, and 60 inch fabricated. There are 2 different deck lift systems a 3-point system used on 32–54 inch units and a 4-point system used only on 60 inch units. All units have a 1.5-4.5 inch height-of-cut range.

Service and Repairs

Mower Deck Assembly 1–42 Inch Stamped Deck

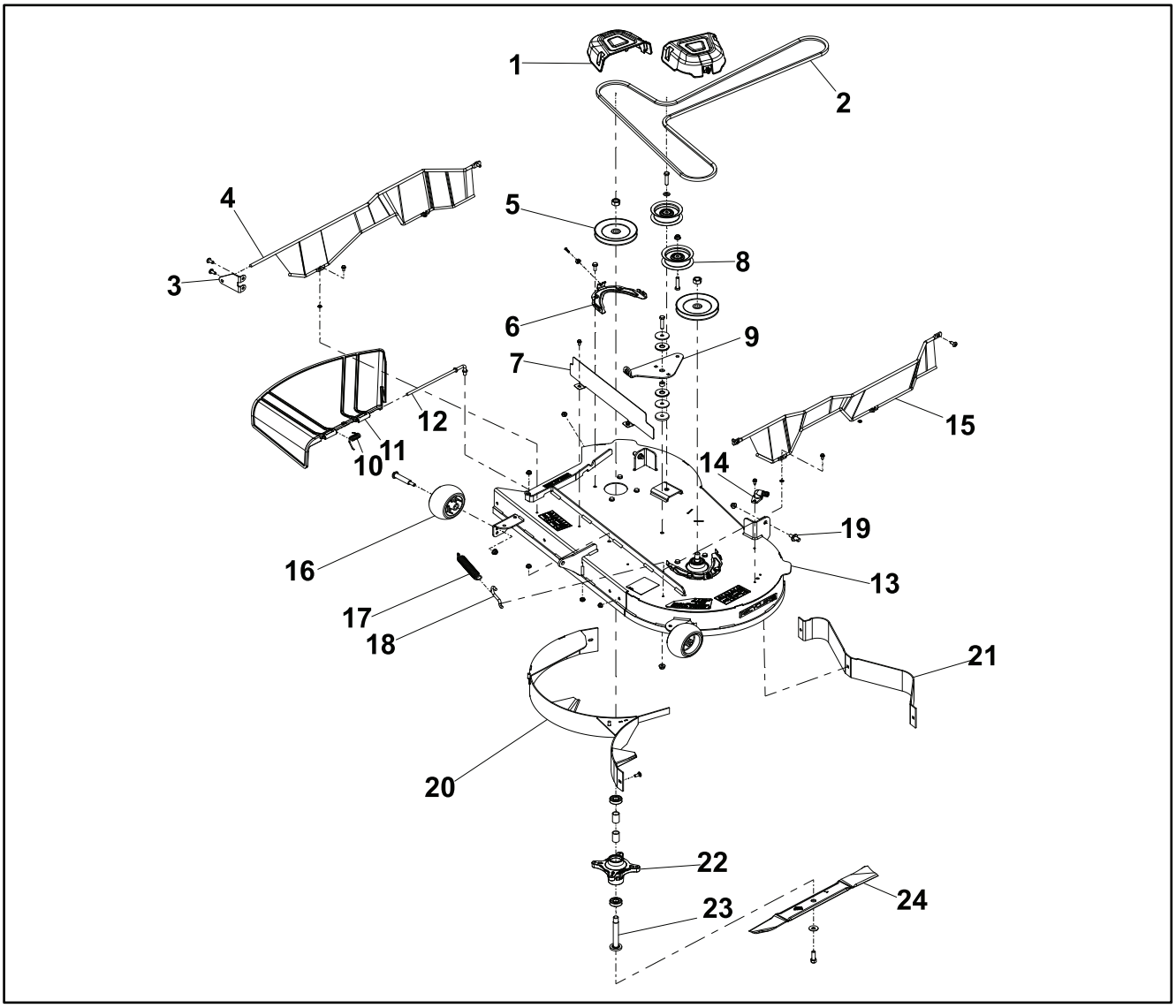


g307745

Figure 249

1. Right Guard Asm. (CE Models Only)
2. Guard Mount Plate
3. 42 Inch Mulch Plug Asm.
4. Belt Cover
5. Pulley
6. Flat Idler Pulley
7. V-Belt
8. Belt Idler Guide
9. Idler Arm
10. Deflector
11. Pivot Rod
12. Deflector Insert
13. Torsion Spring
14. Anti Scalp Roller
15. Extension Spring
16. Front Shield
17. Spring Return Hook
18. 42 Inch Deck
19. Deck Pin
20. Rear Blowout Baffle
21. Washout Fitting
22. Clipping Baffle
23. Spindle Asm.
24. Side Blowout Baffle
25. Left Guard Asm. (CE Models Only)
26. Spindle Shaft
27. Mulch Blade

Mower Deck Assembly 2–42 Inch Fabricated Deck

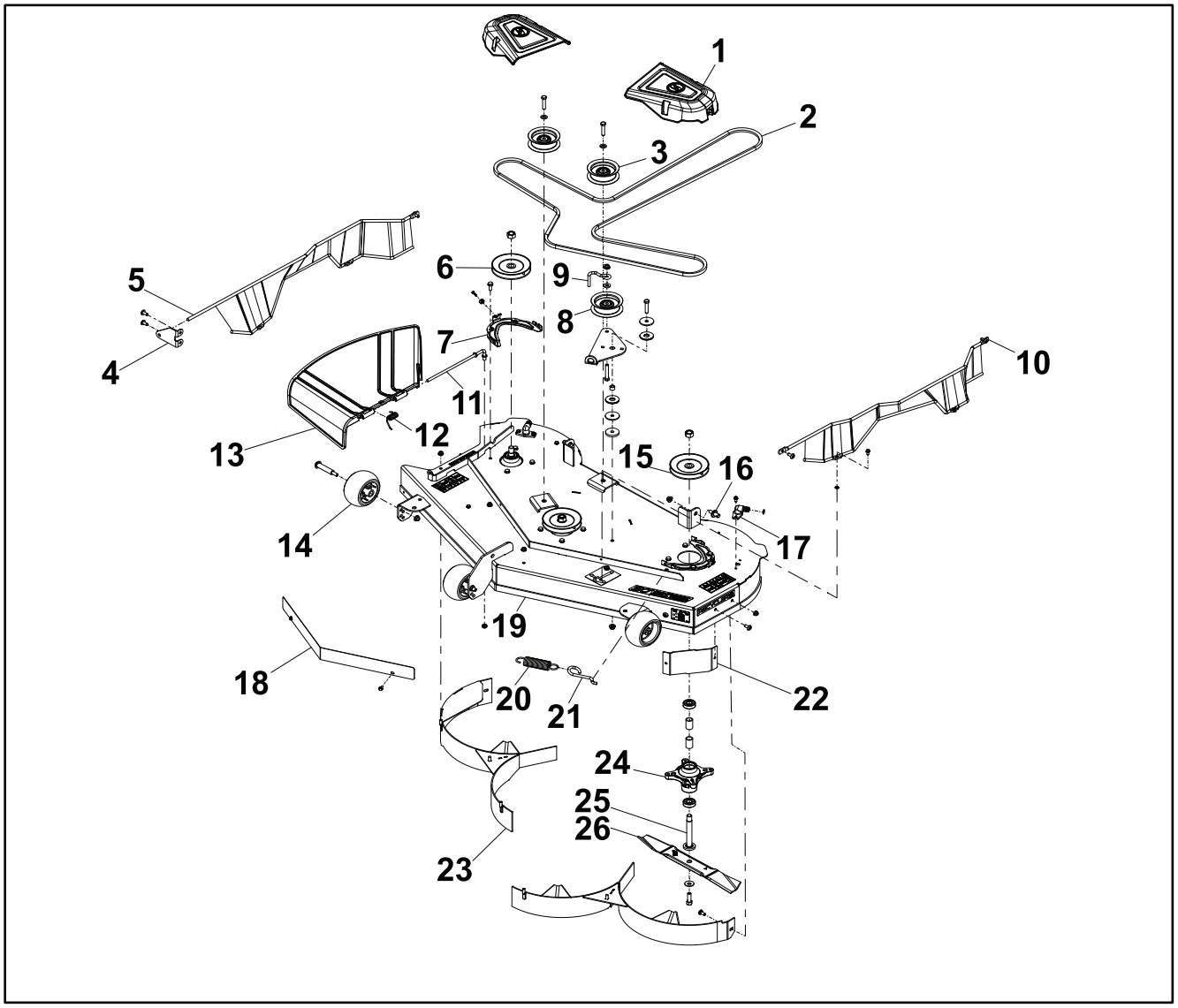


g307880

Figure 250

1. Belt Cover
2. V-Belt
3. Guard Mount Plate
4. Right Guard Asm. (CE Models Only)
5. Pulley
6. Belt Cover Bracket
7. Front Shield
8. Flat Idler Pulley
9. Idler Arm
10. Torsion Spring
11. Discharge Deflector
12. Pivot Rod
13. 42 Inch Fabricated Deck
14. Washout Fitting
15. Left Guard Asm. (CE Models Only)
16. Anti Scalp Roller
17. Extension Spring
18. Return Spring Hook
19. Deck Pin
20. Recycling Baffle
21. 42 Inch Deflector
22. Spindle Asm.
23. Spindle Shaft
24. Blade

Mower Deck Assembly 3–50 Inch Fabricated Deck

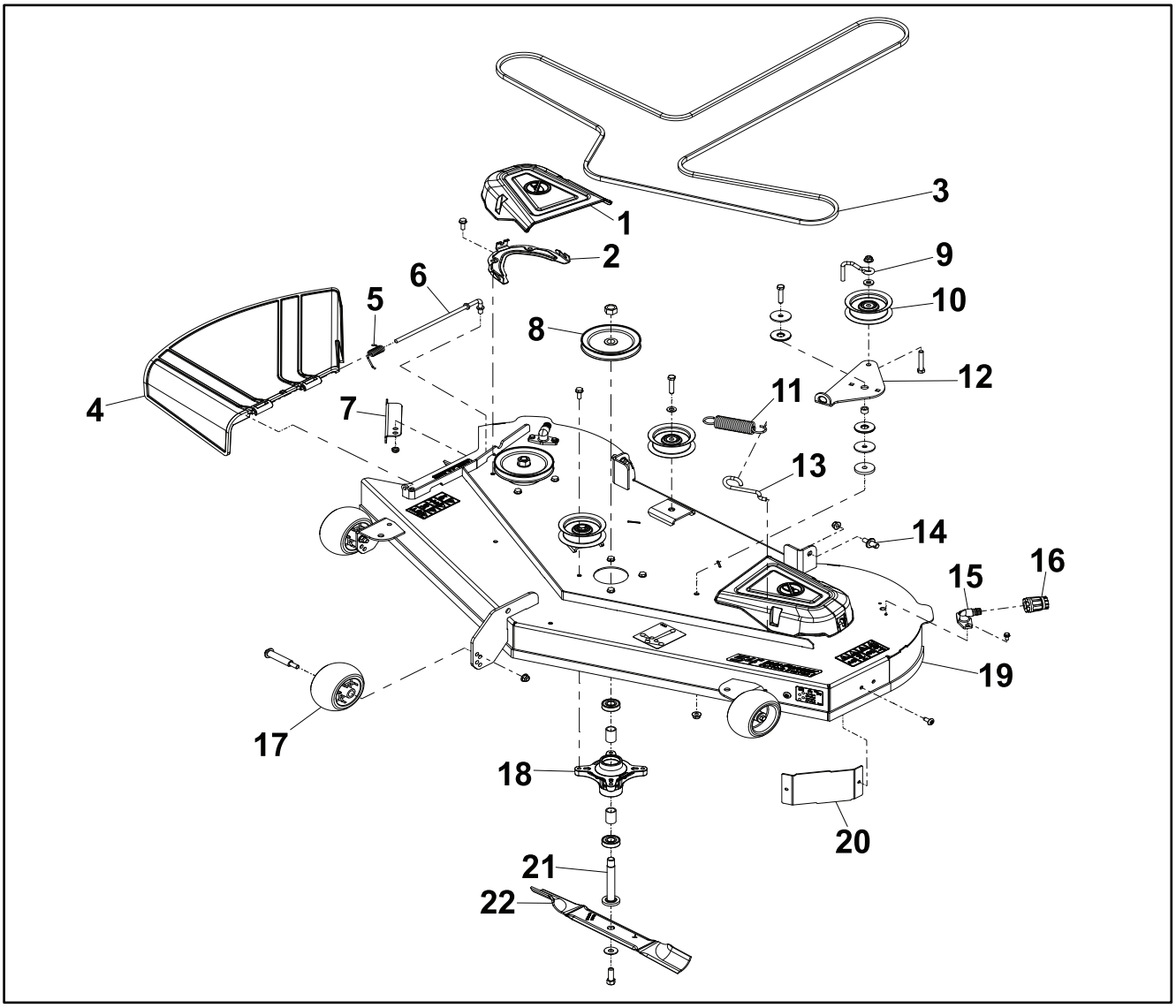


g308181

Figure 251

1. Belt Cover
2. V-Belt
3. Flat Idler Pulley
4. Guard Mount Plate
5. Right Guard Asm. (CE Models Only)
6. Pulley
7. Belt Cover Bracket
8. Flat Idler Pulley
9. Idler Belt Guide
10. Left Guard Asm. (CE Models Only)
11. Pivot Rod
12. Torsion Spring
13. Discharge Deflector
14. Anti Scalp Roller
15. Pulley
16. Deck Pin
17. Washout Fitting
18. Front Shield
19. 50 Inch Fabricated Deck
20. Extension Spring
21. Spring Return Hook
22. Corner Baffle
23. 50 Inch Baffle Asm.
24. Spindle Asm.
25. Spindle Shaft
26. Mulch Blade

Mower Deck Assembly 4– 54 Inch Fabricated Deck

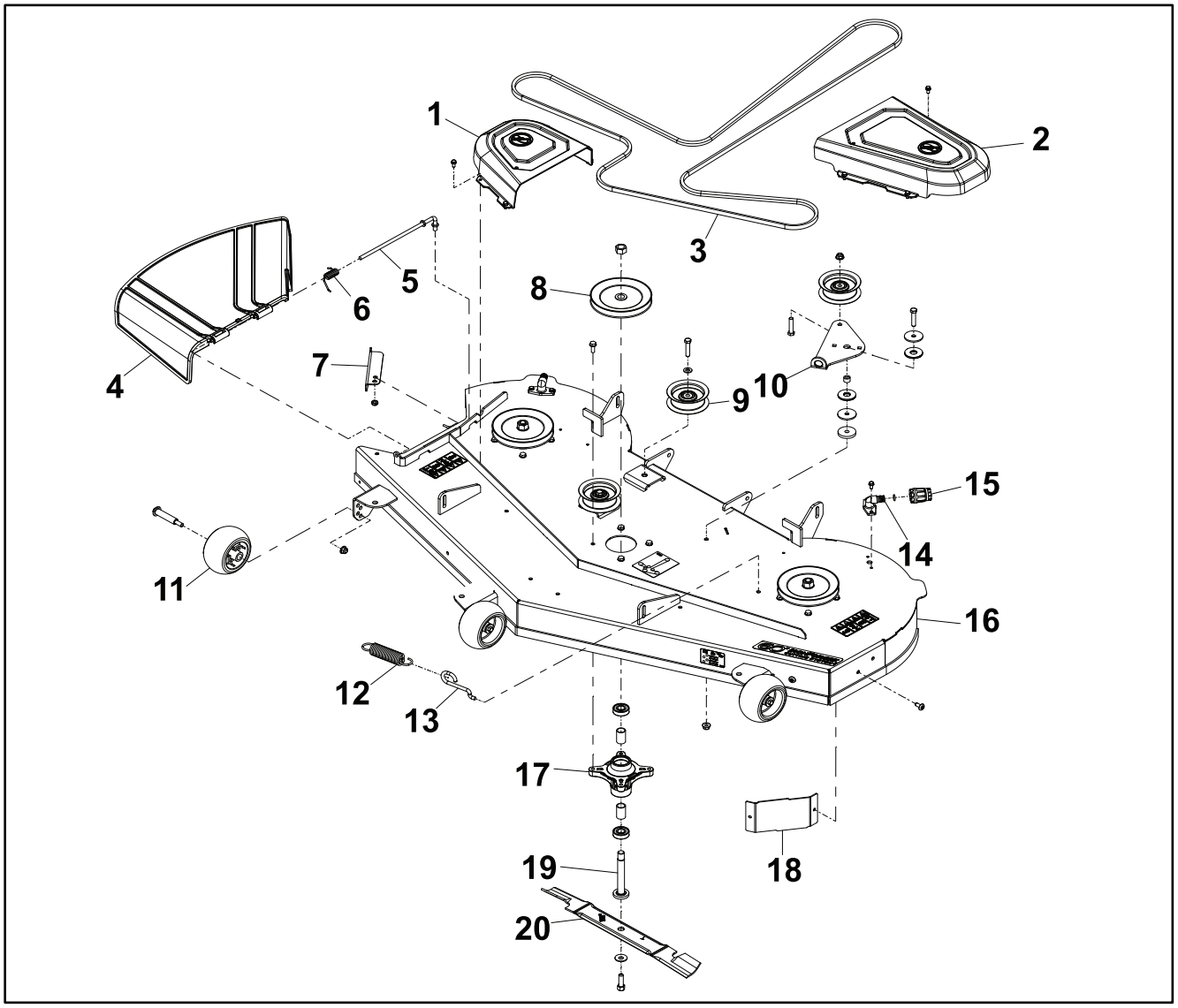


g308186

Figure 252

1. Belt Cover
2. Belt Cover Bracket
3. V-Belt
4. Discharge Deflector
5. Torsion Spring
6. Pivot Rod
7. Cut-off Baffle
8. Pulley Asm.
9. Idler Belt Guide
10. Flat Idler Pulley
11. Extension Spring
12. Idler Arm
13. Spring Return Hook
14. Deck Pin
15. Washout Fitting
16. Hose Connector
17. Anti Scalp Roller
18. Spindle Asm.
19. 54 Inch Deck Asm.
20. Corner Baffle
21. Spindle Shaft
22. Hi Lift Blade

Mower Deck Assembly 5–60 Inch Fabricated Deck



g308211

Figure 253

1. RH Belt Cover
2. LH Belt Cover
3. Belt
4. Discharge Deflector
5. Pivot Rod
6. Torsion Spring
7. Cutoff Baffle
8. Pulley
9. Flat Idler Pulley
10. Idler Arm
11. Anti Scalp Roller
12. Extension Spring
13. Spring Return Hook
14. Washout Fitting
15. Hose Connector
16. 60 Inch Deck Fabricated
17. Spindle Asm.
18. Corner Baffle
19. Spindle Shaft
20. Hi Flow Blade

42 inch Stamped and 42/50/54/60 Inch Fabricated Deck Replacement

42 inch Stamped and 42/50/54/60 Inch Fabricated Deck Removal

Note: The following procedure shows the 42 inch stamped deck.

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Using a spring puller, remove the deck tension spring from the deck tension spring anchor.
3. Remove the deck belt from the PTO clutch.
4. Remove the cotter pin and washer (1 per side) from each side of the rear deck weldment securing the rear of deck to the deck lift hanger.
5. Remove the rear lift arms from the deck weldments.
6. Raise the deck lift handle to the transport position.
7. Remove the cotter pin and washer securing the front deck hanger to front deck weldment. Remove the rod from the deck.
8. Remove the wood blocks from under the deck.
9. Slide the deck away from the machine.

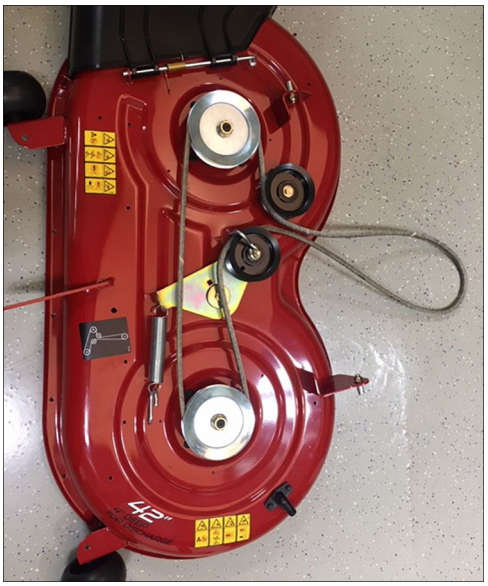
g302087

Figure 254

42 inch Stamped and 42/50/54/60 Inch Fabricated Deck Disassembly

Note: Belt covers are toolless removal on 42–54 inch fabricated decks, CE requires tools to remove.

1. Remove the 6 (5/16 inch) screws securing the LH and RH belt covers. Remove the LH and RH belt covers.



g302088

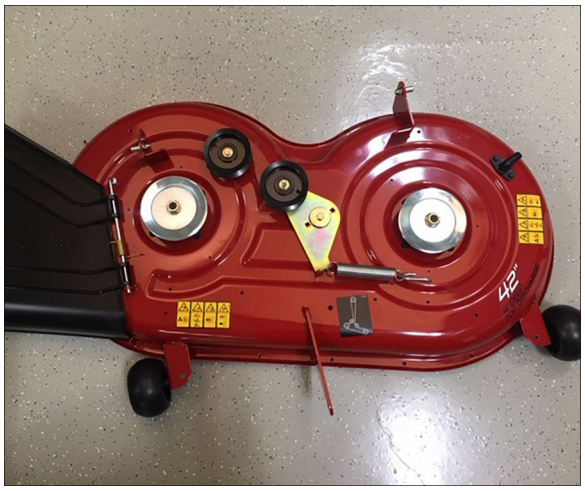
Figure 255

2. Using a 9/16 inch wrench to hold the bolt, remove the 9/16 inch nut securing the belt guide to the movable idler. Remove the belt guide from the deck.

g302089

Figure 256

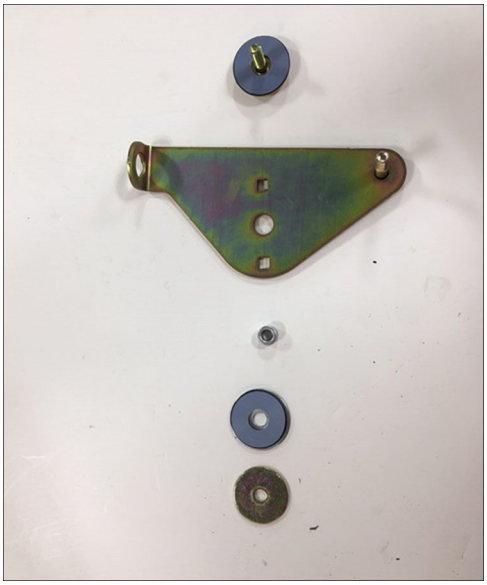
3. Remove the belt from the deck.



g302090

Figure 257

4. Remove the deck tension spring from the deck.
5. Remove the spring anchor from the deck.
6. Before idler arm removal, ensure idler arm has tension to prevent limited movement (should not move freely).
7. Remove the moveable idler from the deck and flat washers.



g302091

Figure 258

8. Remove the 9/16 inch bolt and nut securing the idler arm to the deck shell.

g302092

Figure 259

9. Using an appropriate blade holding device, remove the 5/8 inch bolt securing the blade to the deck. Remove the blade from the deck.
10. Remove the 15/16 inch nut securing the spindle to the spindle shaft.
11. Remove the pulley from the spindle shaft.
12. Remove the 4 (1/2 inch) screws securing spindle to the deck assembly. Remove the spindle assembly.

g309761

Figure 260

13. Remove the spindle from the spindle assembly.
14. Using a drift punch, remove the bearings from the spindle housing. Replace as necessary.

42 inch Stamped and 42/50/54/60 Inch Fabricated Deck Assembly

1. Using an appropriate sized socket, install the bearings to the spindle housing.

2. Install the spindle to the spindle assembly.

3. Install the spindle assembly. Install the 4 (1/2 inch) screws securing spindle to the deck assembly. Torque screws to 19.5–22.5 N • m (175–225 in-lb).

4. Install the pulley to the spindle shaft.

5. Install the 15/16 inch nut securing the spindle to the spindle shaft. Torque nut to 67.5–88 N • m (50–65 ft-lb).

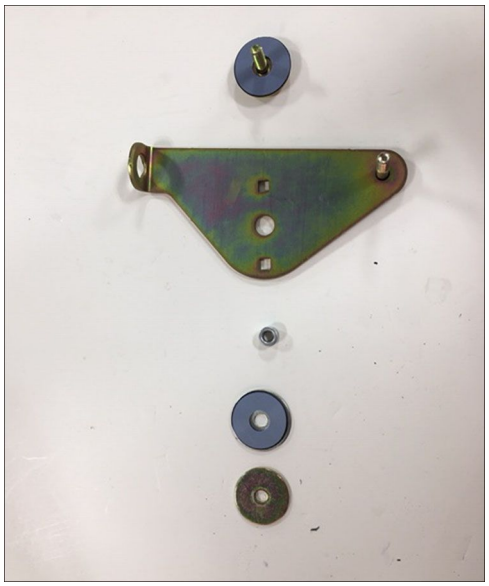
6. Install the blade to the deck. Using an appropriate blade holding device, install the 5/8 inch bolt securing the blade to the deck. Torque bolt to 95–108 N • m (70–80 ft-lb).

7. Install the 9/16 in. bolt and nut securing the idler arm to the deck shell. Torque bolt and nut to 40.5–44.5 N • m (30–33 ft-lb).

g302092

Figure 261

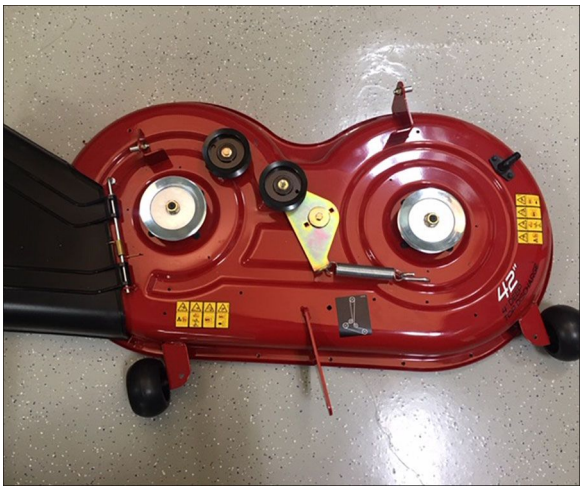
8. Install the moveable idler to the deck and flat washers.



g302091

Figure 262

9. Before idler arm removal, ensure idler arm has tension to prevent limited movement (should not move freely).
10. Install the spring anchor to the deck.
11. Install the deck tension spring to the deck.
12. Install the belt to the deck.



g302090

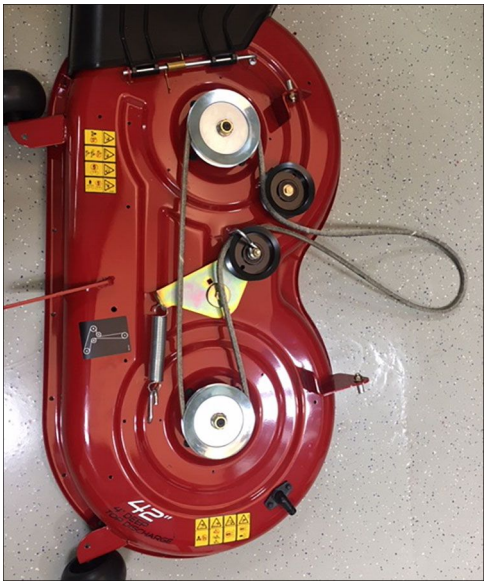
Figure 263

13. Install the belt guide to the deck. Using a 9/16 inch wrench to hold the bolt, install the 9/16 inch nut securing the belt guide to the movable idler. Torque nut to 40.5–44.5 N • m (30–33 ft-lb).

g302089

Figure 264

14. Install the LH and RH belt covers. Install the 6 (5/16 inch) screws securing the LH and RH belt covers. Torque screws to 4.5–5 N • m (42–47 in-lb).



g302088

Figure 265

42 inch Stamped and 42/50/54/60 Inch Fabricated Deck Installation

1. Slide the deck into position under the machine.

g302087

Figure 266

2. Install the wood blocks under the deck.
3. Install the front hanger rod to the deck. Install the cotter pin and washer securing the front deck hanger to front deck weldment.
4. Lower the deck lift handle to the lowest position.
5. Install the rear lift arms to the deck weldments.
6. Install the cotter pin and washer (1 per side) to each side of the rear deck weldment securing the rear of deck to the deck lift hanger.
7. Install the deck belt to the PTO clutch.
8. Using a spring puller, install the deck tension spring to the deck tension spring anchor.
9. Raise the deck to add tension to the lift handle.

Chapter 8

Electrical System

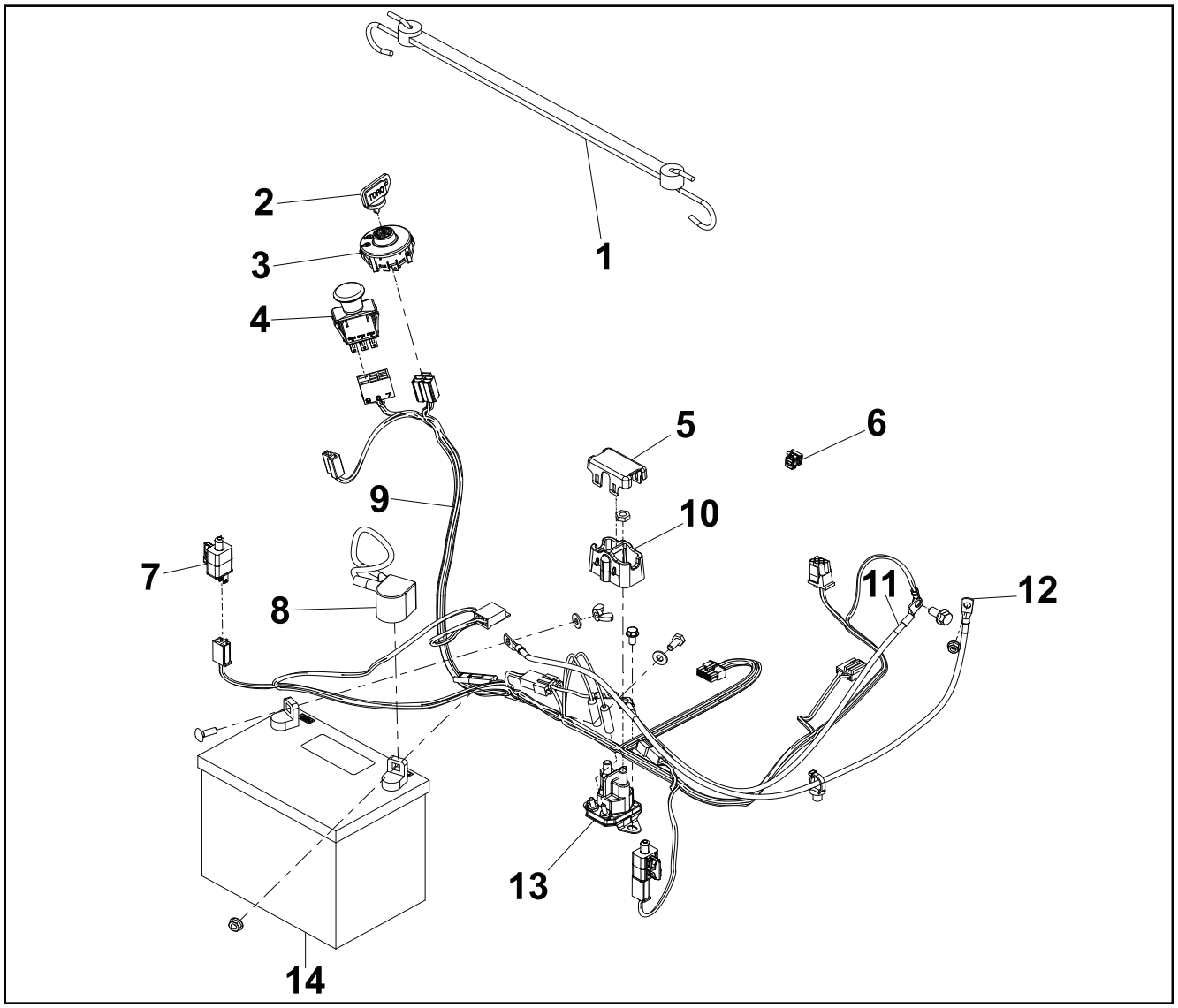
Table of Contents

General Information

The TIMECUTTER® series of mowers utilizes a 12VDC electrical system. The system consists of 2 different 12v batteries; 195 CCA and 230 CCA (depending on the model). The electrical system uses 2 neutral/park switches on the motion control levers, seat switch, electronic brake actuator (brake box), blade engagement switch (PTO), ignition switch, main/charge system fuse 25A, and a system fuse 15A.

Service and Repairs

Electrical Assembly 1

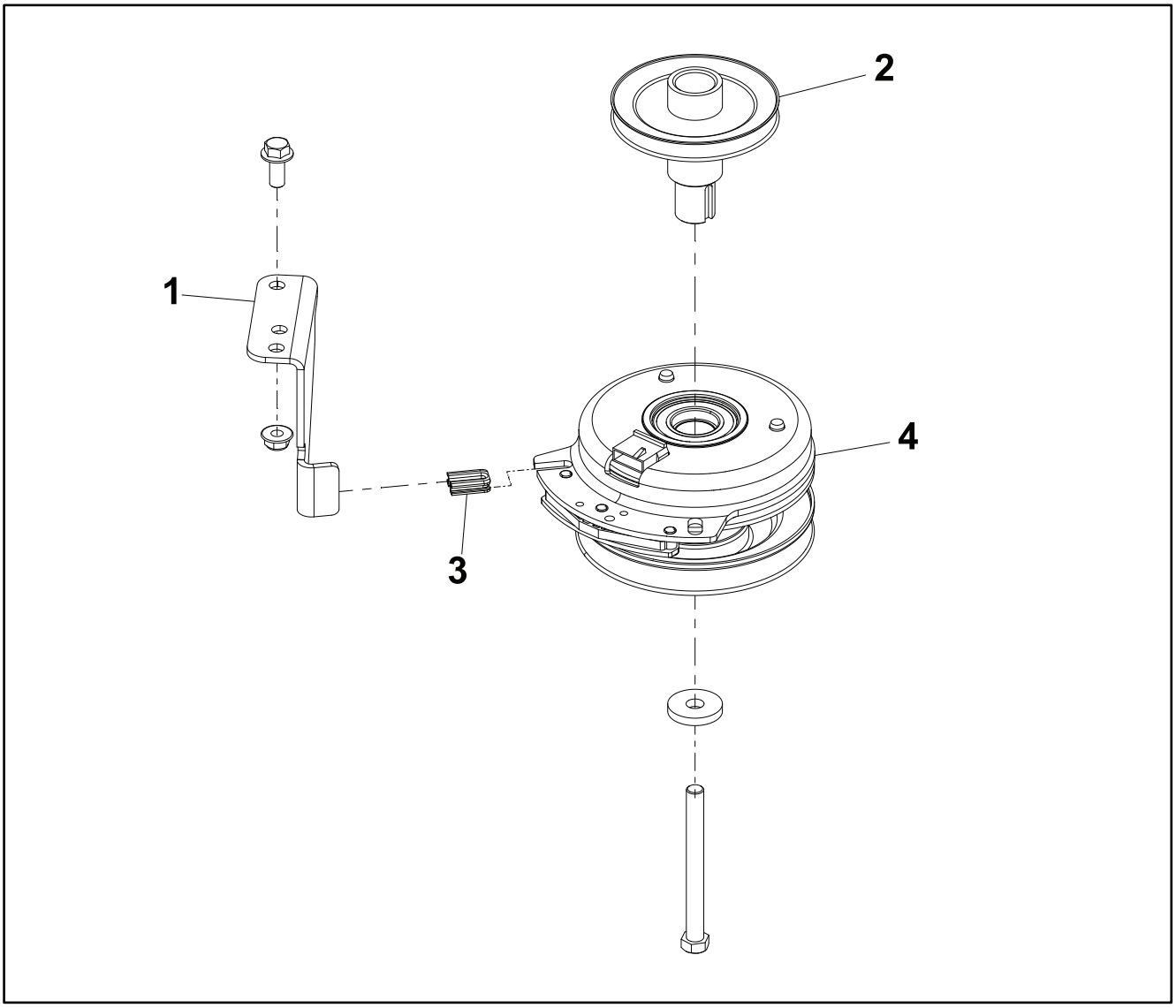


g308357

Figure 267

1. Rubber Strap
2. Ignition Key
3. Ignition Switch
4. PTO Switch
5. Solenoid Cap
6. Harness Clip
7. Switch
8. Positive Battery Cable
9. Wire Harness
10. Solenoid Cover
11. Negative Battery Cable
12. Positive Battery Cable
13. Solenoid
14. Battery

Electrical Assembly 2



g308358

Figure 268

1. Clutch Stop
2. Engine Pulley
3. Clutch Isolator
4. PTO Clutch

PTO Clutch Replacement

PTO Clutch Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Using an appropriate lifting device, raise the machine. Remove the deck belt from the clutch pulley.
4. Disconnect the wiring to the clutch.

g300624

Figure 269

5. Remove the 5/8 hex bolt securing the clutch to the crankshaft of the engine. Remove the clutch.

g300625

Figure 270

PTO Clutch Installation

1. Install the clutch. Install the 5/8 hex bolt securing the clutch to the crankshaft of the engine. Torque bolt to 67.5–81 N • m (50–60 ft-lb).

PTO Clutch Installation (continued)

g300625

Figure 271

2. Connect the wiring to the clutch.

g300624

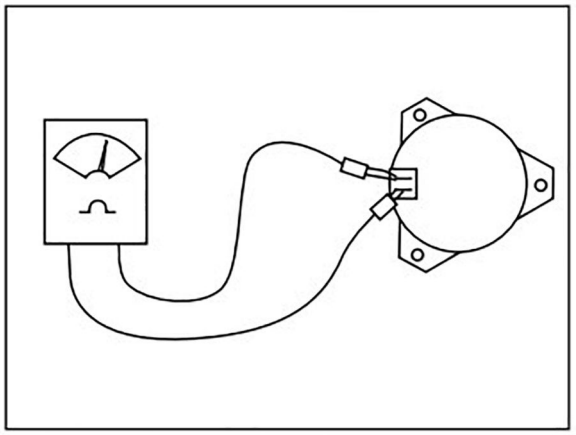
Figure 272

3. Install the deck belt to the clutch pulley.
4. Using an appropriate lifting device, lower the machine.
5. Connect the positive battery cable first, then the negative battery cable to the battery.

PTO Clutch Testing

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the clutch wire connector.
3. Set the multi-meter to measure resistance (OHMs setting).
4. Connect the meter lead wires to the terminals in the clutch connector.

PTO Clutch Testing (continued)



g309780

Figure 273

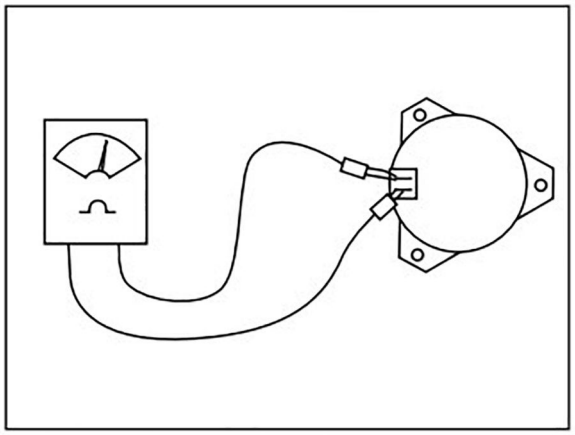
5. See the PTO Clutch Electrical Specifications chart below:

Model Number	Resistance (OHMs)	AMP Draw	Continuity to Ground
74694, 75750, 75751, 75753, 75755, 75759	3.69 ± 5%	3.25A	Open
75755TA, 75754, 75757, 75760	3.05 ± 5%	3.93A	Open
74685, 74687, 74690, 75742TA, 75745TA, 75740, 75741, 75742, 75743, 75744, 75745	3.02 ± 5%	3.97A	Open
74710	3.02 ± 5%	3.97A	Open

PTO Clutch Continuity to Ground Check

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the clutch wire connector.
3. Set the multi-meter to measure resistance (OHM setting).
4. Connect one multi-meter lead to the engine, chassis or battery ground. Connect the other multi-meter lead to each of the clutch connector terminals.
5. The 2 clutch connector terminals should never have continuity to ground and should OPEN at all times.
6. If continuity is found between the PTO connector and ground, the PTO clutch and the PTO switch must be replaced.

PTO Clutch Continuity to Ground Check (continued)



g309780

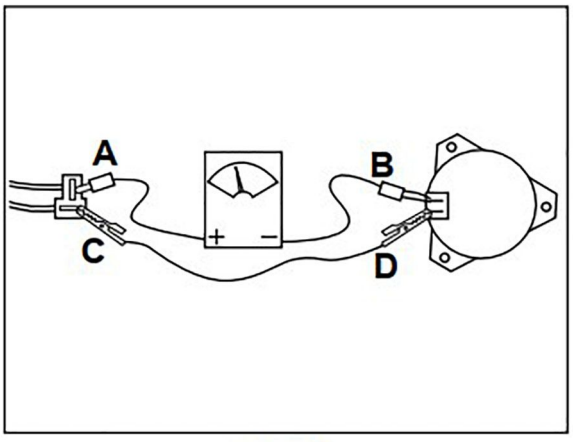
Figure 274

PTO Clutch Measuring Clutch Current Draw

Do not measure current draw if the clutch has shorted to ground or if the resistance measurement is out of specification.

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the clutch wire connector.
3. Set the multi-meter to measure amps (10 amp scale).
4. Connect the positive meter lead to the chassis harness terminal A.
5. Connect the negative meter lead to the corresponding wire terminal B.
6. Connect a short jumper lead from terminal C to terminal D.

Note: Connector shape may vary per model.



g309801

Figure 275

7. Turn the ignition switch to RUN and the PTO switch to the ON position.

8. Record the amp reading and refer to the PTO Clutch Electrical Specification Chart above.

Motion Control and Seat Switch Replacement

Motion Control and Seat Switch Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Flip the seat forward.
3. Using a T–30 torque bit, remove the 3 screws securing the pod to the pod support brackets. Repeat for opposite side.
4. Remove the fuel cap on the LH side pod.
5. Move the motion control from the neutral lock to the neutral position.
6. Remove the LH pod from the machine.

   Note: The LH and RH pod removal are the same except the RH pod has the control panel and smart speed knob.

7. Using Philips head screw driver, remove the screw securing the smart speed knob to the smart speed lever. Remove the smart speed knob from the smart speed lever.

g301691

Figure 276

8. Using a Philips head screw driver, remove the screw securing the control panel to the RH pod. Move the control panel to the side.

Motion Control and Seat Switch Removal (continued)

g301692

Figure 277

9. Remove the RH pod from the machine.
10. Disconnect the motion control neutral switch from the steering control box by depressing the tabs on either side of the switch. Disconnect the switch from the connector.

Motion Control and Seat Switch Installation

1. Connect the switch to the connector. Connect the motion control neutral switch to the steering control box by depressing the tabs on either side of the switch.
2. Place the RH pod into position on the machine.
3. Install the control panel. Hand tighten with the screw securing the control panel to the RH pod.

g301692

Figure 278

4. Install the smart speed knob to the smart speed lever. Hand tighten with the screw securing the smart speed knob to the smart speed lever.

g301691

Figure 279

5. Place the LH pod into position on the machine.
6. Move the motion control from the neutral position to the neutral lock position.
7. Install the fuel cap on the LH side pod.
8. Install the 3 screws (per pod) securing the pod to the pod support brackets. Torque screws to 11 N • m (100 in-lb).
9. Flip the seat back into position.

Seat Switch Testing

1. Disconnect the wire harness from the Operator Presence Switch (seat switch), located on the bottom of the seat assembly.
2. Using a digital multi-meter set to the OHM or Continuity setting, test the continuity between the two switch terminals.
   - When the seat is vacated, the switch should NOT have continuity (open)
   - When the operator is present, the switch should have continuity (closed)

Neutral Lock Switch Testing

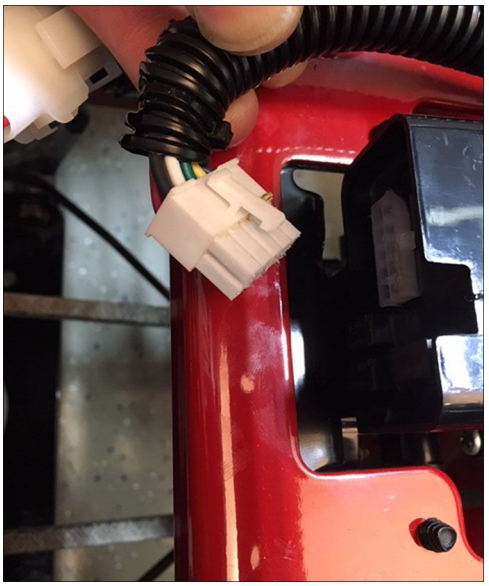
The neutral switch is a single pole plunger type switch (normally open) with two terminals. When the plunger is depressed, the circuit closes and there is continuity between the terminals.

- Motion Control Levers in neutral park position (OUT), the switch should have continuity (closed)
- Motion Control Levers in the operating position (IN), the switch should NOT have continuity (open)

Brake Module Replacement

Brake Module Removal

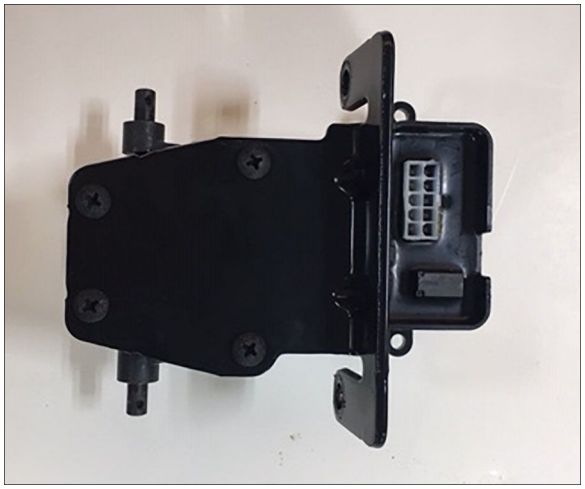
1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Flip the seat forward.
3. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
4. Depress the tab on the top of the connector to release the connector from the module.



g302093

Figure 280

5. Remove the 2 (3/8) screws securing the brake module bracket to the chassis. Remove the brake module.
6. Remove the 4 Philips head screws securing the bracket to the brake module.



g302094

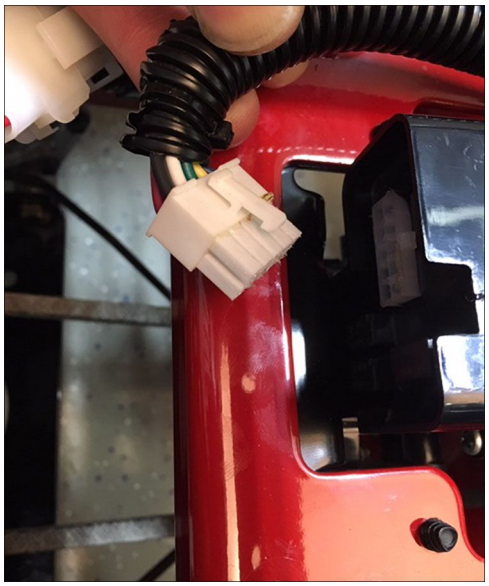
Figure 281

Brake Module Installation

1. Install and hand tighten the 4 Philips head screws securing the bracket to the module. Place the brake module into position on the machine.

2. Install the 2 (3/8 inch) screws securing the brake module bracket to the chassis. Torque screws to 9–11 N • m (80–100 in-lb).

3. Install the connector to the module.



g302093

Figure 282

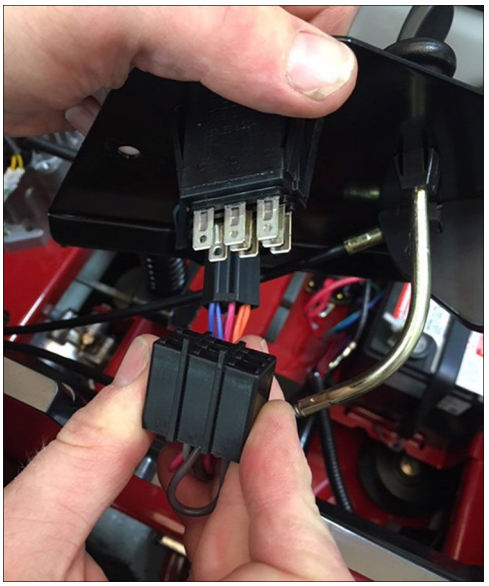
4. Install the 2 cotter pins and flat washers securing the brake rods to the brake module.
5. Flip the seat into operating position.
6. Connect the battery by installing the positive battery cable first, then the negative cable to the battery.

PTO Switch Replacement

PTO Switch Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Remove the Philips head screw from the control panel.
4. Disconnect the PTO switch.

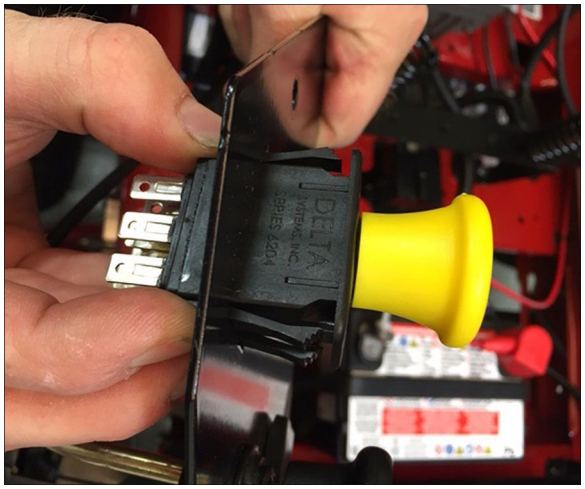
PTO Switch Removal (continued)



g302095

Figure 283

5. Depress the tabs on the side of the switch and remove the switch from the control panel.

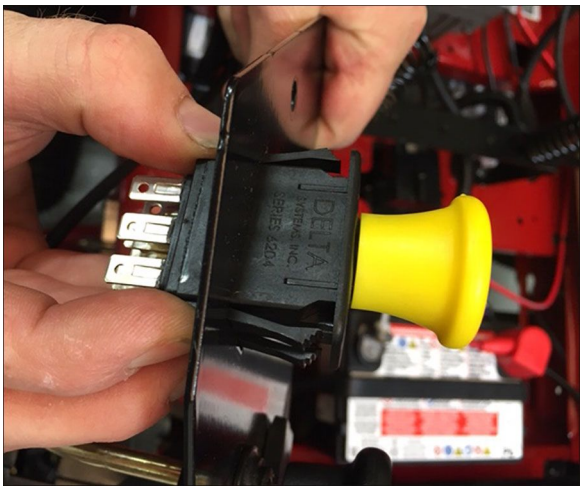


g302097

Figure 284

PTO Switch Installation

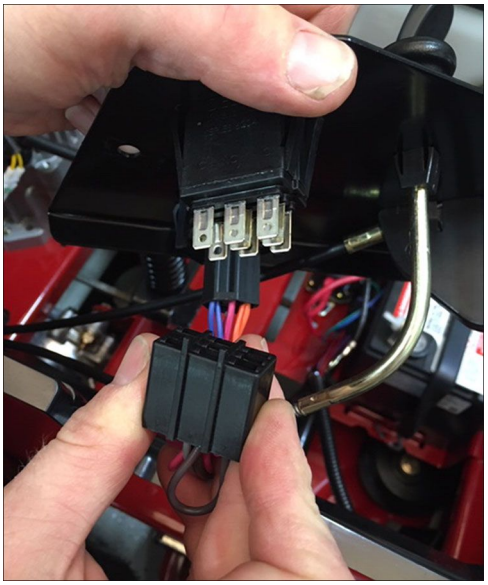
1. Install the switch to the control panel.



g302097

Figure 285

2. Connect the PTO switch.
3. Install and hand tighten the Philips head screw to the control panel.



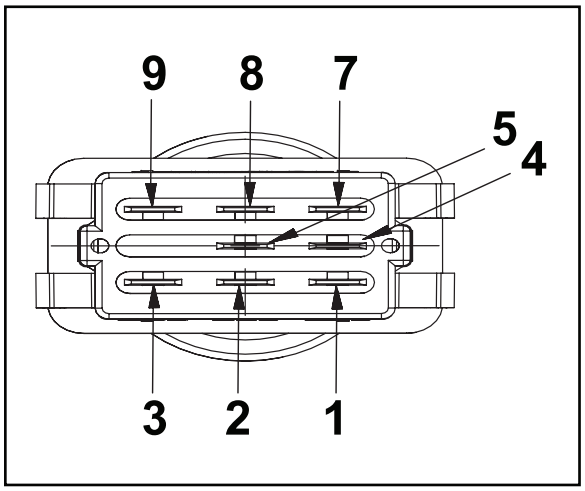
g302095

Figure 286

4. Connect the battery by installing the positive battery cable first, then the negative cable to the battery.

PTO Switch Testing

1. Remove the control panel from the right console.
2. Disconnect the PTO switch from the wire harness.
3. With the switch in the ON position (button pulled OUT).



g316660

Figure 287

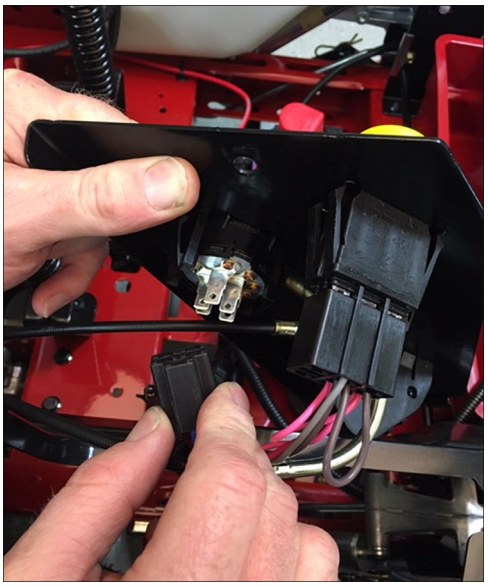
4. Using a digital multi-meter set to the OHM or Continuity setting, verify the following:
   - Pin 2 and 5 should have continuity (closed)
   - Pin 1 and 4 should have continuity (closed)
   - Pin 1 and 7 should NOT have continuity (open)
   - Pin 2 and 8 should NOT have continuity (open)
5. With the switch in the OFF position (button pushed IN):
   - Pin 1 and 7 should have continuity (closed)
   - Pin 2 and 8 should have continuity (closed)
   - Pin 1 and 4 should NOT have continuity (open)
   - Pin 2 and 5 should NOT have continuity (open)

Ignition Switch Replacement

Ignition Switch Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
3. Remove the Philips head screw from the control panel.
4. Disconnect the ignition switch.

Ignition Switch Removal (continued)



g302096

Figure 288

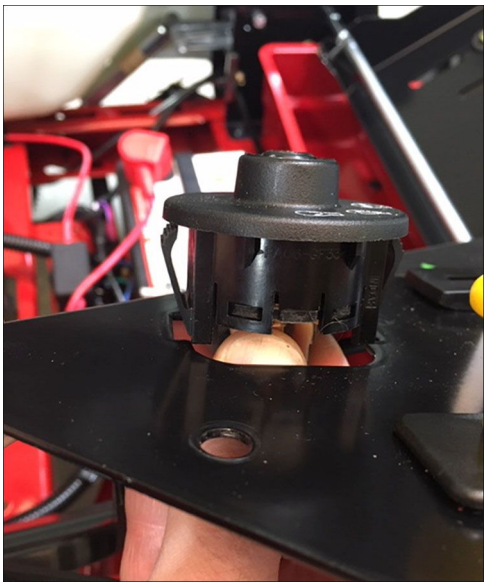
5. Depress the tabs on the side of the switch and remove the switch from the control panel.

g302112

Figure 289

Ignition Switch Installation

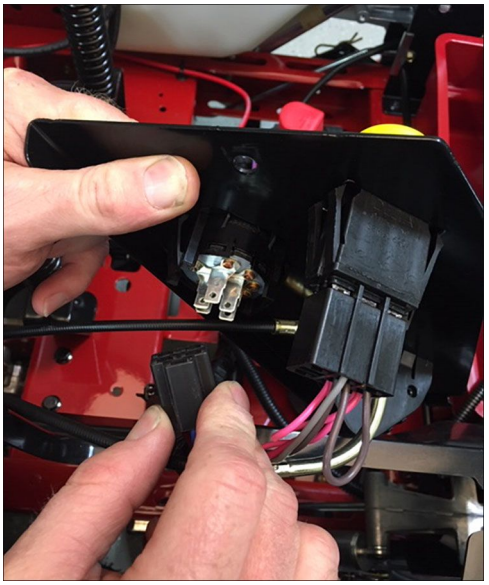
1. Install the switch to the control panel.



g302112

Figure 290

2. Connect the ignition switch.



g302096

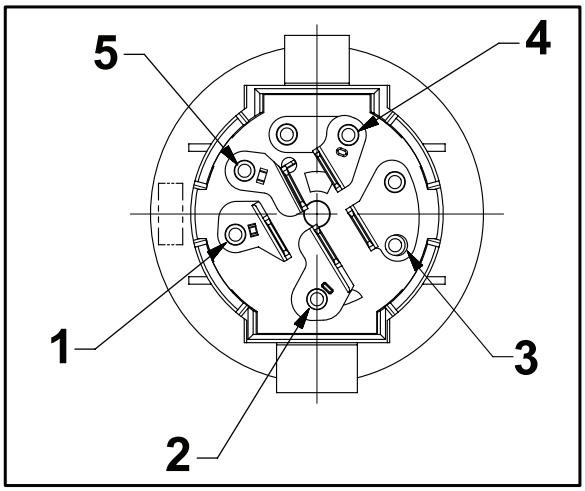
Figure 291

3. Install and hand tighten the Philips head screw to the control panel.
4. Connect the battery by installing the positive battery cable first, then the negative cable to the battery.

Ignition Switch Testing

The ignition switch makes the proper connections for the starter, safety circuits, and accessories. Detents inside the switch control the three switch positions: OFF, RUN, and START. The START position is spring loaded so that it automatically returns to the RUN position when released.

Ignition Switch Wiring Connections



g316681

Figure 292

- **1** — Starting Circuit Terminal
- **2** — (No connection)
- **3** — Battery Terminal
- **4** — Seat Switch and Hour Meter Terminal
- **5** — PTO Switch Terminal

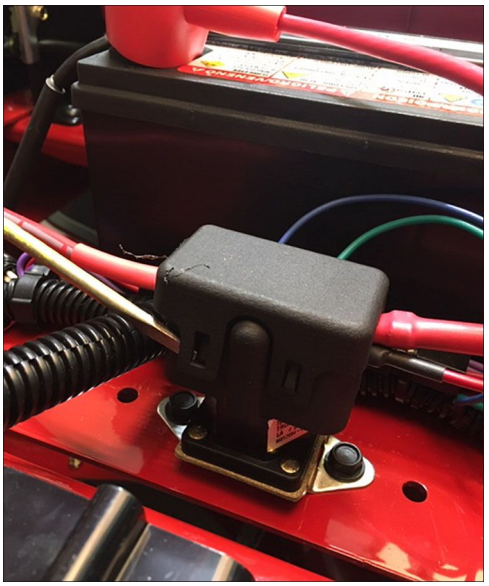
1. Remove the control panel from the right console.
2. Disconnect the harness from the ignition switch. Gently rock the connector back and forth until unplugged.
3. Using a digital multi-meter set to the OHM or Continuity setting, verify that continuity exists between the terminals listed for each switch position.
4. Using a digital multi-meter set to the OHM or Continuity setting, verify that NO continuity exists between the terminals not listed for each switch position.

Position	Circuit "Make"
1. OFF	None
2. RUN	2 + 3 + 5 + 4
3. START	2 + 3 + 5 + 1

Starter Solenoid Replacement

Starter Solenoid Removal

1. Park the machine on a level surface and set the parking brake. Stop the engine, wait for all moving parts to stop and remove the key.
2. Flip the operator's seat forward.
3. Disconnect the battery by removing the negative battery cable first, then the positive cable from the battery.
4. Using a flat head screw driver, pry the solenoid terminal cover off to release the tabs on the solenoid cover.

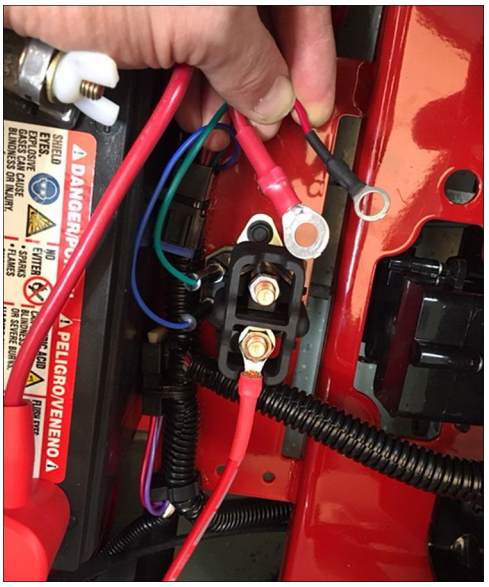


g302124

Figure 293

5. Remove the 2 (½ inch) nuts securing the battery cable and the starter power cable to the starter solenoid.

   Note: The battery cable side has an additional red wire for the chassis harness.

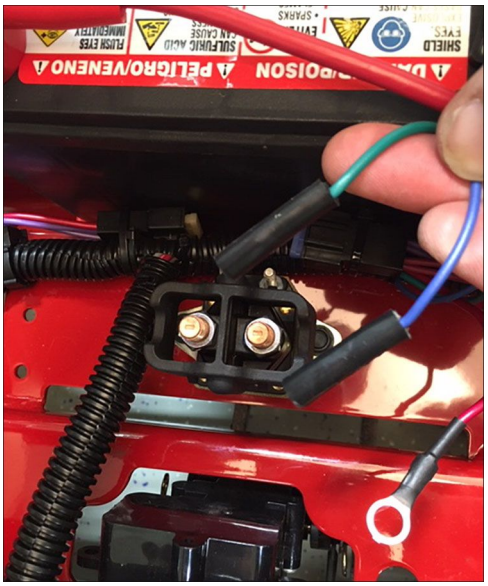


g302125

Figure 294

6. Remove the blue and green wires from the main harness to the starter solenoid.

Starter Solenoid Removal (continued)



g302126

Figure 295

7. Remove the 2 (3/8 inch) bolts securing the starter solenoid to the chassis.

g302127

Figure 296

8. Remove the starter solenoid from the chassis.

Starter Solenoid Installation

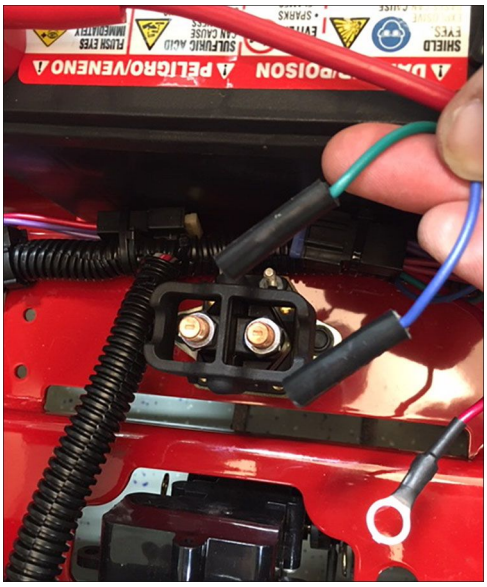
1. Install the starter solenoid to the chassis.

2. Install the 2 (3/8 inch) bolts securing the starter solenoid to the chassis. Torque bolts to 3–4.5 N • m (35–40 in-lb).

g302127

Figure 297

3. Install the blue and green wires to the main harness to the starter solenoid.

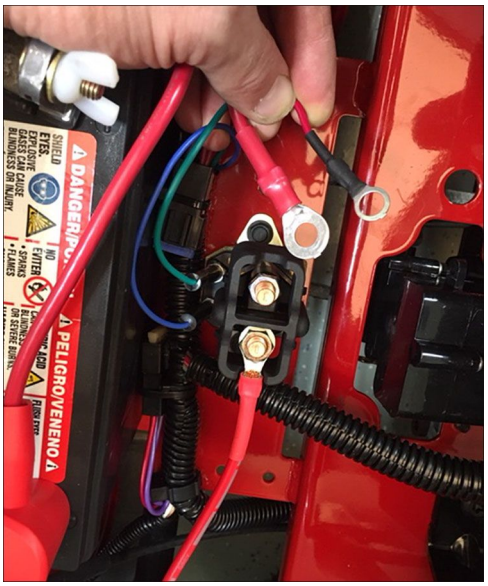


g302126

Figure 298

4. Install the 2 (½) inch nuts securing the battery cable and the starter power cable to the starter solenoid. Torque nuts to 3–4.5 N • m (35–40 in-lb).

   Note: The battery cable side has an additional red wire for the chassis harness.



g302125

Figure 299

5. Install the solenoid terminal cover onto solenoid cover.
6. Connect the battery by installing the positive battery cable first, then the negative cable to the battery.
7. Flip the seat into the operating position.

Appendix A

Foldout Drawings

Table of Contents

Electrical Drawing Abbreviations

The following abbreviations are used for wire harness colors on the electrical schematics and wire harness drawings in this chapter.

Abbreviation	Color
BK	Black
BR or BM	Brown
BU	Blue
GN	Green
GY	Gray
OR	Orange
PK	Pink
R or RD	Red
T	Tan
VIO	Violet
W or WH	White
Y or YE	Yellow

Numerous harness wires include a line with an alternate color. These wires are identified with the wire color followed by a / or _ and then the line color (e.g, R/BK is a red wire with a black line; OR_BK is an orange wire with a black line).

Note: The electrical harness drawings in this chapter identify both the wire color and the wire gauge. For example, 16 BK on a harness diagram identifies a 16 gauge wire with black insulation.

Note: A splice used in a wire harness will be identified on the wire harness diagram by SP. The manufacturing number of the splice is also identified on the wire harness diagram (e.g., SP01 is splice number 1).

Electrical Schematic