



927 Rear Engine Rider

Service Manual

Models 927046-056, 301-310

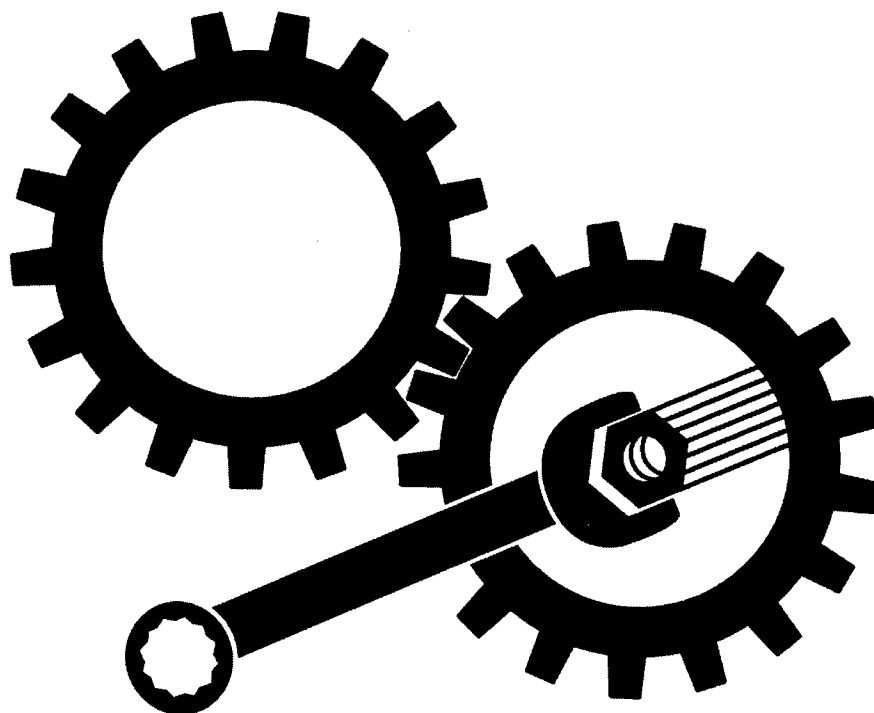


TABLE OF CONTENTS

Section 1 - Introduction	1-3	Section 6 - Mower Deck	6-22
1.1 The Manual	1-3	6.1 Rotary Mower Belt Replacement	6-22
1.2 Service and Replacement Parts	1-3	6.2 Mower Drive Belt Replacement	6-22
1.3 Product Registration	1-3	6.3 Mower Blade	6-22
1.4 Unauthorized Replacement Parts	1-3	6.4 Mower Pan Removal	6-23
1.5 Disclaimer	1-3	6.5 Linkages for Mower Height/Engagement & Clutch/Brake	6-23
1.6 Technical Service Communications	1-3	6.6 Mower Spindle Removal	6-25
Section 2 - Safety 2-4		Section 7 - Steering and Controls	7-26
2.1 Safety Alerts	2-4	7.1 Steering Shaft Gears	7-26
2.2 Signal Words	2-4	7.2 Speed Selector	7-27
2.3 Notations	2-4	Section 8 - Brake and Clutch	8-28
2.4 Practices and Laws	2-4	8.1 Brake Disassembly	8-28
2.5 Required Operator Training	2-4	8.2 Clutch and Brake Adjustment	8-28
2.6 Preparation	2-4	Section 9 - Drive Train	9-29
2.7 Service Position	2-4	9.1 Rear Axle Disassembly	9-29
2.8 Cleaning and Storage	2-4	9.2 Gear Case Removal	9-29
2.9 Safety Rules	2-5	9.3 Gear Case Replacement	9-30
Section 3 - Specifications	3-7	9.4 Friction Wheel Replacement	9-30
Section 4 - General Maintenance & Adjustments	4-12	Section 10 - Bagger	10-32
4.1 Controls and Features	4-12	10.1 Vane Installation	10-32
4.2 Service Positions	4-13	10.2 Bagger Assembly	10-32
4.3 Filling The Fuel Tank	4-13	10.3 Lower Boot Installation	10-33
4.4 General Lubrication	4-13	Section 11 - Electrical	11-34
4.5 Mower Belt Adjustment	4-14	11.1 Safety Interlock System	11-34
4.6 Clutch and Brake	4-14	11.2 Troubleshooting	11-34
4.7 Mower Pan	4-15	11.3 Battery (Electric Start Models)	11-34
4.8 Anti-Scalp Rollers	4-16		
4.9 Vents	4-16		
4.10 Pinion and Steering Adjustment	4-17		
4.11 Tires	4-17		
Section 5 - Engine	5-18		
5.1 Engine Troubleshooting	5-18		
5.2 Engine Oil	5-19		
5.3 Changing Oil	5-19		
5.4 Air Cleaner	5-19		
5.5 Spark Plug	5-20		
5.6 Muffler	5-20		
5.7 Engine Removal	5-20		
5.8 Engine Replacement	5-20		

SECTION 1 - INTRODUCTION

1.1 THE MANUAL

It is the purpose of this manual to provide complete instructions for service, maintenance, disassembly, repair, and installation of the mechanical components for the 927 Rear Engine Rider Mowers.

Dealer trained service personnel should use this manual as a supplement to and reminder of the training sessions conducted by the company.

Read all information for servicing a part of system before repair work is started to avoid needless disassembly.

Operation

Before operation of the unit, carefully and completely read manuals supplied with the unit. The contents will provide you with an understanding of safety instructions and controls during normal operation and maintenance.

Safety Messages

For your safety and the safety of others always read, understand, and follow all DANGER, WARNING, and CAUTION messages found in manuals and on safety decals.

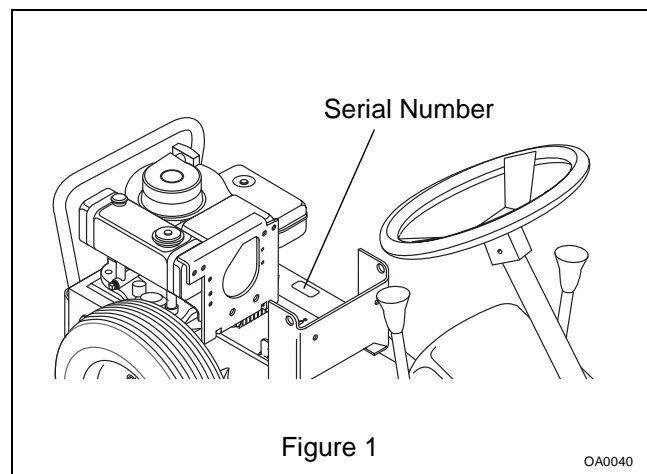
Directional Reference

All reference to left, right, front, or rear are given from the operator in the operator position and facing the direction of forward travel.

1.2 SERVICE AND REPLACEMENT PARTS

When ordering publications, replacement parts, or making service inquiries, know the Model and Serial numbers of your unit and engine.

Numbers are located on the product registration form in the unit literature package. They are printed on a serial number label, located on the frame of your unit.



1.3 PRODUCT REGISTRATION

A warranty registration card must be filled out, signed, and returned at the time of purchase. This card activates the warranty. Claims meeting requirements during limited warranty period will be honored.

1.4 UNAUTHORIZED REPLACEMENT PARTS

Use only Ariens replacement parts. The replacement of any part on this vehicle with anything other than an Ariens authorized replacement part may adversely affect the performance, durability, or safety of this unit and may void the warranty. Ariens disclaims liability for any claims or damages, whether warranty, property damage, personal injury, or death arising out of the use of unauthorized replacement parts.

1.5 DISCLAIMER

Ariens reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your unit.

1.6 TECHNICAL SERVICE COMMUNICATIONS

Ariens Technical Service communicates information to the field using Service Letters, Service Bulletins, Product Notices, and Campaigns. Each communication signifies a type of information and priority. The dealer is responsible to carry out the directive provided in the communication. The types of communication are:

Service Letter - General technical information for the dealer. Technical information on how to service the product and product improvements.

Service Bulletin - Notification to update products to resolve certain issues or a notification of a policy change.

Product Notices - Notification of limited product located in a certain region. This is a limited distribution to only those who received the product involved.

Campaigns - Notification of a safety related issue. All product must be updated and are tracked by the factory until all units are corrected.

SECTION 2 - SAFETY

2.1 SAFETY ALERTS



Look for these symbols to point out important safety precautions. They mean:

Attention!

Personal Safety Is Involved!

Become Alert!

Obey The Message!

2.2 SIGNAL WORDS

The safety alert symbol is used in decals on the unit and with proper operation procedures in this manual. They alert you to the existence and relative degree of hazards.

Understand the safety message. It contains important information about personal safety on or near the unit.



DANGER: IMMINENTLY HAZARDOUS SITUATION! If not avoided, WILL RESULT in death or serious injury.



WARNING: POTENTIALLY HAZARDOUS SITUATION! If not avoided, COULD RESULT in death or serious injury.



CAUTION: POTENTIALLY HAZARDOUS SITUATION! If not avoided, MAY RESULT in minor or moderate injury. It may also be used to alert against unsafe practices.

2.3 NOTATIONS

NOTE: General reference information for proper operation and maintenance practices.

IMPORTANT: Specific procedures or information required to prevent damage to unit or attachment.

2.4 PRACTICES AND LAWS

Practice usual and customary safe working precautions, for the benefit of yourself and others. Understand and follow all safety messages. Be alert to unsafe conditions and the possibility of minor, moderate, or serious injury or death. Learn applicable rules and laws in your area.

2.5 REQUIRED OPERATOR TRAINING

Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

2.6 PREPARATION

Before starting any removal of parts, proper preparation is very important for efficient work. A clean work area at the start of each job will allow you to perform service repairs easily and quickly.

To reduce the incidence of misplaced tools or parts, place removed components with all attaching hardware in the disassembly order on a clean work surface. Organization is a key part of proper reassembly.

Tools, instruments, and parts needed for the job should be gathered before work is started. Interrupting a job to locate tools or parts is a needless delay. A list of required special tools has been included in this manual.



CAUTION: Remove enough fuel so that no spillage will occur. Remove battery to prevent spillage of electrolyte.

2.7 SERVICE POSITION

Place unit on a flat level surface. ALWAYS stop engine and disengage clutches. Tip up on the service bar for ease of access during some procedures. Assure unit is secure and will not tip over. Strap and clamp onto lift if used.

IMPORTANT: When unit is tipped up onto its service bar, undrained gasoline drawn into cylinder may wash cylinder wall and shorten engine life.



WARNING: AVOID SHARP EDGES which can cut. Movement of parts can cut off fingers or a hand. Wear gloves, and use extreme caution when servicing.

2.8 CLEANING AND STORAGE

IMPORTANT: Never spray unit with water or store unit outdoors to help prevent sealed bearing rust or corrosion. Water can seep into sealed bearings and reduce component life. Bearings are sealed against dirt and debris only.

A unit that is excessively dirty should be cleaned before work starts. Cleaning will occasionally uncover trouble sources. Dirt and abrasive dust reduce the efficient work life of parts and can lead to costly replacement.

When taking unit out of extended storage:

1. Check for any damage or loose parts. Repair, replace, or tighten hardware before operation.
2. If a preservative fluid was used in fuel tank, drain and discard. Fill fuel tank with fresh new fuel.

2.9 SAFETY RULES

Walk Around Inspection

Complete a walk around inspection of unit and work area to understand:

- Work area.
- Your unit.
- All safety decals.

Work Area

ALWAYS check overhead and side clearances carefully before operation. ALWAYS be aware of traffic when operating along streets or curbs.

ALWAYS keep hands and feet within the limits of the unit.

Keep children, people, and animals away. Keep children out of work area and under watchful care of a responsible adult.

Keep area of operation clear of all toys, pets, and debris. Stay alert for hidden hazards.

DO NOT run engine in an enclosed area. Always provide good ventilation.

Unit

ALWAYS keep protective structures, guards, and panels in good repair, in place and securely fastened. NEVER modify or remove safety devices.

Check Safety Interlock System for proper operation daily (see Operation section). Do not operate unless system operates properly.

Operation

Understand:

- How to operate all controls
- The functions of all controls
- How to STOP in an Emergency
- Speed ranges

Before starting engine, disengage auxiliary power.

Always back up slowly. Always look down and behind before and while backing.

Never leave a running unit unattended. ALWAYS shut off auxiliary power, lower throttle setting, and stop engine before leaving unit. ALWAYS remove key to prevent unauthorized use.

Never carry passengers on any part of unit.

Avoid uneven and rough terrain. DO NOT operate near drop offs, ditches, or embankments. Unit can suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

ALWAYS operate unit in good visibility and light.

Fuel is highly flammable and its vapors can explode.

Use ONLY approved fuel containers.

NO Smoking!

NO Sparks!

NO Flames!

Allow engine to cool before servicing.

NEVER fill fuel tank when engine is running, hot, or unit is indoors.

Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Stop unit and engine. Wait for all moving parts to stop. Remove wire from spark plug. Inspect unit and make any necessary repairs before restart.

Hazardous Slopes

DO NOT operate on steep slopes. Avoid operating on slopes. When you must operate on a slope, travel up and down the slope. Never operate cross a slope. Never operate on a slope greater than 10 degrees.

If tires lose traction, turn off auxiliary power and proceed slowly straight down slope. Avoid wet surfaces.

Avoid parking on a slope. If necessary, use wheel chocks.

DO NOT leave unit unattended on a slope. ALWAYS use wheel chocks when leaving unit.

Child Safety

NEVER allow children to operate or play on or near unit. Be alert and shut off unit if children enter area.

Personal Safety

Read and obey all warning, caution, and instructions on the unit and in provided manuals.

- Only trained adults may operate unit.
- Training includes actual operation.
- Clearly understand instructions.
- Be alert! Conditions can change.

NEVER operate unit after or during the use of medication, drugs or alcohol. Safe operation requires your complete and unimpaired attention at all times.

NEVER allow anyone to operate the unit when their alertness or coordination is impaired.

DO NOT operate unit without wearing adequate outer garments. Wear adequate safety gear and protective gloves. Wear proper footwear to improve footing on slippery surfaces.

Protect eyes, face, and head from objects that may be thrown from unit. Wear appropriate hearing protection.

Avoid Sharp Edges. Sharp edges can cut. Moving parts can cut or amputate fingers or a hand. Wear gloves to service unit when handling sharp edges.

ALWAYS keep hands away from any pinch points.

ALWAYS keep hands and feet away from all moving parts during operation. Moving parts can cut off body parts.

DO NOT touch unit parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust, or service.

Controls

Come to a complete stop before reversing.

Never jerk the control levers. Always use a steady even action to achieve smooth control.

Always be aware of obstructions that may cause injury to operator or damage to the unit.

Keep alert with eyes fixed in direction of travel.

Maintenance

ALWAYS maintain unit in safe operating condition.

Damaged or worn out muffler can cause fire or explosion.

Check the condition of the unit at the end of each day and repair any damage or defects.

ALWAYS block wheels and know all jack stands are strong and secure and will hold weight of unit during maintenance.

Keep nuts and bolts tight and keep equipment in safe operating conditions.

Before maintenance, adjustments, or service (except where specifically recommended), shut off engine.

Allow hot parts to cool.

Keep unit free of dirt, stones, and other debris. Clean up oil or fuel spills.

Storage

DO NOT store unit inside a building with fuel in the fuel tank where any ignition sources are present. Allow unit to cool completely.

ALWAYS clean unit before extended storage. See Engine Manual for proper storage.

Battery

Avoid Electric Shock. DO NOT reverse battery connections.

Explosive Gases! Poisonous battery fluid contains sulfuric acid and its contact with skin, eyes, or clothing can cause severe burns.

No flames. No sparks. No smoking near battery.

Always wear safety glasses and protective gear near battery.

DO NOT TIP battery beyond a 45° angle in any direction.

ALWAYS KEEP BATTERIES OUT OF REACH of children.

Transport

Use extra care when loading or unloading unit onto trailer or truck. Secure unit chassis to transport vehicle. NEVER secure from rods or linkages that could be damaged.

Attachments and Accessories

Use only attachments or accessories designed for your unit.

SECTION 3 - SPECIFICATIONS

Model Number	927046	927047	927048	927049
Description Name	RM 1028E	RM 1132E	RM 9028E	RM 9030E
Battery	180 CCA	180 CCA	180 CCA	180 CCA
Brakes	Drum	Drum	Drum	Drum
Steering	Gear & Pinion	Gear & Pinion	Gear & Pinion	Gear & Pinion
Turning Radius - in (cm)	26 (66)	26 (66)	26 (66)	26 (66)
Tire Size				
Front	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00
Rear	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00
Engine - Manufacturer	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton
- Cycle	Four	Four	Four	Four
- Horsepower	10.0	11.0	9.0	9.0
Starting System	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up
Fuel Tank Cap. -qt (L)	3 (2.8)	3 (2.8)	3 (2.8)	3 (2.8)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Idle RPM	1800	1800	1800	1800
Governed RPM	3250	3250	3250	3250
Crank Case Cap. - oz (L)	39 (1.2)	39 (1.2)	39 (1.2)	39 (1.2)
Air Cleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug	.030"	.030"	.030"	.030"
Transmission	Sealed Case	Sealed Case	Sealed Case	Sealed Case
Speed - Forward Max - mph (kph)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)
- Reverse Max. - mph (kph)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)
Transmission Lube	150 Grease	150 Grease	150 Grease	150 Grease
Drive Clutch	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic
Tire Pressure				
Front	14 PSI	14 PSI	14 PSI	14 PSI
Rear	14 PSI	14 PSI	14 PSI	14 PSI
Lift System	Manual	Manual	Manual	Manual
Power Take Off	Manual	Manual	Manual	Manual
Mower Deck - Flex & Float	Standard	Standard	Standard	Standard
- High Performance	Standard	Standard	Standard	Standard
- Cutting Width - in (cm)	28 (71.1)	32 (81.3)	28 (71.1)	30 (76.2)
- Cutting Height - in (cm)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)
- Cut Increments - in (cm)	.5 (1.2)	.5 (1.2)	.5 (1.2)	.5 (1.2)
Bagger	827026/827013	827026/827013	827026/827013	827020
Dethatcher Kit	72701300	72701300	72701300	72701300
Front Weight Kit	72701600	72701600	72701600	72701600
Leaf Mulcher Kit	N/A	N/A	N/A	72703400
Grass Mulcher Kit	72703500	72703600	72703500	72701400

Model Number	927050	927051	927052	927053
Description Name	RM 1232E	RM 1332	RM 1330	RM 9028
Battery	180 CCA	180 CCA	180 CCA	180 CCA
Brakes	Drum	Drum	Drum	Drum
Steering	Gear & Pinion	Gear & Pinion	Gear & Pinion	Gear & Pinion
Turning Radius - in (cm)	26 (66)	26 (66)	26 (66)	26 (66)
Tire Size				
Front	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00
Rear	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00
Engine - Manufacturer	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton
- Cycle	Four	Four	Four	Four
- Horsepower	12.0	13.0	13.0	9.0
Starting System	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up
Fuel Tank Cap. -qt (L)	3 (2.8)	3 (2.8)	3 (2.8)	3 (2.8)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Idle RPM	1800	1800	1800	1800
Governed RPM	3250	3250	3250	3250
Crank Case Cap. - oz (L)	39 (1.2)	39 (1.2)	39 (1.2)	39 (1.2)
Air Cleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug	.030"	.030"	.030"	.030"
Transmission	Sealed Case	Sealed Case	Sealed Case	Sealed Case
Speed - Forward Max - mph (kph)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)
- Reverse Max. - mph (kph)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)
Transmission Lube	150 Grease	150 Grease	150 Grease	150 Grease
Drive Clutch	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic
Tire Pressure				
Front	14 PSI	14 PSI	14 PSI	14 PSI
Rear	14 PSI	14 PSI	14 PSI	14 PSI
Lift System	Manual	Manual	Manual	Manual
Power Take Off	Manual	Manual	Manual	Manual
Mower Deck - Flex & Float	Standard	Standard	Standard	Standard
- High Performance	Standard	Standard	Standard	Standard
- Cutting Width - in (cm)	32 (81.3)	32 (81.3)	30 (76.2)	28 (71.1)
- Cutting Height - in (cm)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)
- Cut Increments - in (cm)	.5 (1.2)	.5 (1.2)	.5 (1.2)	.5 (1.2)
Bagger	827026/827013	827026/827013	827020	827026/827013
Dethatcher Kit	72701300	72701300	72701300	72701300
Front Weight Kit	72701600	72701600	72701600	72701600
Leaf Mulcher Kit	N/A	N/A	72703400	N/A
Grass Mulcher Kit	72703600	72703600	72701400	72703500

Model Number	927054	927055	927056	927301
Description Name	RM 9030	RM 1332	RM 1330	RM 9028E
Battery	180 CCA	180 CCA	180 CCA	180 CCA
Brakes	Drum	Drum	Drum	Drum
Steering	Gear & Pinion	Gear & Pinion	Gear & Pinion	Gear & Pinion
Turning Radius - in (cm)	26 (66)	26 (66)	26 (66)	26 (66)
Tire Size				
Front	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00
Rear	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00
Engine - Manufacturer	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton
- Cycle	Four	Four	Four	Four
- Horsepower	9.0	13.0	13.0	9.0
Starting System	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up
Fuel Tank Cap. -qt (L)	3 (2.8)	3 (2.8)	3 (2.8)	3 (2.8)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Idle RPM	1800	1800	1800	1800
Governed RPM	3250	3250	3250	3000 max.
Crank Case Cap. - oz (L)	39 (1.2)	39 (1.2)	39 (1.2)	30 (.9)
Air Cleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug	.030"	.030"	.030"	.030"
Transmission	Sealed Case	Sealed Case	Sealed Case	Sealed Case
Speed - Forward Max - mph (kph)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.5-5.1 (2.4-8.2)
- Reverse Max. - mph (kph)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)	2.5 m(4.0)
Transmission Lube	150 Grease	150 Grease	150 Grease	150 Grease
Drive Clutch	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic
Tire Pressure				
Front	14 PSI	14 PSI	14 PSI	14 PSI
Rear	14 PSI	14 PSI	14 PSI	14 PSI
Lift System	Manual	Manual	Manual	Manual
Power Take Off	Manual	Manual	Manual	Manual
Mower Deck - Flex & Float	Standard	Standard	Standard	Standard
- High Performance	Standard	Standard	Standard	Standard
- Cutting Width - in (cm)	30 (76.2)	32 (81.3)	30 (76.2)	28 (71.1)
- Cutting Height - in (cm)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)
- Cut Increments - in (cm)	.5 (1.2)	.5 (1.2)	.5 (1.2)	.5 (1.2)
Bagger	827020	827026/827013	827020	827026/827013
Dethatcher Kit	72701300	72701300	72701300	72701300
Front Weight Kit	72701600	72701600	72701600	72701600
Leaf Mulcher Kit	72703400	N/A	72703400	N/A
Grass Mulcher Kit	72701400	72703600	72701400	72703500

Model Number	927302	927303	927304	927305
Description Name	RM 1228E	RM 1232E	RM 1328	RM 1332
Battery	180 CCA	180 CCA	180 CCA	180 CCA
Brakes	Drum	Drum	Drum	Drum
Steering	Gear & Pinion	Gear & Pinion	Gear & Pinion	Gear & Pinion
Turning Radius - in (cm)	26 (66)	26 (66)	26 (66)	26 (66)
Tire Size				
Front	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00
Rear	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00
Engine - Manufacturer	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton
- Cycle	Four	Four	Four	Four
- Horsepower	12.0	12.0	13.0	13.0
Starting System	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up
Fuel Tank Cap. -qt (L)	3 (2.8)	3 (2.8)	3 (2.8)	3 (2.8)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Idle RPM	1800	1800	1800	1800
Governed RPM	2930 max.	2850 max.	3250	3250 max.
Crank Case Cap. - oz (L)	39 (1.2)	39 (1.2)	39 (1.2)	39 (1.2)
Air Cleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug	.030"	.030"	.030"	.030"
Transmission	Sealed Case	Sealed Case	Sealed Case	Sealed Case
Speed - Forward Max - mph (kph)	1.4-5.0 (2.3-8.0)	1.4-4.8 (2.3-7.7)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)
- Reverse Max. - mph (kph)	2.4 (3.9)	2.4 (3.9)	2.7 (4.3)	2.7 (4.3)
Transmission Lube	150 Grease	150 Grease	150 Grease	150 Grease
Drive Clutch	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic
Tire Pressure				
Front	14 PSI	14 PSI	14 PSI	14 PSI
Rear	14 PSI	14 PSI	14 PSI	14 PSI
Lift System	Manual	Manual	Manual	Manual
Power Take Off	Manual	Manual	Manual	Manual
Mower Deck - Flex & Float	Standard	Standard	Standard	Standard
- High Performance	Standard	Standard	Standard	Standard
- Cutting Width - in (cm)	28 (71.1)	32 (81.3)	28 (71.1)	32 (81.3)
- Cutting Height - in (cm)	1.5-3.5" (3.8-11.4)	1.5-3.5" (3.8-11.4)	1.5-3.5" (3.8-11.4)	1.5-3.5" (3.8-11.4)
- Cut Increments - in (cm)	.5 (1.2)	.5 (1.2)	.5 (1.2)	.5 (1.2)
Bagger	827026/827013	827026/827013	827026/827013	827026/827013
Dethatcher Kit	72701300	72701300	72701300	72701300
Front Weight Kit	72701600	72701600	72701600	72701600
Leaf Mulcher Kit	N/A	N/A	N/A	N/A
Grass Mulcher Kit	72703500	72703600	72703500	72703600

Model Number	927306	927307	927308	927310
Description Name	RM 9028	RM 1328	RM 1332	RM 1028
Battery	180 CCA	180 CCA	180 CCA	180 CCA
Brakes	Drum	Drum	Drum	Drum
Steering	Gear & Pinion	Gear & Pinion	Gear & Pinion	Gear & Pinion
Turning Radius - in (cm)	26 (66)	26 (66)	26 (66)	26 (66)
Tire Size				
- Front	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00	4.10-3.50x4.00
- Rear	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00	16.6x5x8.00
Engine - Manufacturer	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton
- Cycle	Four	Four	Four	Four
- Horsepower	9.0	13.0	13.0	10.0
Starting System	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up	Electric Recoil Back-up
Fuel Tank Cap. -qt (L)	3 (2.8)	3 (2.8)	3 (2.8)	3 (2.8)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Idle RPM	1800	1800	1800	1800
Governed RPM	3250	3250	3250	3250
Crank Case Cap. - oz (L)	39 (1.2)	39 (1.2)	39 (1.2)	39 (1.2)
Air Cleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner	Paper Element Foam Precleaner
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug	.030"	.030"	.030"	.030"
Transmission	Sealed Case	Sealed Case	Sealed Case	Sealed Case
Speed - Forward Max - mph (kph)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)	1.6-5.5 (2.6-8.8)
- Reverse Max. - mph (kph)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)	2.7 (4.3)
Transmission Lube	150 Grease	150 Grease	150 Grease	150 Grease
Drive Clutch	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic	Disc-O-Matic
Tire Pressure				
Front	14 PSI	14 PSI	14 PSI	14 PSI
Rear	14 PSI	14 PSI	14 PSI	14 PSI
Lift System	Manual	Manual	Manual	Manual
Power Take Off	Manual	Manual	Manual	Manual
Mower Deck - Flex & Float	Standard	Standard	Standard	Standard
- High Performance	Standard	Standard	Standard	Standard
- Cutting Width - in (cm)	28 (71.1)	28 (71.1)	32 (81.3)	28 (71.1)
- Cutting Height - in (cm)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)	1.5-3.5 (3.8-11.4)
- Cut Increments - in (cm)	.5 (1.2)	.5 (1.2)	.5 (1.2)	.5 (1.2)
Bagger	827026/827013	827026/827013	827026/827013	827026/827013
Dethatcher Kit	72701300	72701300	72701300	72701300
Front Weight Kit	72701600	72701600	72701600	72701600
Leaf Mulcher Kit	N/A	N/A	N/A	N/A
Grass Mulcher Kit	72703500	72703500	72703600	72703500

SECTION 4 - GENERAL MAINTENANCE & ADJUSTMENTS

4.1 CONTROLS AND FEATURES

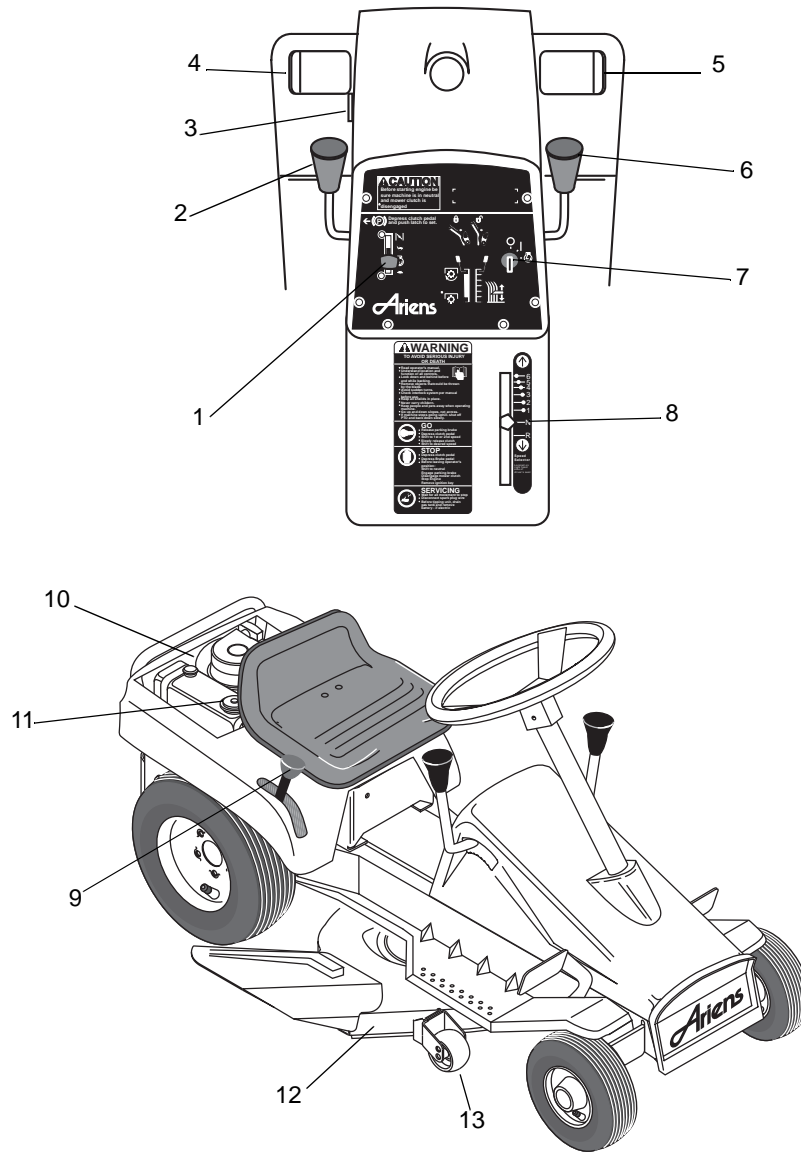


Figure 2

OS0792

4.2 SERVICE POSITIONS

Ariens Dealers will provide any service or adjustments which may be required to keep your unit operating at peak efficiency. Should engine service be required, contact an Ariens dealer or an authorized engine manufacturer's service center.



WARNING: ACCIDENTAL ENGINE START UP can cause death or serious injury.

ALWAYS stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before adjusting or servicing. HOT SURFACES can result in death or serious injury.

DO NOT touch parts which are hot from operation.

ALWAYS allow parts to cool.

ROTATING PARTS can cut off body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.



CAUTION: FUEL SPILLS may result in minor or moderate injury and/or damage to the unit. Before unit is tipped up onto housing, remove enough fuel so that no spillage will occur. Remove battery to prevent spillage of electrolyte.

Service Position

Place unit on a flat level surface. ALWAYS stop engine and disengage clutches. Tip up on the service bar for ease of access during some procedures. Assure unit is secure and will not tip over. Strap and clamp onto lift if used.

When unit is tipped up onto its service bar, undrained gasoline drawn into cylinder may wash cylinder wall and shorten engine life.

4.3 FILLING THE FUEL TANK



FLAMMABLE FUEL and its **EXPLOSIVE VAPORS** can result in death or serious injury.

Handle fuel with care. ALWAYS use an approved fuel container.

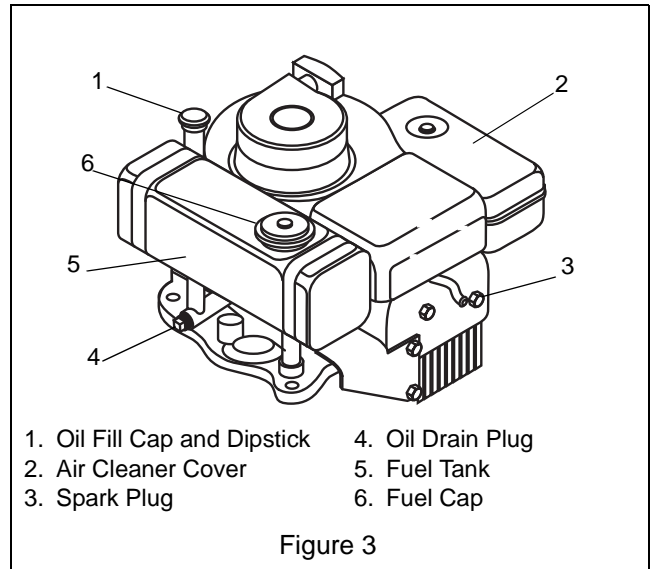
No Smoking! No lighted Materials!

No Open Flame!

Allow engine to cool before any service.

To add fuel to fuel tank (Figure 3):

1. ALWAYS place unit in open or well ventilated area.
2. Stop engine and allow to cool for 2 minutes.
3. Clean fuel cap and surrounding area to prevent dirt from entering fuel tank.



4. Remove cap.

IMPORTANT: DO NOT use gasohol or gasoline containing alcohol. Alcohol will cause internal parts to deteriorate. See Engine Manual for correct type and grade of fuel.

5. Fill fuel tank to within 1/2" (1.3 cm) below bottom of filler neck with unleaded gasoline.
6. Replace fuel cap and tighten.
7. ALWAYS clean up any spilled fuel.

Maintenance Schedule

The chart below shows the recommended maintenance schedule that should be performed on a regular basis. More frequent service may be required due to working conditions (heavy loads, high ambient temperatures, dusty conditions, or airborne debris).

See Engine Manual for further maintenance and troubleshooting information.

4.4 GENERAL LUBRICATION

IMPORTANT: Wipe each grease fitting clean before and after lubrication. Keep grease and oil off belts to avoid slippage and deterioration.

NOTE: Apply Sten Mix Hi-Temp Grease or equivalent to the lube fittings. Order P/N: 00036800 - three pack of 3 oz. cartridges or 00036700 - ten pack of 14 oz. cartridges.

The steering system, front wheels, left rear wheel and linkage pivot points should be lubricated every 25 hours of operation, or twice each season, whichever occurs first (Figure 4).

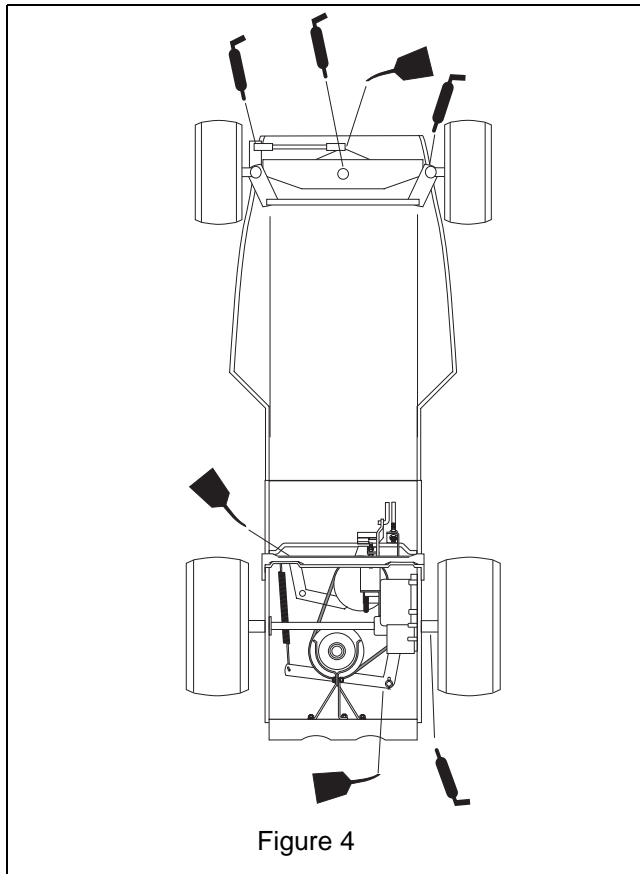


Figure 4

4.5 MOWER BELT ADJUSTMENT

Adjust mower belt after first five (5) hours of operation. To adjust 28" and 30" mowers (Figure 5):

1. Place height control lever in midnotch position, depress spring clip and tighten yoke on front of unit with a 3/4" socket wrench.
2. When tightening cap screw, hold mower clutch lever so that front edge of lever is positioned in line with rear edge of forward notch of quadrant.
3. Tighten belt just enough to prevent slippage under load. Mower clutch lever (when tightening cap screw) will move slightly to rear of this point when tension is correct.

To adjust the 32" mower:

1. The 32" mower belt clutch rod should be adjusted so the compressed spring length is from 5-1/4" to 5-3/8" (13.3 to 13.6 cm) when belt is engaged (Figure 6).
2. Belt engagement should occur when front edge of mower clutch is positioned in line with rear edge of forward notch of quadrant (as viewed through slot in left side of cowl).
3. Full locked-in engagement should occur when lever is positioned completely into front notch of quadrant. (Some resistance should be felt when moving lever into notch).

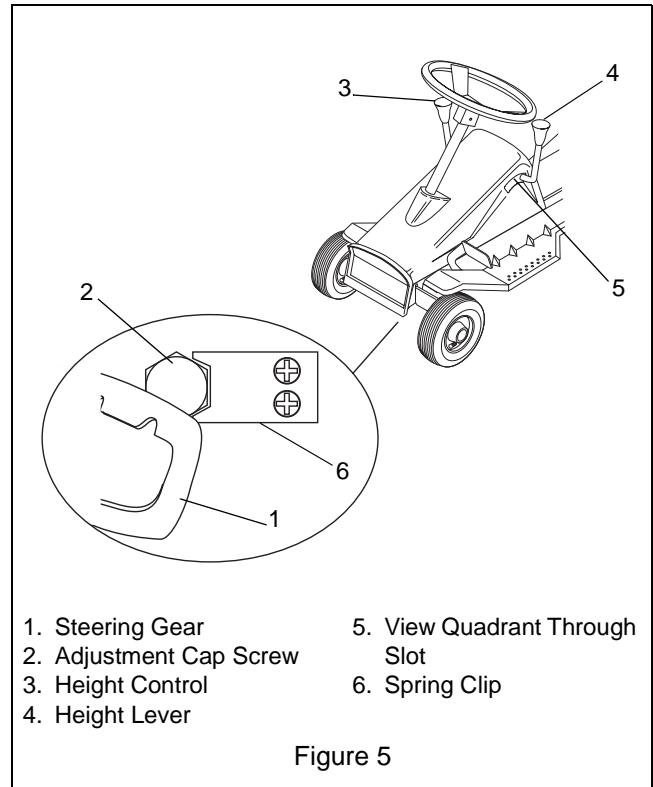


Figure 5

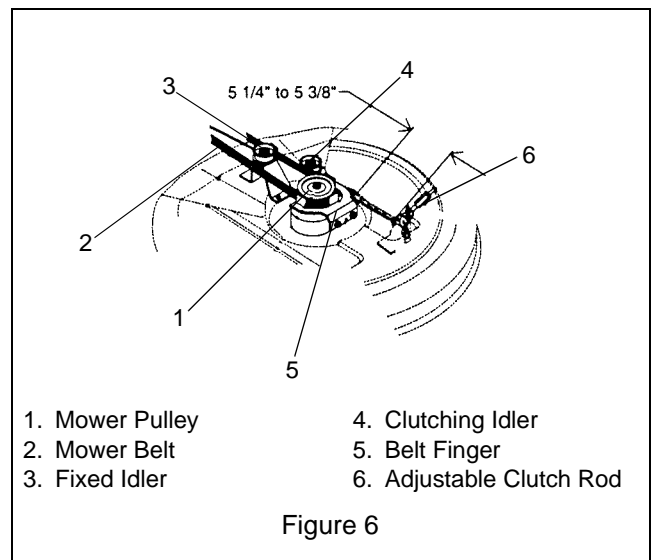


Figure 6

4.6 CLUTCH AND BRAKE

Clutch and brake adjustments are dependent upon each other. If depressing clutch and brake pedal fully does not stop riding mower and/or hold it on hill, brake must be adjusted.

1. With speed selector in neutral (N), depress clutch pedal fully and engage parking brake.
2. Adjust double nuts on clutch rod until carrier yoke clears neutral stop by 1/8" to 1/4" (3.18 to 6.4 mm).

3. Release parking brake and turn both rear wheels by hand. They should rotate freely in neutral (N) but not rotate with speed selector in any other position.
4. Using two 1/2" wrenches (to avoid twisting or distorting brake band), hold inner adjusting nut with one wrench and loosen outer lock nut with the other.
5. Turn rear wheel by hand while tightening inner adjustment nut until brake band just binds on hub. Back off adjusting nut by 1-1/2 turns and secure with locknut.
6. Test by fully depressing clutch pedal and trying to turn wheels by hand. They should not turn.

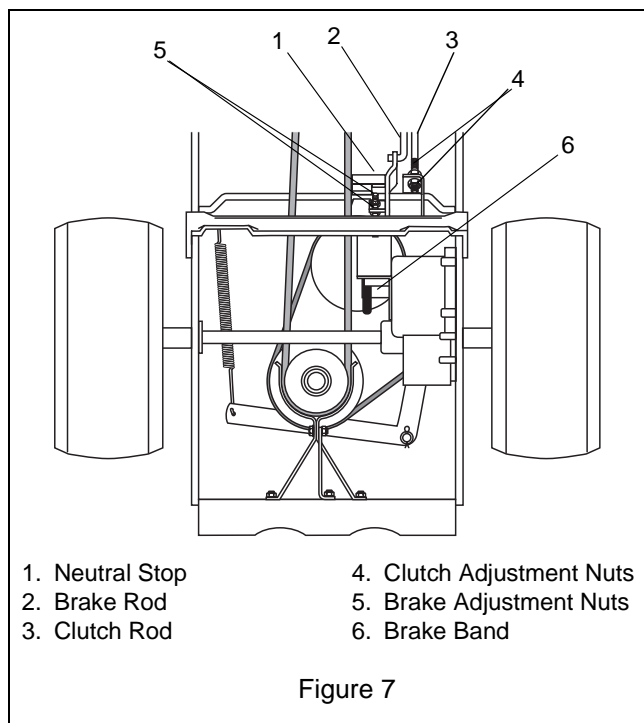


Figure 7

4.7 MOWER PAN

Mower Level (Side to Side)

NOTE: A wood block (about 1" square by 5" long) may be used under pan for blade measurement. Wrap block with masking tape, mark tape with cutting edge of blade and measure distance from end of block to mark(s). This method avoids errors by having to read any measurements under pan.

To level mower pan, turn adjustment cap screw on adjustment lever clockwise to raise right side or counterclockwise to lower it (Figure 8).

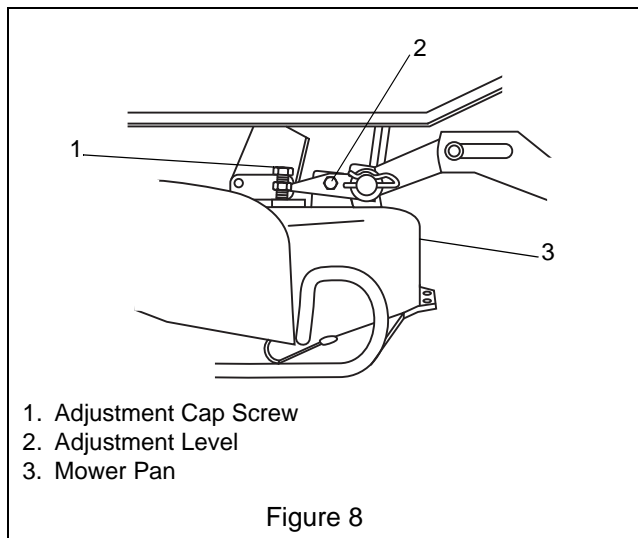


Figure 8

Cutting Height



CAUTION: Rotate mower blade with mower clutch disengaged (OUT) and take measurements with mower clutch engaged (ON).

Cutting height range is 1" to 4" (2.5 to 10.1 cm). Place unit on a smooth, flat, level surface.

1. With blade (s) positioned side to side, measure distance of blade(s) tips to floor at right and left side of mower pan (Figures 8 and 9).
2. Rotate blade(s) 180° and check again. The measurement should be equal within 1/8" (3.2 mm) side to side.

To correct for difference in height of blade tips from side to side:

1. Loosen nuts on adjustment levers.
2. Turn lever adjustment screw clockwise on the low side of mower pan to raise the low side to one half the difference in height.
3. Turn lever adjustment screw counterclockwise on the high side to lower high side the remaining one half of the height difference.
4. Tighten nuts on adjustment levers.

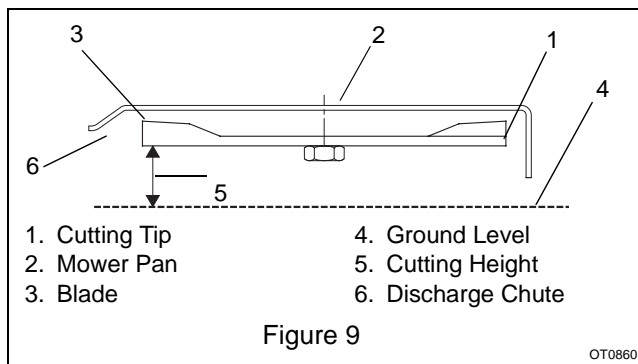
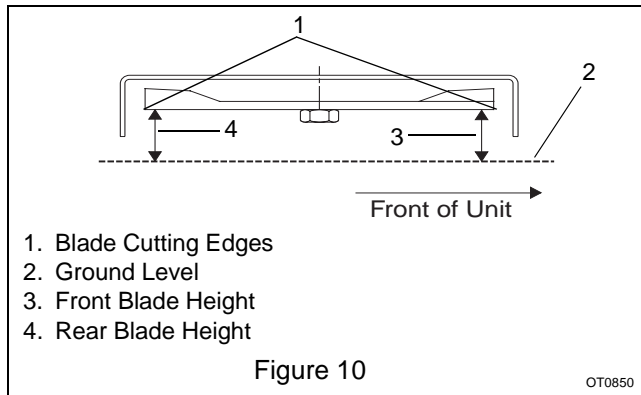


Figure 9

OT0860

Mower Pitch and Height

Proper blade pitch is when the blade tip, measured from the bottom surface (Figure 10), is 1/4" to 3/8" (6.4 to 9.9 mm) lower at front of mower pan than when same tip is at rear of mower pan.



Adjusting front lift link raises or lowers front of mower pan and changes both cutting height and pitch.

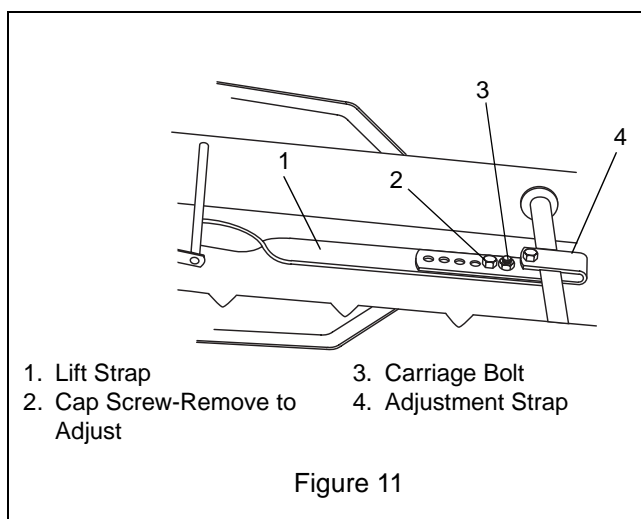
To adjust:

1. Loosen jam nut on front link to allow for movement of coupling nut.
2. Turn coupling nut clockwise to raise and counterclockwise to lower front of mower pan.
3. Secure coupling in position by tightening jam nut.

Adjusting rear lift links raises or lowers rear of mower pan and changes both cutting height and pitch.

To adjust:

1. Loosen both lower jam nuts to allow for movement of upper jam nuts on lift rods.
2. Turn both upper jam nuts on each lift rod equality to raise or lower rear of pan.
3. Secure lift rods in position by tightening lower jam nuts.



If proper pitch cannot be obtained with front and rear lift links:

1. Loosen nut on carriage bolt and remove cap screw holding lift strap and adjustment strap together.
2. Slide lift strap and adjustment strap together to raise, or apart to lower rear of pan.
3. Select tapped hole in lift strap that provides proper adjustment, install cap screw in tapped hole and tighten nut on carriage bolt to secure.

4.8 ANTI-SCALP ROLLERS

Secure rollers in middle position for average lawn mowing.

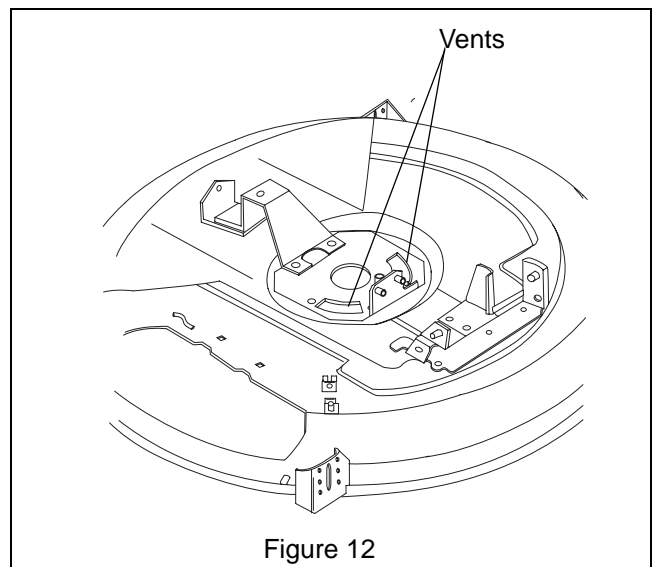
1. Use lowest roller position when mowing in higher cutting heights and rough terrain to guard against most scalping.
2. Use highest roller position when cutting at lowest cutting height.

For smoothest appearing cut when using frame suspended models with anti-scalp rollers, keep anti-scalp rollers adjusted to the minimum 1/2" (12.8 mm) above flat hard smooth surface after setting height of cut.

NOTE: The rollers are intended for anti-scalping, not for controlling cutting height.

4.9 VENTS

The vents are opened at the factory to increase airflow into deck for bagging purposes. To open, align the vents on deck with spindle housing holes (Figure 12).

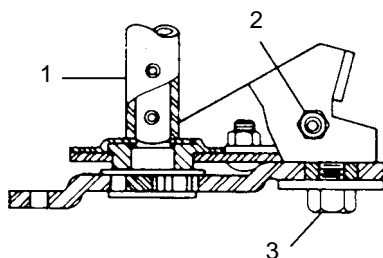


4.10 PINION AND STEERING ADJUSTMENT

For ease of access to bottom of unit during service procedures, your unit may be driven up on ramps or tipped up onto bagger attachment service bar and braced securely. (For units without a bagger attachment, a service bar package is available through your Ariens Dealer.)

On units with steering adjustment bracket, loosen lower lock nut and tighten adjustment nut until steering works smoothly with no play in gears.

Tighten lower lock nut.



- 1. Bottom of Steering Post
- 2. Adjustment Nut
- 3. Lock Nut

Figure 13

4.11 TIRES

NOTE: Keep tires properly inflated at all times. For proper tire inflation when working under various conditions inflate tires to 14 psi. Use a low pressure tire gauge for accurate pressure readings.

SECTION 5 - ENGINE

5.1 ENGINE TROUBLESHOOTING

The following troubleshooting chart is to be used to isolate engine problems and give possible causes and corrective action responses.

The troubleshooting key is generic and can be used for several types of engines. Use only those possible causes and corrective actions that apply to the unit.

TROUBLE	POSSIBLE CAUSES (Refer to Key Below)	CORRECTIVE ACTION
Black Exhaust	1, 20, 22, 25, 29, 31, 32, 33	repair or replace
Blue/White Exhaust	4, 20, 25, 31, 33, 34	repair or replace
Difficult Starting	1, 5, 7, 8, 9, 10, 20, 21, 22, 29, 31, 32, 33	repair or replace
Erratic Running	1, 7, 8, 9, 10, 20, 21, 23, 26, 29, 33, 59, 62	repair or replace
Excessive Fuel Consumption	1, 20, 22, 23, 25, 39, 31, 32, 33	repair or replace
High Oil Pressure	4, 41	repair or replace
Knocking	22, 26, 29, 31, 33, 36, 46, 59	repair or replace
Loss of Power or System	1, 8, 10, 20, 21, 22, 23, 25, 26, 31, 32, 33	repair or replace
Low Cranking Power	2, 3, 4, 11	repair or replace
Low Oil Pressure	4, 36, 37, 39	repair or replace
Misfiring	10, 20, 25, 26, 28, 29, 32	repair or replace
Overheating	1, 19, 25,	repair or replace
Poor Compression	25, 28, 29, 31, 32, 33, 34, 59,	repair or replace
Starts and Stops	1, 6, 10, 62	repair or replace see electrical systems see engine service manual
Vibration	20, 23, 25, 26, 29, 33, 45, 49	repair or replace
Will Not Crank	2, 11, 45	charge battery or replace
Will Not Start	1, 10, 62	repair or replace see electrical systems see engine service manual

TROUBLESHOOTING KEY					
1	Restriction in air cleaner	22	Incorrect grade of fuel	43	Faulty suction pipe
2	Bad electrical connection	23	Sticking throttle/restricted movement	44	Choked oil filter
3	Faulty starter motor	24	Exhaust pipe restriction	45	Bad solenoid switch
4	Incorrect grade of lubricating oil	25	Leaking cylinder head gasket	46	Incorrect piston height
5	Low cranking speed	26	Overheating	47	Damaged fan
6	Fuel tank empty	27	Cold running	48	Faulty engine mounting
7	Controls not in correct operation position	28	Incorrect tappet adjustment	49	Incorrectly aligned flywheel and/or flywheel housing
8	Blocked fuel feed line	29	Sticking valves	50	Faulty thermostat
9	Faulty fuel lift pump	30	Incorrect high pressure pipes	51	Restriction in water jacket
10	Choked fuel filter	31	Worn cylinder bores	52	Loose fan belt
11	Battery capacity low	32	Pitted valves and seats	53	Choked radiator
12	Air in fuel system	33	Broken, worn or sticking piston ring(s)	54	Faulty water pump
13	Faulty fuel injection pump	34	Worn valve stems and guides	55	Choked breather pipe
14	Faulty fuel injectors or incorrect type	35	Restriction in air cleaner	56	Damaged valve stem oil deflector (if fitted)
15	Incorrect use of cold start equipment	36	Worn or damaged bearings	57	Coolant level too low
16	Faulty cold start equipment	37	Insufficient oil in sump	58	Blocked sump strainer
17	Broken fuel injection pump drive	38	Bad/defective oil temperature switch	59	Broken valve spring
18	Incorrect fuel pump timing	39	Oil pump worn	60	Exhaust or vacuum pipe leak
19	Incorrect valve timing	40	Pressure relief valve sticking open	61	Bad or defective water temperature switch
20	Poor compression	41	Pressure relief valve sticking closed	62	Bad spark plug(s)
21	Blocked fuel tank vent	42	Broken relief valve spring		



WARNING: Stop engine, remove key and wait for moving parts to stop before attempting any service procedures.



CAUTION: DO NOT touch engine or riding mower parts which are hot from operation. Allow such parts to cool before servicing unit.



CAUTION: DO NOT tip unit up onto service bar without draining enough gasoline from tank to avoid spilling gasoline. On electric start models, remove battery to prevent spillage of electrolyte.



WARNING: Gasoline is highly flammable and must be handled with care.

For ease of access to bottom of unit during service procedures, your riding mower may be driven up on ramps or tipped up onto bagger attachment service bar and braced securely. (For units without a bagger attachment, a service bar package is available through your Ariens Dealer).

5.2 ENGINE OIL

See engine manufacturer's instructions for proper type, viscosity and amount required.

The engine crankcase oil should be checked daily or every five (5) hours of operation. Oil level **MUST** be maintained in safe operating range on dipstick at all times or engine damage will result.

1. Clean all debris away from around oil cap.
2. Remove oil cap and dipstick. Wipe oil off dipstick with a clean cloth.
3. Replace dipstick until cap bottoms on tube. Remove dipstick again and observe oil level. Oil should be at the Full (F) mark.
4. If low, add oil and bring up to the Full (F) mark. **DO NOT** over fill. Oil level must not exceed Full (F) mark.
5. Replace dipstick and cap.
6. Clean up any spilled oil.

IMPORTANT: DO NOT overfill. Be sure engine is level when adding oil.

5.3 CHANGING OIL

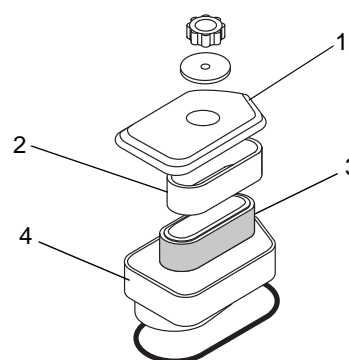
IMPORTANT: Change engine crankcase oil after first two (2) hours of operation. Thereafter, change oil every twenty five hours of operation (more often in dusty dirty conditions).

NOTE: Run engine just prior to changing oil. Oil will flow more freely and carry away more contamination when warm.

1. Drain engine crankcase by removing oil drain plug. After oil has drained, replace plug.
2. Remove oil fill cap and dipstick.
3. Pouring slowly, fill crankcase with oil. (See specifications).
4. Check oil level with dipstick. Replace dipstick and retighten cap.

5.4 AIR CLEANER

IMPORTANT: Never run engine without complete air cleaner installed on engine.



1. Cover
2. Filter Element
3. Paper Element
4. Body

Figure 14

Foam Filter

Inspect filter every twenty-five (25) operating hours (more often if unit is used under extremely dirty or dusty conditions).

1. Wash in water and detergent solution and squeeze (don't twist) until all dirt is removed.
2. Rinse thoroughly in clear water.
3. Wrap in a clean cloth and squeeze (do not twist) until completely dry.
4. Saturate with engine oil and squeeze (do not twist) to distribute oil and remove excess oil.

Paper Filter

Do not attempt to clean or oil filter. Replace once a year or every 100 operating hours, more often if used in extremely dusty conditions.

Clean inside of cover and body of filter holder. Replace filter and cover and secure.

5.5 SPARK PLUG

Spark plug should be cleaned or replaced (if necessary) and gap reset to .030" every 100 hours of operation or yearly whichever comes first.

To clean:

1. Remove debris from area around spark plug base.
2. Remove spark plug from engine.
3. Scrape and wash spark plug with a commercial solvent. DO NOT blast clean.
4. Replace spark plug.

NOTE: Sparking can occur if wire terminal does not fit firmly on spark plug. Replace terminal if damaged.

5.6 MUFFLER

Worn out mufflers should be replaced immediately. Continued use could result in fire or explosion.

5.7 ENGINE REMOVAL

1. Disconnect and remove battery.
2. Empty fuel tank.
3. Disconnect spark plug wire.
4. Remove throttle cable and electrical connections from engine.
5. Remove rear belt finger, drive and mower belts.
6. Remove cap screws securing engine to frame.
7. Remove engine.

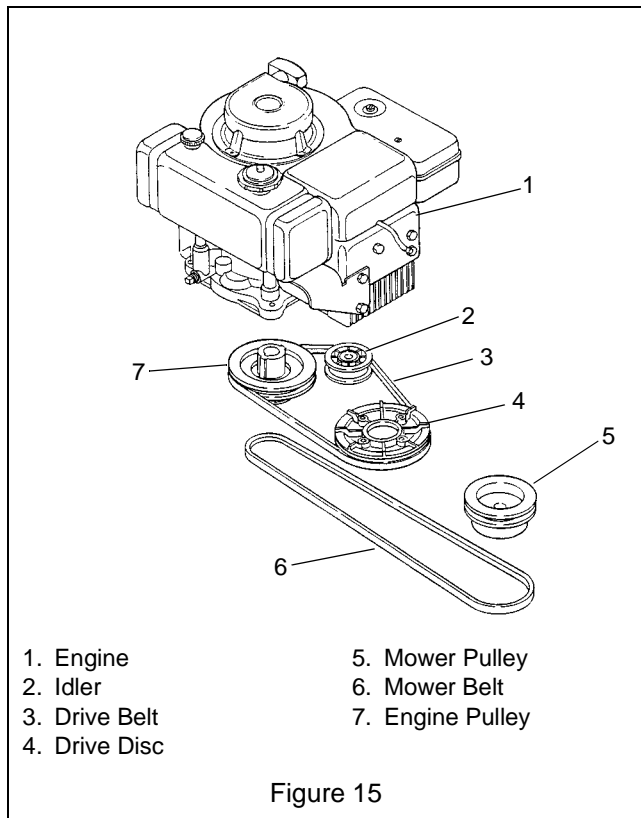


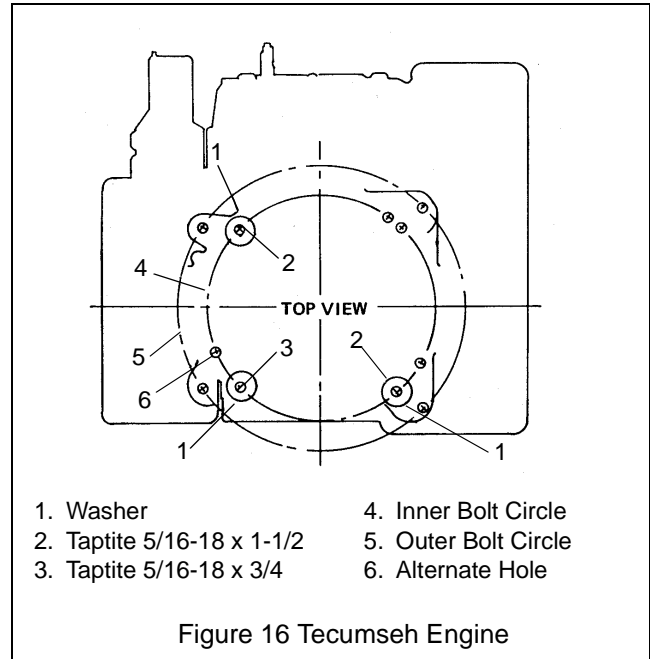
Figure 15

5.8 ENGINE REPLACEMENT

Consult parts manual to determine hardware used on replacement engine.

NOTE: Depending on horsepower and manufacturer, various bolt patterns and amounts of hardware (taptites or cap screws) may be used to secure engine.

The following diagrams outline two styles of hardware.



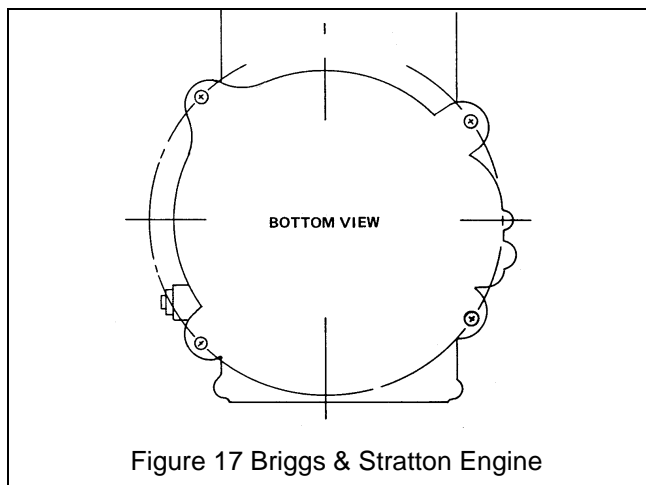
Place washers between frame and engine at locations where taptites will be installed.

Install two taptites (5/16-18 x 1-1/2) and one taptite (5/16-18 x 3/4) on inner bolt circle at position shown below. Torque taptites to 250 in-lbs (15.4 Nm).

NOTE: If taptite strips out engine base, or if unit has been previously operated with loose mounting bolts, install a locknut (5/16-18 Gr C toplock). Torque locknut to 150 in-lbs (9.2 Nm).

If taptite (5/16-18 x 3/4) strips out, install in alternate hole. Torque to 250 in-lbs (15.4 Nm).

IMPORTANT: Do not use outer bolt circle.



Place washers between frame and engine at locations where cap screws will be installed.

Using outer bolt circle secure engine to frame with four cap screws, washers and locknuts.

Torque to 125 in-lbs (7.7 Nm).

NOTE: On Kawasaki engines torque cap screws to 18 ft-lbs (13.3 Nm).

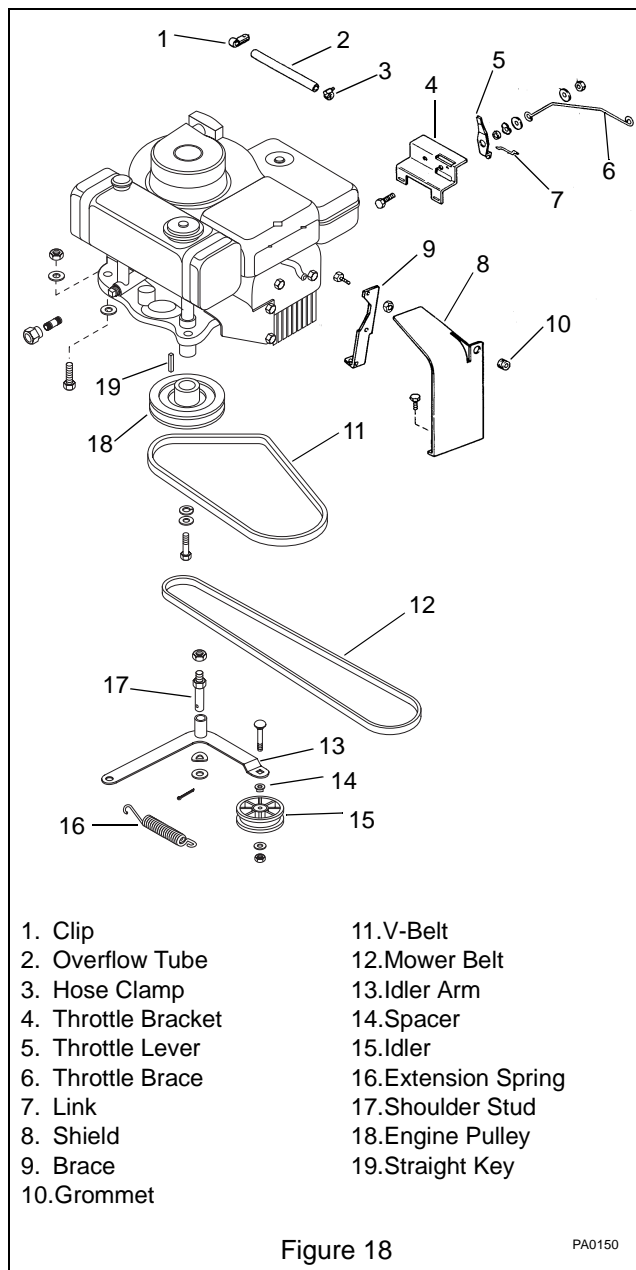
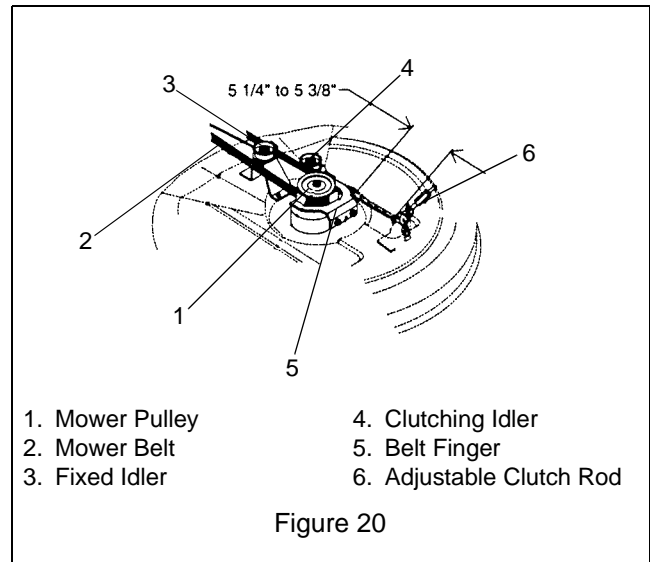
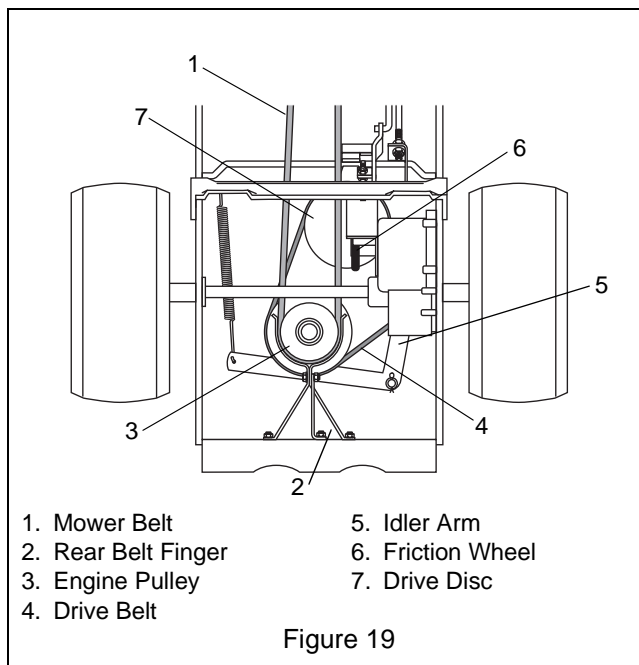


Figure 18

SECTION 6 - MOWER DECK

6.1 ROTARY MOWER BELT REPLACEMENT

1. Disengage (OUT) mower clutch lever.
2. Loosen three nuts securing rear belt finger to back cover and rotate belt finger counterclockwise to remove from unit.
3. On 32" mowers, remove mower pulley belt finger, loosen cap screw on clutching idler and fixed idler to provide clearance for belt between belt fingers and idlers.
4. Remove old belt and place new belt in position on mower and engine pulley.
5. Position rear belt finger with 1/16" (1.5 mm) clearance between belt and finger, secure rear belt finger to rear cover by tightening top two nuts first, then bottom nut (see Adjustments).
6. On 32" mowers tighten cap screws on clutching idler (with 1/8" (1.5 mm) clearance between belt and finger) and fixed idler (with tab on mount engaged in hole of belt finger).
7. Install belt finger at mower pulley with 1/16" (1.5 mm) clearance between belt and finger (bend finger as required).



6.2 MOWER DRIVE BELT REPLACEMENT

1. Remove rear belt finger from back cover and mower belt from engine pulley.
2. Remove five cap screws with lock washers that secure friction wheel and guard to hub (this provides clearance for removal of belt).
3. Place speed selector in neutral (N), release drive belt from idler and remove it from drive disk and engine pulley.
4. Install new belt around engine pulley, drive disk and idler with belt properly sealed in grooves.
5. Secure friction wheel and guard on hub with five cap screws and lock washers.
6. Install mower belt on engine pulley and secure rear belt finger to back cover.
7. Adjust mower belt (see section on Mower Belt Adjustment).

6.3 MOWER BLADE

Regularly check mower blades for wear and that lock washer is fully compressed by hardware.

28" and 32" decks: Torque cap screw to 25-30 ft-lbs (34-47 Nm).

When blade needs sharpening:

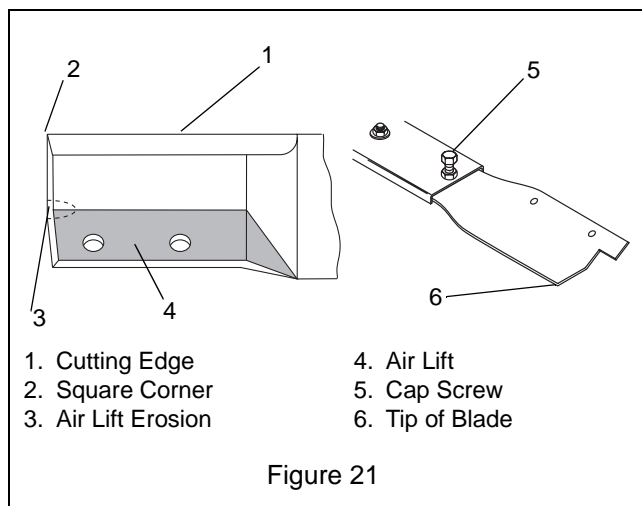
1. Block blade to prevent rotation.
2. Remove hardware and blade from shaft.

3. Sharpen both ends of blade at original angle (25°), removing equal amounts of material from each end to maintain proper blade balance. New blades are balanced to within 1.3 in. oz. at factory. DO NOT grind around corner at tip of blade. If cutting edge of blade cannot be sharpened in a straight line to within 1/8 of an inch of its end, replace blade with Ariens replacement blade only.

4. Install blade, lock washer, and tighten hardware to torque listed above.

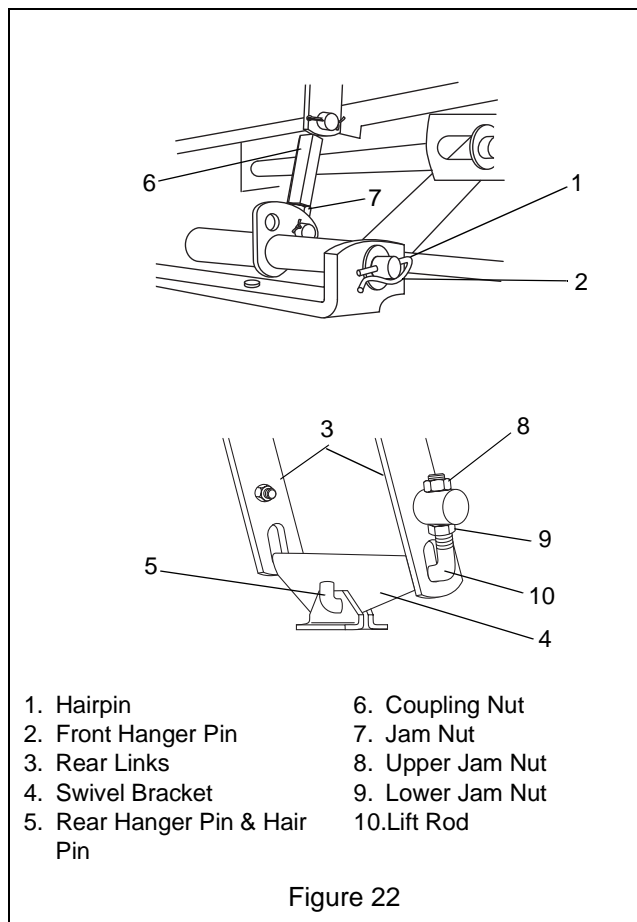
IMPORTANT: If mower is used under sandy soil conditions, replace blades when air lifts become eroded.

IMPORTANT: On 28" & 32", when replacing blade, blade should be 3/8" (9.6 mm) above flange. To position, turn cap screws on each end of blade tray until both tips of blade clear flange by 3/8" (9.6 mm) all the way around pan.



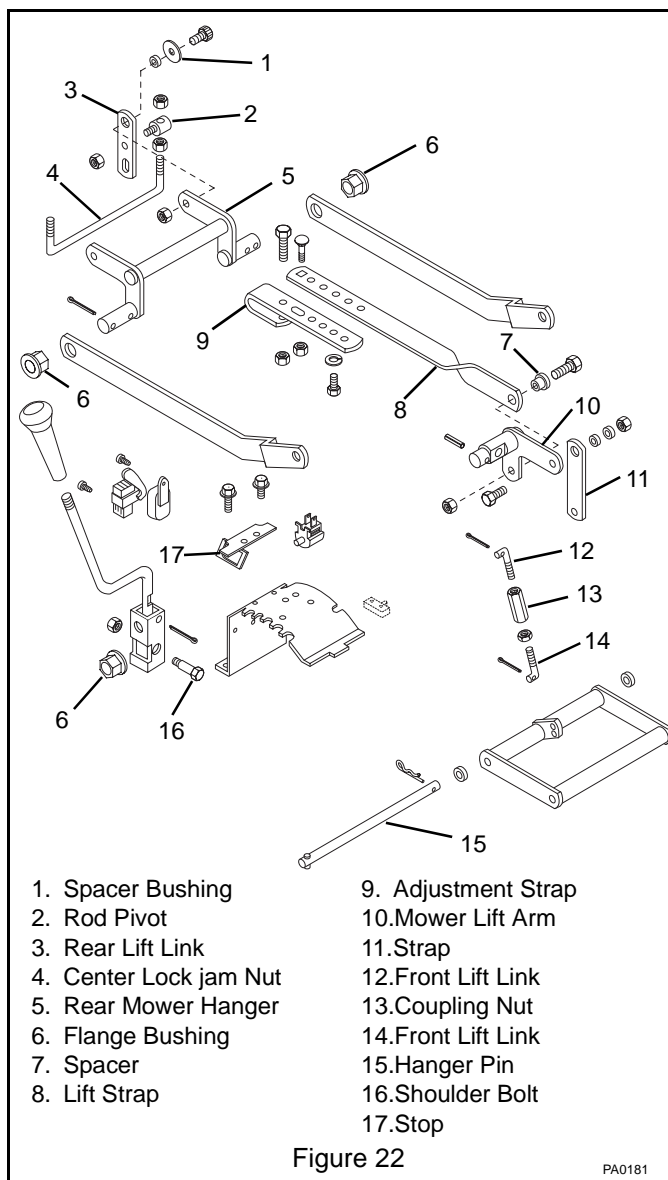
6.4 MOWER PAN REMOVAL

1. Remove rear belt finger from back cover and mower belt from engine pulley.
2. Position mower on flat level surface. Lower mower pan with height control lever. (Lowering mower pan down on blocks will relieve weight on linkage and make removal of pins easier).
3. Remove hair pin and rear hanger pin from swivel bracket to disconnect rear link.
4. Remove cotter pin from clutch rod and rod from clutch link.
5. Remove hair pin and front hanger pin to disconnect front linkage.
6. On 32" mower, remove hair pins and positioning arms from front mounting bracket.
7. Remove mower pan from rider.
8. Install mower pan on rider in reverse order.



6.5 LINKAGES FOR MOWER HEIGHT/ENGAGEMENT & CLUTCH/BRAKE

NOTE: A wood block (about 1" square by 5" long) may be used under pan for blade measurement. Wrap block with masking tape, mark tape with cutting edge of blade and measure distance from end of block to mark(s). (This method avoids errors by having to read any measurements under pan.)



To Remove Cowling

1. Remove throttle control knob.
2. Remove two screws securing throttle control to dash panel.
3. Remove six screws securing dash panel to cowling and remove dash panel.
4. Unplug wires to key switch.
5. Remove two taptites securing stop to quadrant and remove stop.
6. Shift mower height lever and mower clutch lever to deep slots in quadrant and remove cowling.
7. With riding mower positioned on a smooth, flat, level to its lowest cutting height, rotate one blade tip to discharge opening and measure distance from blade tip to surface. Distance from blade tip to surface should be 1" to 1 1/4". Rotate blade 180 degrees and measure other blade tip. The difference in measurement between blade tips

should not be greater than 3/16". If it is greater than 3/16" see your Ariens dealer to have it corrected.

8. To adjust cutting height, see Cutting Height and Mower Pitch and Height in the Adjustments section.

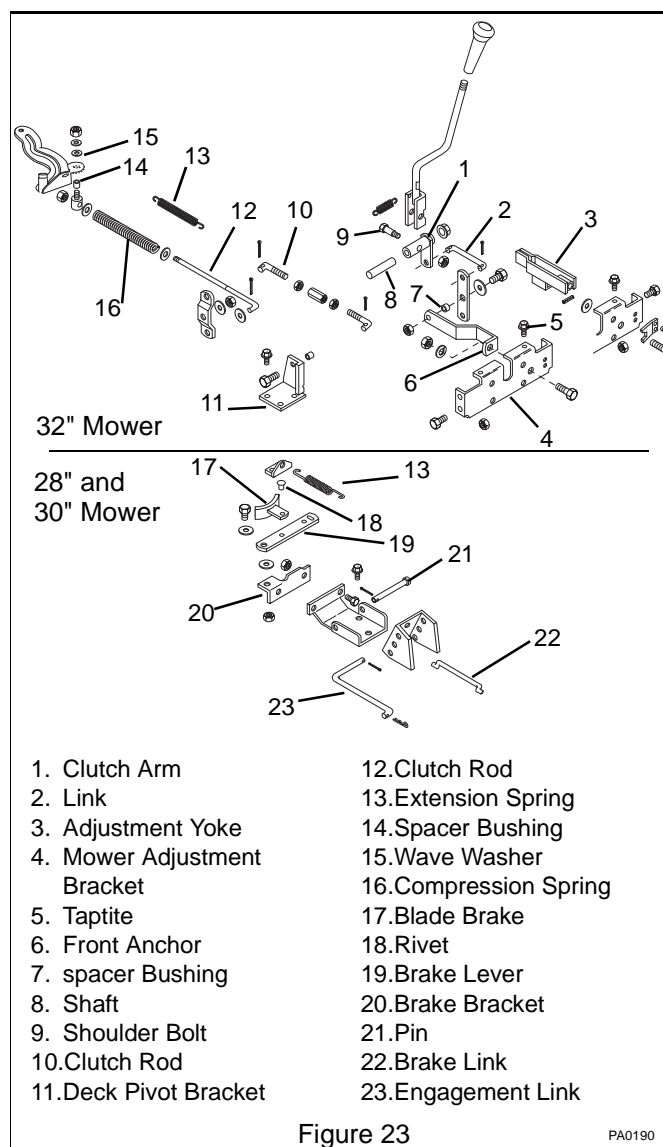
NOTE: Lift strap is used for various diameters of mower pans and generally does not have to be adjusted. If replacing mower pan with that of a different diameter, refer to parts manual for correct front lift arm in conjunction with strap adjustment.

Check all linkages for wear or damage and replace as necessary. (See Figure 22 for Height/Engagement Linkage and Figure 23 for Clutch/Brake Linkage.)

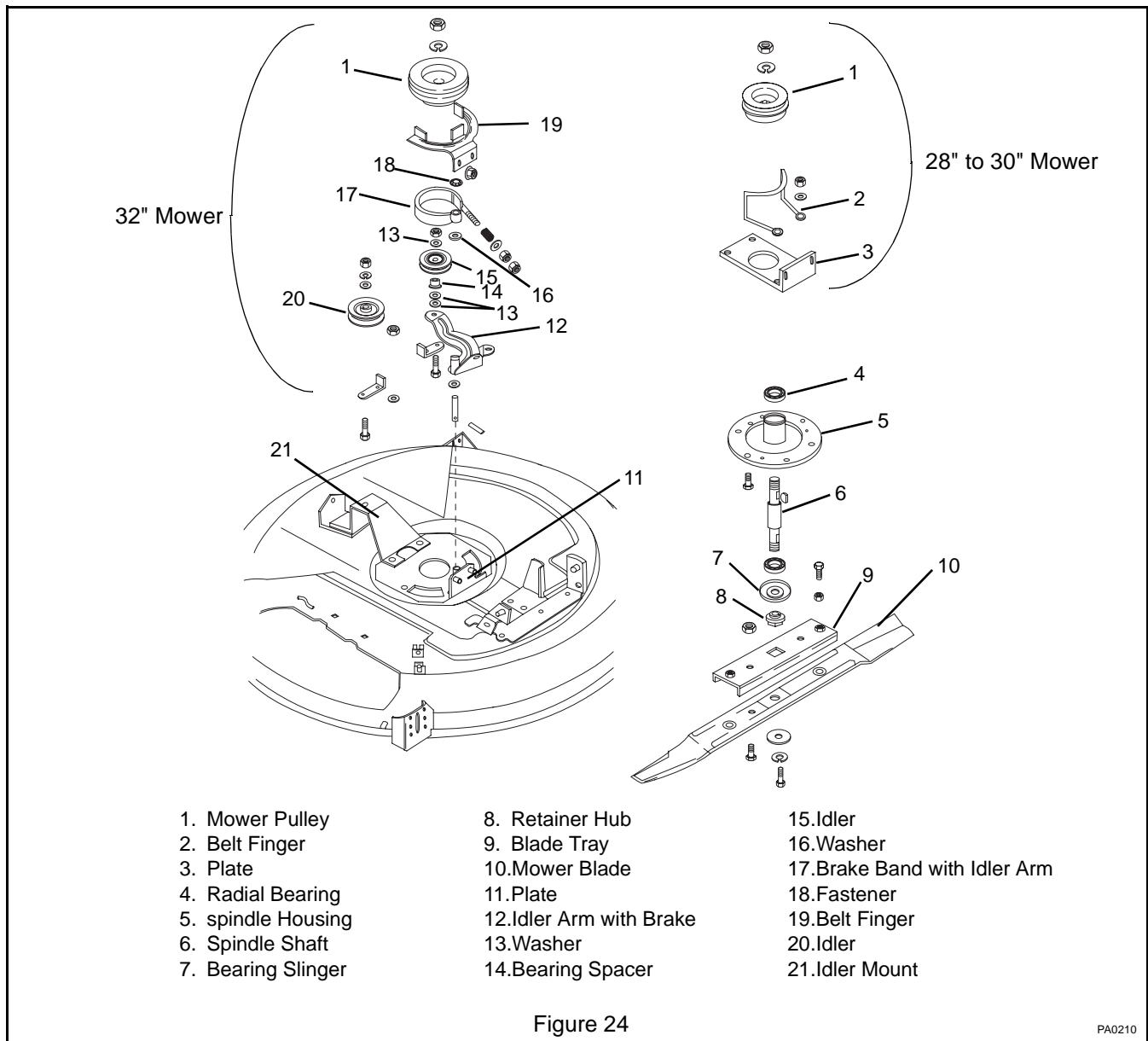
Check straps and connecting links for alignment and replace as necessary.

Check all bushings, cotter pins, roll pins, and hardware and replace as necessary.

Oil all pivot points to retard wear.



6.6 MOWER SPINDLE REMOVAL



To remove the spindle:

1. Remove two lock nuts securing belt finger to pivot plate and remove belt finger.
2. Remove jam nut and lockwasher from top of mower pulley and remove mower pulley.
3. Remove nuts, washer and spring on brake band.
4. Remove fastener from top of brake band and remove brake band and washer.
5. Remove lock nut and washer on top of idler and remove idler along with bearing spacer and washers.
6. Remove capscrew and belt finger from idler arm.
7. Remove idler arm and washer from pivot plate.
8. Remove jam nut and lockwasher securing blade and blade tray to spindle and remove blade and tray.
9. Remove retainer hub and woodruff keys from spindle shaft along with bearing slinger.
10. Remove capscrews holding spindle housing to mower pan and remove spindle housing.
11. Press shaft out of spindle housing and remove bearings inside housing.
12. Inspect all parts for wear or damage and replace as necessary.
13. Assemble using reverse order.

IMPORTANT: Jam nuts on both ends of spindle shaft should be torqued to 50 - 55 ft-lbs (37 - 40 Nm).

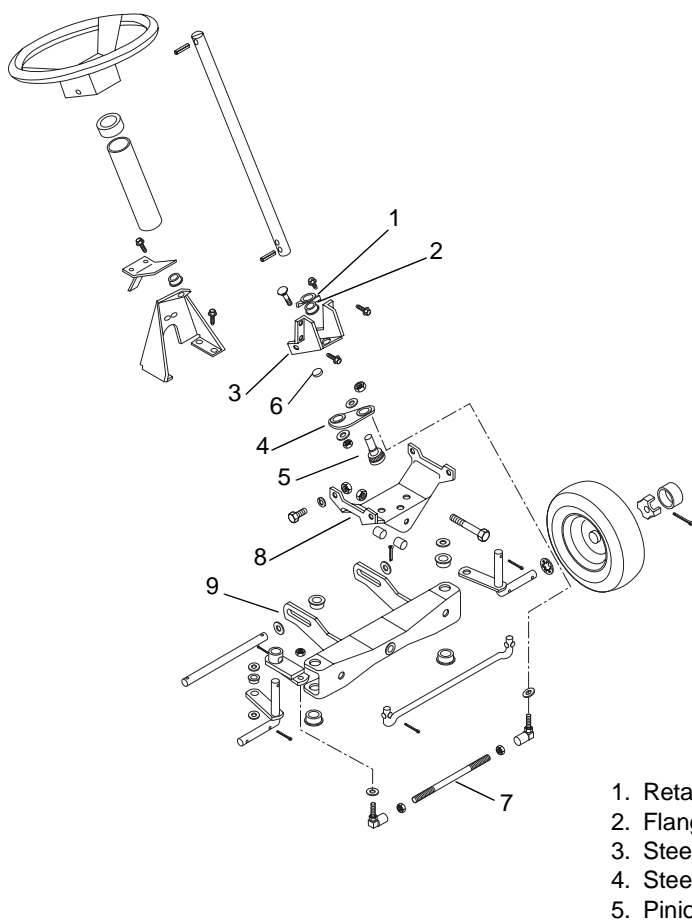
SECTION 7 - STEERING AND CONTROLS

For ease of access to bottom of unit during service procedures, your unit may be driven up on ramps or tipped up onto bagger attachment service bar and braced securely. (For units without a bagger attachment, a service bar package is available through your Ariens Dealer.)

7.1 STEERING SHAFT GEARS

To remove steering shaft with gears:

1. Remove roll pin securing steering wheel to shaft and remove steering wheel and tube.
2. Remove cotter pin from front link on mower pan and disconnect link. Refer to Mower Pan section for removal of mower pan.
3. Remove cotter pin from drag link at tie rod arm and disconnect drag link.
4. Remove four bolts that secure axle bracket to frame and remove axle from frame.
5. Remove four taptites securing steering bracket to mower adjustment bracket. Remove entire steering assembly out of unit.
6. Check front axle parts for wear and replace as necessary. Grease before assembly.
7. Assemble in reverse order.



- | | |
|---------------------|------------------|
| 1. Retaining Plate | 6. Spacer |
| 2. Flange Bushing | 7. Drag Link |
| 3. Steering Bracket | 8. Axle Bracket |
| 4. Steering Gear | 9. Axle Assembly |
| 5. Pinion | |

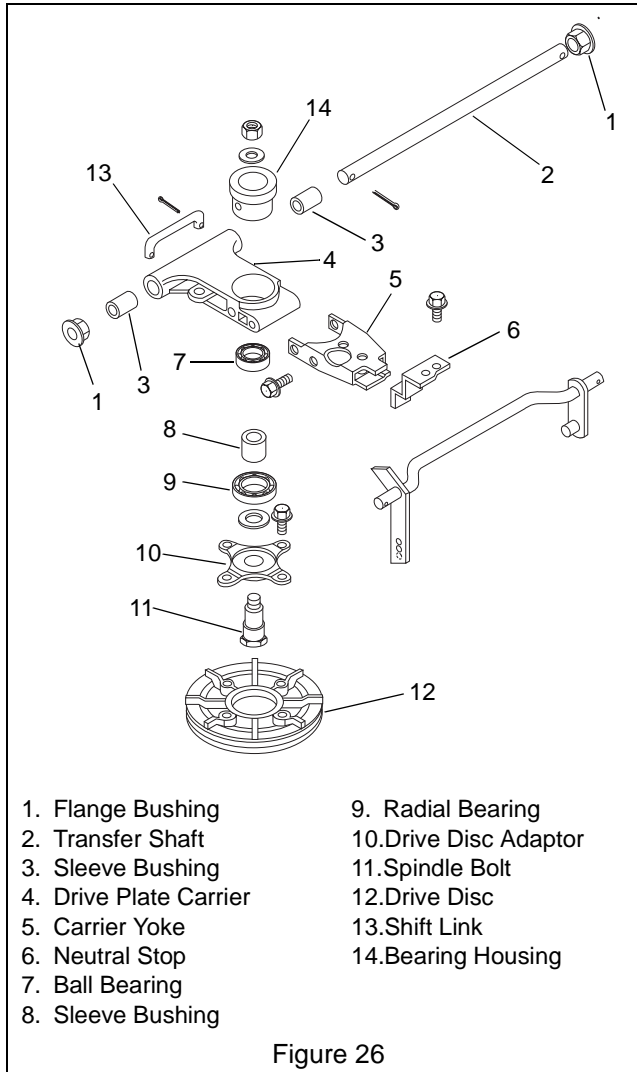
Figure 25

PA0140

7.2 SPEED SELECTOR

Carrier Assembly Removal

1. Remove cotter pin attaching shift link to bellcrank and disconnect shift link from bellcrank.
2. Remove spring from clutch shaft.
3. Remove cotter pin from one end of transfer shaft and remove transfer shaft from frame.
4. Unhook carrier yoke from clutch shaft and remove yoke and carrier assembly.



Disassembly of Carrier

1. Remove locknut and thrust washer from top of spindle bolt.
2. Remove drive disc assembly from bearing housing along with ball bearings and sleeve bushing.
3. Remove two flange whizlock screws attaching yoke to carrier and remove yoke.
4. Remove two flange whizlock screws attaching bearing housing to carrier and remove bearing housing.
5. Remove shim washer from spindle bolt.
6. Remove four flange whizlock screws securing disc adaptor to drive disc and remove adaptor and spindle bolt.
7. Inspect all parts for wear or damage and replace as necessary.
8. Assemble in reverse order.

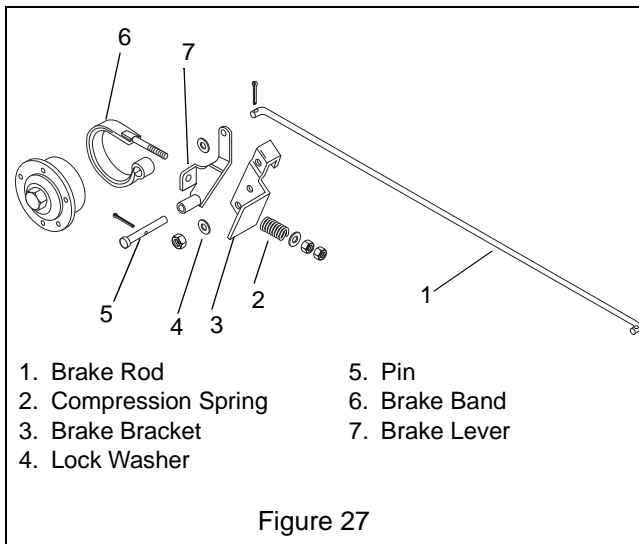
NOTE: Center lock nut at top of assembly must be torqued to 45 ft-lbs (61 Nm).

SECTION 8 - BRAKE AND CLUTCH

8.1 BRAKE DISASSEMBLY

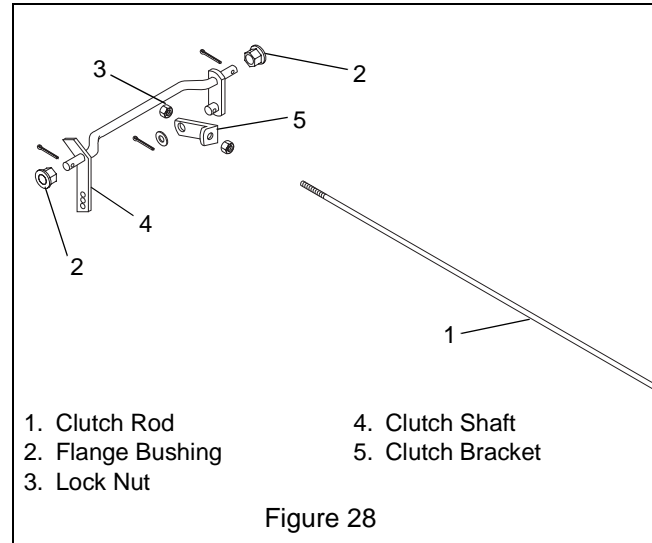
1. Remove cotter pin securing brake rod to brake lever
2. Remove nuts and washers securing brake band to brake lever.
3. Remove cotter pin from pin securing brake lever to brake bracket.
4. Remove lock nut and lock washer securing friction wheel hub to pinion shaft and remove brake assembly.
5. Check all parts for wear and replace as necessary.
6. Assemble in reverse order.

NOTE: When resetting brake adjustment be sure brake band does not twist.



8.2 CLUTCH AND BRAKE ADJUSTMENT

Clutch and brake adjustments are dependent upon each other. If depressing clutch and brake pedal fully does not stop riding mower and/or hold it on hill, brake must be adjusted. See section on Adjustments.



SECTION 9 - DRIVE TRAIN

9.1 REAR AXLE DISASSEMBLY

1. Remove wheel, hub cap, cotter pin, and retainer from short axle and remove short axle.
2. Remove roll pin in long axle and remove long axle along with washer on inside of axle.
3. Inspect all parts for wear or damage and replace as necessary.
4. Assemble in reverse order.

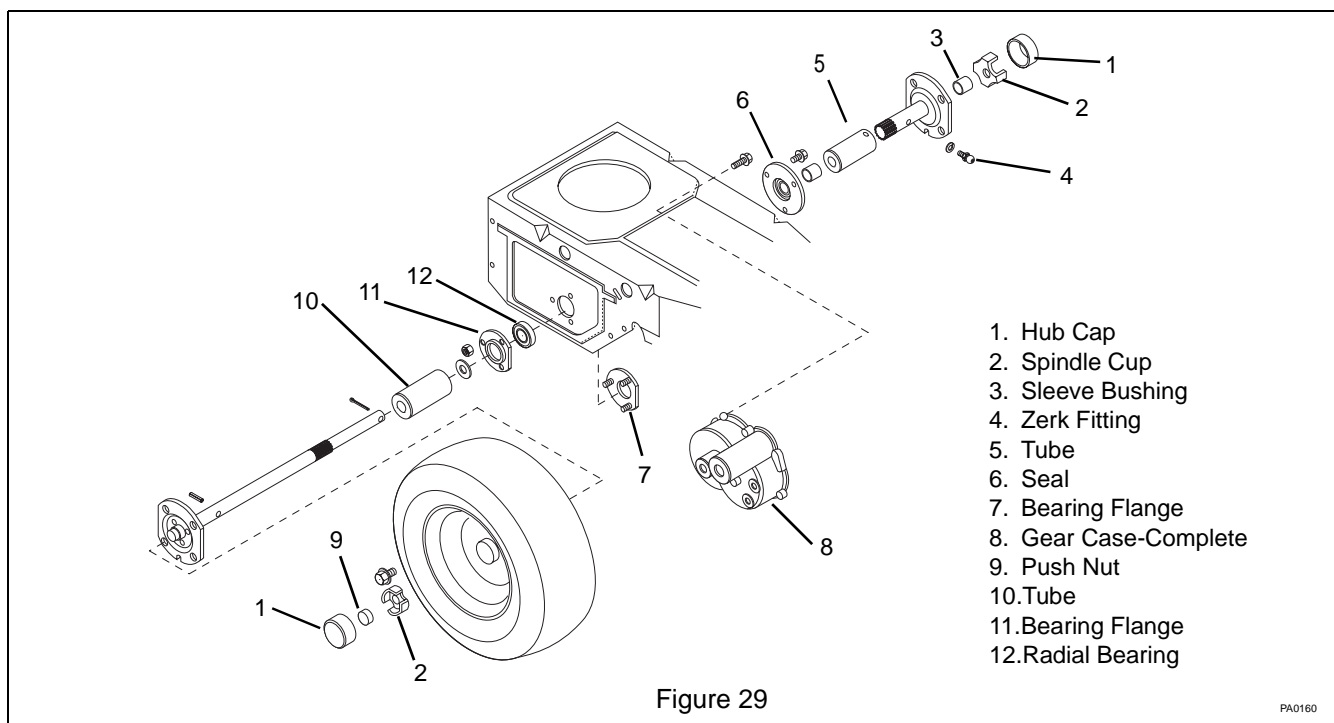


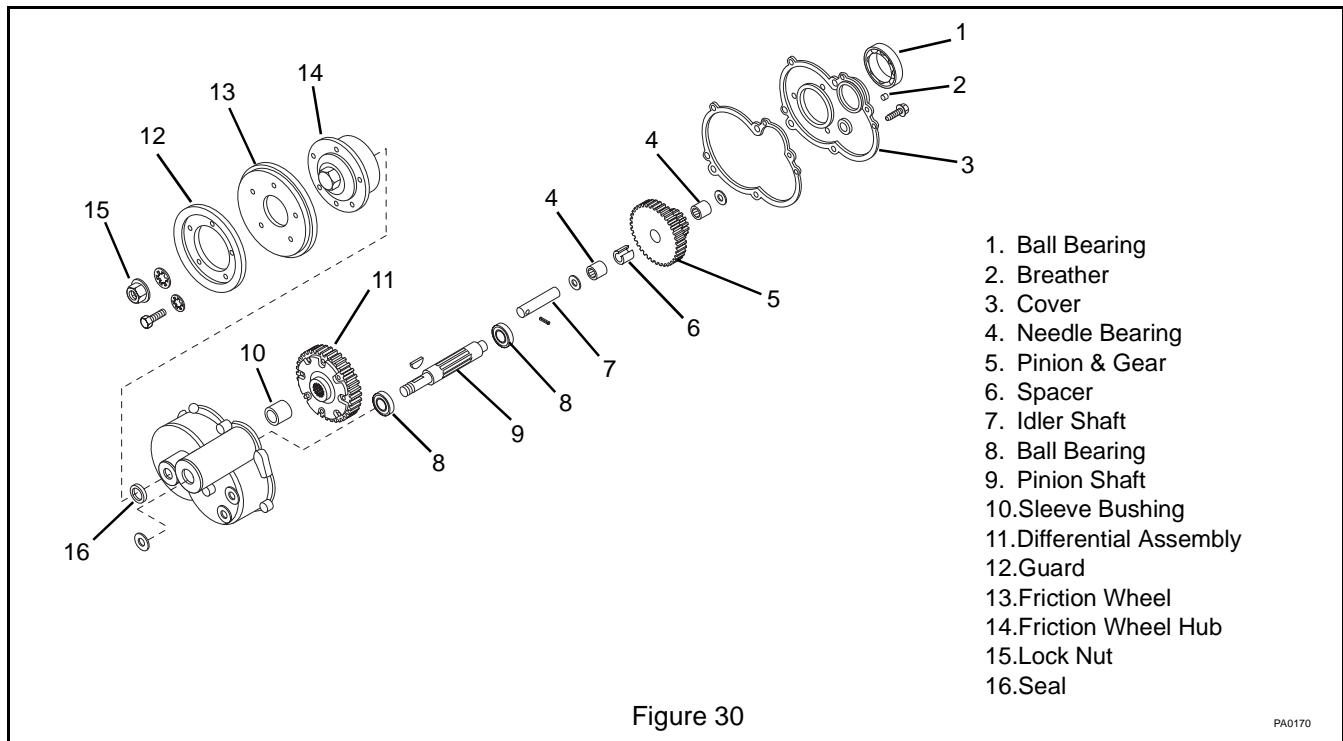
Figure 29

PA0160

9.2 GEAR CASE REMOVAL

1. Remove wheel, cotter pin, spindle cup and hub cap from short axle and remove axle.
2. Drive roll pin out of long axle opposite gear case and remove long axle along with washer inside of axle bearing.
3. Remove cotter pin from brake rod and remove rod.
4. Remove three flange whizlock screws from seal and remove seal.
5. Remove three cap screws holding gear case to frame and remove gear case.

9.1 GEAR CASE DISASSEMBLY



1. Remove locknut from friction disc hub and remove hub and woodruff key in pinion shaft.
 2. Remove flange whizlock screws in cover and using slots provided pry cover off.
 3. Inspect breather in cover and clean or replace.
 4. Remove cover gasket.
 5. Remove pinion shaft bearing and axle bearing and inspect for wear.
 6. Remove differential assembly and inspect for wear.
 7. To test differential assembly insert both axle shafts and turn one shaft. Other shaft should turn freely in opposite direction.
- NOTE:** When replacing differential, inner spline with small I.D., should face down inside of gear case.
8. Remove washer from top of pinion shaft.
 9. Remove pinion shaft, gear cluster and bearing and inspect for wear.
 10. Remove flat washer under pinion and gear cluster.
 11. To remove idler shaft place end of shaft in vise and tap case with mallet.
 12. Check seal and sleeve bushing for wear and replace if necessary.
 13. Remove nuts securing brake bracket to case and remove bracket. Check for wear.
 14. Press out ribbed-neck bolts.
 15. Reassemble in reverse order, fill gear case with 8 ounces of Ariens multi-purpose grease, P/N 00015000.

9.3 GEAR CASE REPLACEMENT

1. Bolt gear case to frame.
2. Insert axle guide tool into gear case from inside of frame.
3. Slide in long axle and secure with washer and roll pin. Remove axle guide.
4. Replace seal and secure with flange whizlock screws.
5. Insert short axle and rotate to engage springs and secure with spindle cup, cotter pin and hub cap.
6. Replace brake rod in brake lever and secure with cotter pin.

9.4 FRICTION WHEEL REPLACEMENT

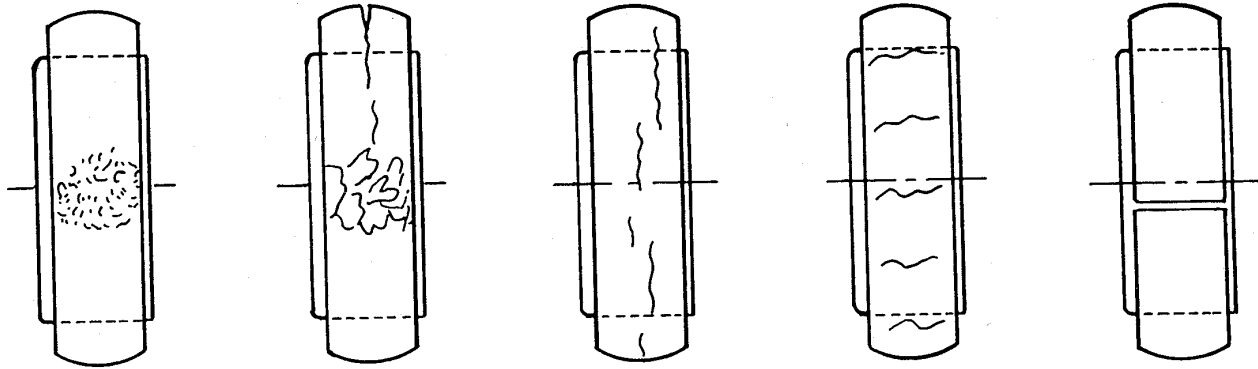
See Figure 31-Friction Wheel Wear Guide.

1. Place speed control lever in neutral position.
2. Remove cap screws and lockwasher securing friction wheel guard and friction wheel to friction wheel hub. Remove guard and friction wheel.
3. Replace guard on hub temporarily with two cap screws.
4. Place speed control lever in forward position.
5. Loosen clutch shaft stop and with clutch arm riding on stop, position stop in slot to give smallest distance between guard and drive disc. Secure stop.

NOTE: This adjustment ensures proper pressure between drive plate and friction wheel.

6. Remove guard and install new friction wheel and guard.

Friction Wheel Wear Guide



BURNED FLAT SPOT

Parking brake not released.
Friction wheel hitting drive disc in neutral.

CHUNKED OUT CRACKS RUNNING THE WRONG WAY

1. Chunked out from No. 1 or flat spot.

PREMATURE CRACKS RUNNING LONG WAY

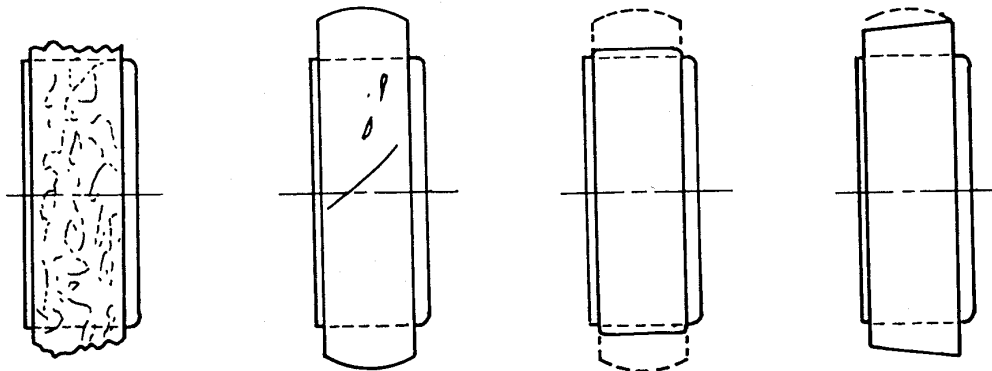
1. Too much pressure.
2. Normal old age.

SHINNY AND CRACKS ACROSS

1. Not enough pressure.
2. Riding clutch.

SPLIT

1. Poor seam.



TOTAL CHUNKED

1. Heat caused by pressure or slipping.
2. Loose nut on friction wheel hub torque must be 70 ft. lbs.
3. Improper drive spring tension.
4. Hang up of clutch shaft.

SLICED

1. Cut by foreign object.

PREMATURE WARE

1. Rough drive disc finish.

ANGLE

1. Cocked spindle.

Figure 31

SECTION 10 - BAGGER



WARNING: When operating on slopes, front weight accessory (P/N 727016) is recommended. Tip over or complete loss of steering may result from any combination of excessive bagger load, operation on slopes, abrupt turns and speed changes.

10.1 VANE INSTALLATION

Since vanes generally require more power and generate more, try bagging without vanes first. If performance is satisfactory, use bagger without vanes. Generally broad leaf grasses can be cut and bagged without vanes. Fine grasses or extremely damp conditions may require vanes.

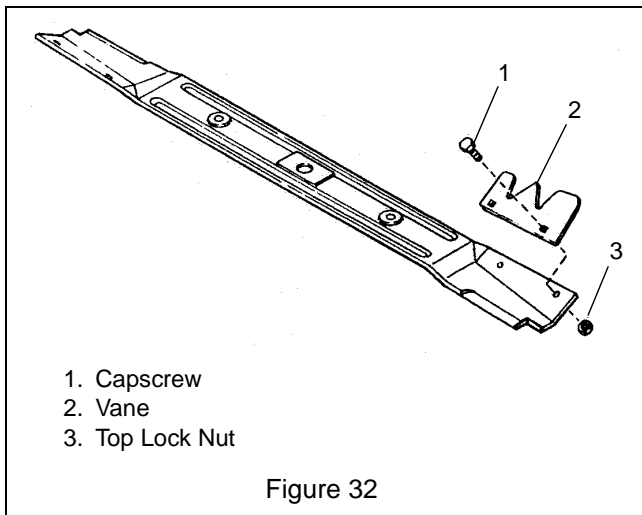


Figure 32



WARNING: Vanes **MUST** be used in pairs. **DO NOT** interchange with different or worn vanes on same blade. Using one each of a different type or worn vane will cause blade to be out of balance and severe vibration will occur.



CAUTION: Special capscrews and lock nuts are supplied for installation of vanes. **DO NOT** substitute.

Secure vanes (FRONT designation on vanes faces up) on top of blade using (grade 8) 5/16-24 x 3/4" capscrews from top down with top lock nuts on bottom (Figure 32).

IMPORTANT: When using vanes, there must be at least 1/4" (6.3 mm) clearance between top of vanes and top of pan at rear on 32" mower.

10.2 BAGGER ASSEMBLY

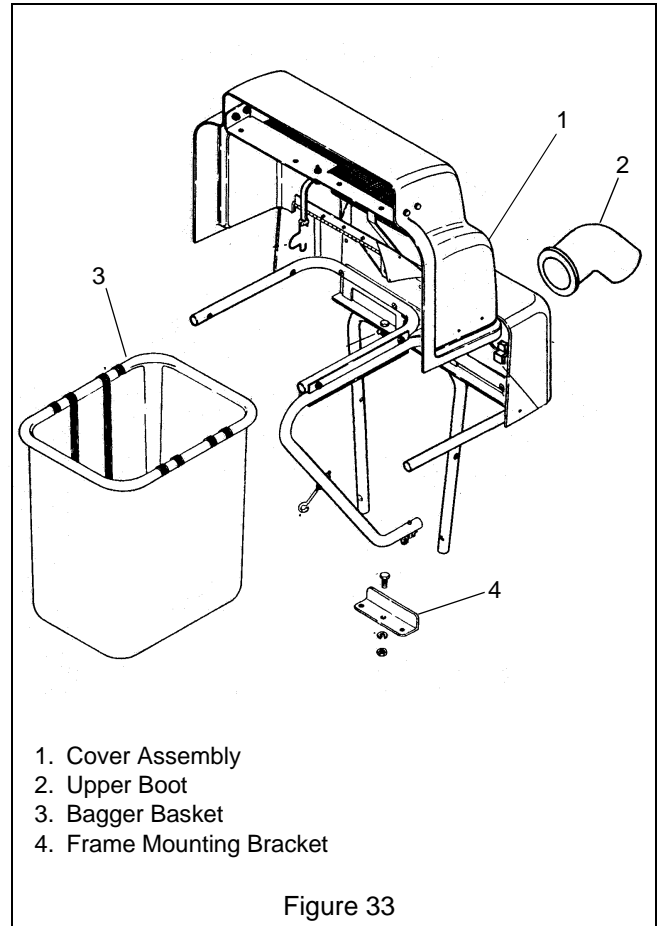


Figure 33

Secure frame mounting bracket to rider drawbar with 1/2-13 x 1" capscrew, lockwasher and nut.

Position bagger assembly onto service bar and frame mounting bracket. Secure in position with wing nuts on capscrews at top of service bar and hair pin at bottom.

Insert upper boot so that notches line up with retainer clips inside cover assembly, then rotate in place.

Slide bagger baskets into position on tube frame then lower and secure cover with hook through eye of eye bolt. Make sure covers fit together properly.

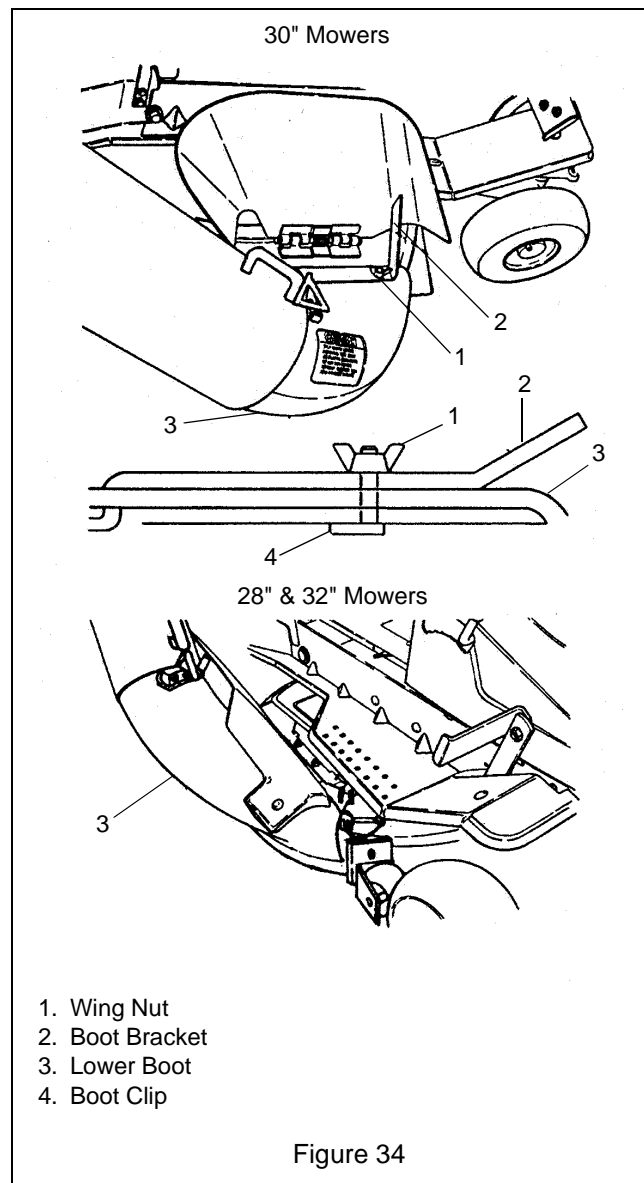
10.3 LOWER BOOT INSTALLATION

28" and 30" Mower Pans

Lift deflector, slide bottom edge of lower boot between runner and bottom edge of mower pan.

Position tab of deflector bracket in hole of boot and into pan at rear of discharge opening (bracket holds deflector away from boot). Secure with wing nut on boot clip at front on discharge opening.

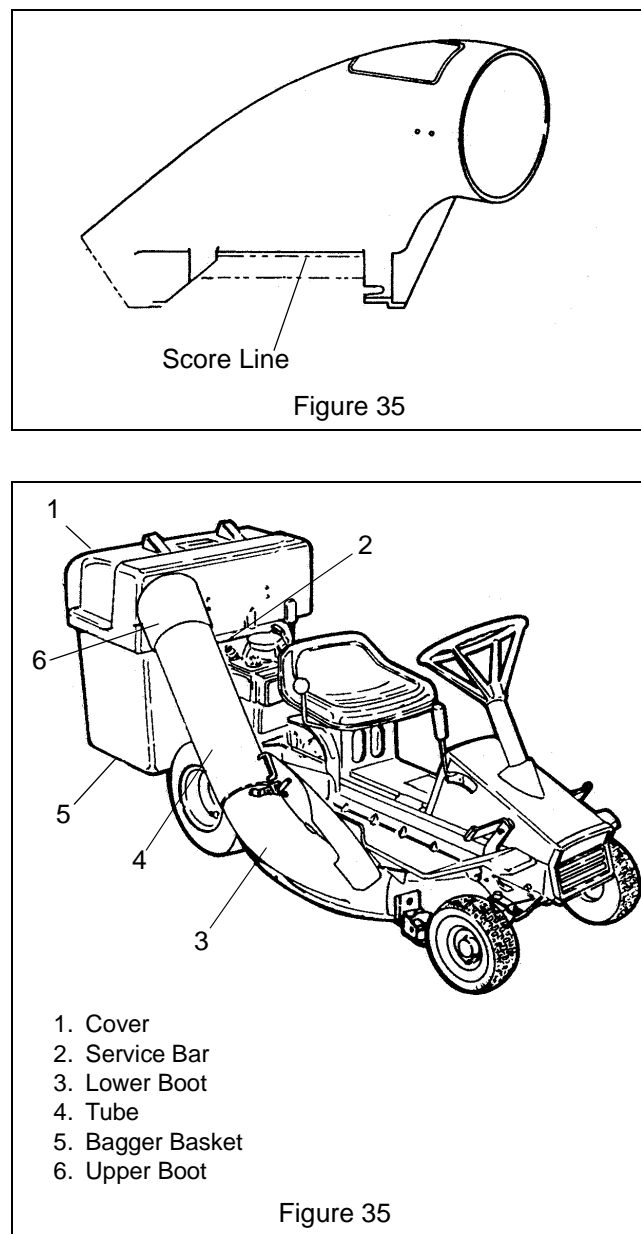
NOTE: For installation of boot on 28" pan, remove sections of boot indicated by score line, Figure 35. Be careful not to damage area around that which is being removed.



28" and 32" Mower Pans

Position lower boot so that the two rear pan clips are in line with the notches in the boot. Place boot in front pan clip. Rotate boot counterclockwise until rear pan clips are seated properly in boot notches. Secure boot with L-pin.

Slide tube through hole in upper boot. Line up handle with tube retainer on lower boot. Slide tube forward, place handle over tube retainer and secure.



SECTION 11 - ELECTRICAL

11.1 SAFETY INTERLOCK SYSTEM



DANGER: Failure of interlock, together with improper operation of unit, could result in severe personal injury.

Check the safety interlock system to make sure that it is functioning properly. Rider must not start unless speed selector is in neutral (N) and mower clutch is disengaged (OUT). Engine MUST stop if operator leaves seat when speed selector is in any drive position or with mower clutch engaged (IN).

Interlock module grounds engine ignition if speed selector and mower clutch switches are not closed. Also, module will ground ignition if seat switch is not closed when opening speed selector and mower clutch switches.

11.2 TROUBLESHOOTING

Check that connections to switches are secure and that switches are being activated properly before performing electrical tests. (Safety switches on speed selector and mower clutch levers may be out of adjustment, not activating properly).

Check engine electrical function by disconnecting Yellow wire (and Green wire on electric start models) from engine. If engine has no spark, problem is in engine (refer to engine repair manual).

If engine electrical system functions properly (has spark) with wires disconnected, connect Yellow wire (and Green wire on electric start model) to engine and check that all wires of units electrical system are connected properly (refer to electrical schematic).

IMPORTANT: When checking switches electrically, remove them from their respective circuits by disconnecting the wires from the switch at the connector(s) before testing or damage could result to meter or interlock module.

To test a normally open key (recoil start models), safety or seat switch, connect an ohmmeter across switch terminals. Meter should indicate high resistance (open circuit). Activate the switch. Meter should read up scale to zero resistance (Closed Circuit) indicating switch is operating properly. Check from each terminal to switch case (if case is metal), reading should show high resistance indicating no short to ground.

The ignition switch (on electrical start models) has three positions; OFF, RUN and a momentary START position.

In the OFF position, there should be continuity between contacts "M" and "G".

In the RUN position, there should be no continuity between contacts "B" and "S".

If after performing the above checks the engine does not start, check interlock module by disconnecting it at connector. This removes the module from electronic ignition circuit. If engine starts, module is defective and must be replaced.

11.3 BATTERY (ELECTRIC START MODELS)



WARNING: Batteries produce explosive gases which can cause personal injury. DO NOT allow flames, sparks or any ignited object to come near battery. When charging or working near a battery, always shield your eyes and provide ventilation.



WARNING: Keep batteries out of reach of children. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. In case of acid contact with skin, eyes or clothing, flush immediately with water for a minimum of 15 minutes. If acid is swallowed, drink large quantities of milk or egg or vegetable oil. Call a physician immediately.

Every 25 hours or each week check electrolyte level of each cell by removing caps one at a time. The electrolyte level should be at level indicator. Use distilled water to fill each cell if needed. Install and tighten each cap after checking.

IMPORTANT: When distilled water is added to battery during freezing weather, it must be charged to mix water with electrolyte or water will remain at top and freeze.

Keep battery and its terminals clean. Inspect monthly to be sure of obtaining best performance.



WARNING: DO NOT allow tools or other objects to come into contact with both terminals at same time. When removing battery from unit, remove negative (-) cable first to reduce risk of sparks.

To clean terminals remove battery from unit by removing cables. Remove battery strap and hooks and lift battery out. Clean or service away from unit. Remove corrosion from battery terminals and cable connections with a wire brush, then wash with a weak baking soda solution.

After cleaning, apply a thin coat of grease or petroleum jelly to terminals and cable ends, to retard corrosion. Reinstall battery.



CAUTION: Connect positive (+) cable first, negative (-) cable last.

To charge battery remove battery from riding mower, remove vents and charge at a rate of 1.2 amps for 10 hours on a fully discharged battery.

IMPORTANT: Charging at a higher rate will damage battery.



WARNING: When charging battery, remove it from unit and make certain that you connect positive (+) lead of charger to positive (+) terminal and negative (-) lead to negative (-) terminal. Reverse connections can cause sparks and potential unsafe conditions.

Battery

When charging battery remove it from the unit first.



WARNING: ELECTRIC SHOCK may result in injury and/or damage to unit.

DO NOT allow object to come into contact with both terminals at the same time. REVERSE CONNECTIONS may result in sparks which can cause death or serious injury. ALWAYS connect positive (+) lead of charger to positive (+) terminal, and negative (-) lead to negative (-) terminal.

ALWAYS connect positive (+) cable FIRST, and negative (-) cable SECOND.

DO NOT TIP any battery beyond 45° angle in any direction.

ALWAYS KEEP BATTERIES OUT OF REACH of children.

Battery Electrolyte First Aid

Follow First Aid directions for contact with battery fluid.

- External Contact: Flush with water.
- Eyes: Flush with water for at least 15 minutes and get medical attention immediately!
- Internal Contact: Drink large quantities of water. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately!

IMPORTANT: In case of internal contact, DO NOT induce vomiting.

Battery Charger

Under normal conditions the engine alternator will have no problem keeping the battery charged. When unit has set for an extended period of time without operating and the battery has been completely

discharged, a battery charger will be required for recharging.

Before using a charger, an attempt can be made to recharge the battery using the engine alternator by jump starting the unit and allowing the engine to run.

Jump Starting

Jump starting, battery charging or replacement is required when the starter motor will not crank the engine.



WARNING: FROZEN BATTERIES CAN EXPLODE and result in death or serious injury.

DO NOT charge a frozen battery. Let the battery thaw out before putting on a charger.

To jump start battery:

1. Ensure battery is not frozen. If the fluid is frozen, remove battery from unit and allow it to thaw before charging.
2. The unit used for jump starting should have a 12 volt battery with at least 500 cold cranking amperes, and a negatively grounded system.



WARNING: UNIT MOVEMENT can result in death or serious injury. NEVER jump start unit directly to the starter or starter solenoid. Unit can move forward or backward and injure the person jump starting unit.

3. Connect the positive (+) jumper cable to the positive terminal of the discharged battery.
4. Connect the other end of the same jumper cable to the positive (+) terminal of the booster battery.
5. Connect one end of the second jumper cable to the negative (-) terminal of the booster battery.
6. Make the final jumper cable connection to the engine block or the furthest ground point away from the discharged battery.
7. Start the engine.
8. Remove jumper cables in the reverse order of their connection. Remove cable from ground point, the negative (-) terminal of the booster battery, the positive (+) terminal of the booster battery, and then the positive (+) terminal of the discharged battery.



CAUTION: REVERSE CONNECTIONS may result in sparks which may result in injury. ALWAYS connect/disconnect cables in proper order.

IMPORTANT: DO NOT fast charge. Charging at higher rate will damage or destroy battery.



Ariens Company
655 West Ryan Street
P.O. Box 157
Brillion, WI 54110-0157
920-756-2141
Fax 920-756-2407
www.ariens.com