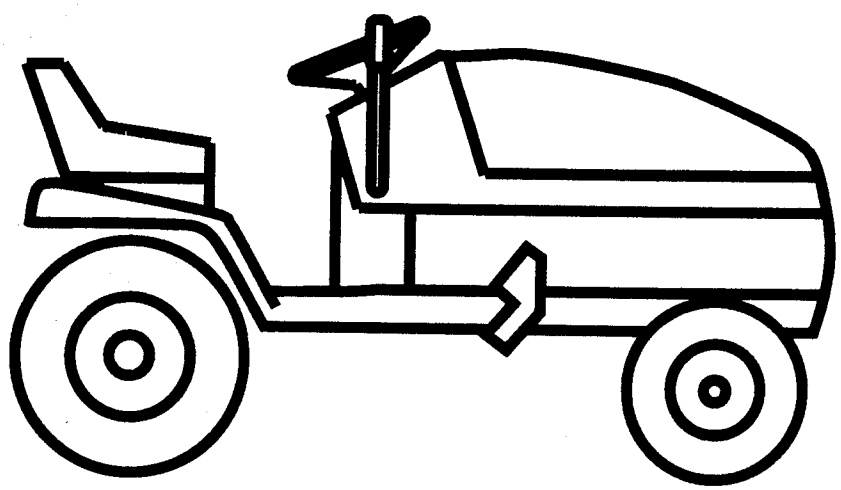
Ariens® 936 Series

Yard Tractor

⚠ SAFETY MESSAGE ⚠

The product for which you have requested information or replacement parts is not a current product. The replacement models incorporate product designs, safety features, safety instructions or warnings which represent the latest "State Of The Art" developments. For your safety and those around you please contact your nearest Ariens/Gravely Dealer for a demonstration of the current product safety provisions and features.

Service Manual



A Message To Service Manual User

Your Authorized Dealer will be happy to supply any service or advice which may be required to keep your equipment operating at peak efficiency. He stocks the necessary parts and lubricants; manufactured with the same precision and skill as the original equipment. His factory trained staff is kept well informed on the best methods of servicing your equipment and is ready and able to serve you. If repair or service is required, it can be obtained from your dealer. If service is required, be prepared to supply the service person with the Model and Serial Numbers of the equipment and engine, as well as a full description of the problem encountered.

The information contained herein is intended for use by dealer trained servicemen and serves as a supplement to and reminder of training sessions conducted by the company.

Before you attempt any repair, adjustment or maintenance project be certain that you have read and fully understand the instructions in your Owner's Manual. Understand and follow each Danger, warning, caution and all instructions exactly as given. Also be sure that you have Parts Manuals, all tools, replacement parts and other materials required to complete the project.

IMPORTANT: All fittings, measurements, torque recommendations and instructions are significant and approximations or substitutions must be avoided. Improper repair, maintenance and/or adjustments or service attempted by anyone other than an Authorized Service Dealer could void future warranty claims, damage unit and/or result in injury to operator and/or bystanders.

Introduction

How to Use your Service Manual

This Service Manual is arranged for quick, easy reference and is divided into numbered sections. Each section is then divided into numbered sections. Each section is then divided into sub-sections. To use this manual proceed as follows;

Refer to the Index to determine section within which desired information will be contained and proceed to front of that section for its Table of contents.

Locate subject desired. Page number is listed across from subject and consist of section number and page number.

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

Preparation For Service

Proper preparation is very important for efficient service work. A clean work area at the start of each job will allow you to perform the repair as easily and quickly as possible, and reduce incidence of misplaced tools and parts. A unit that is excessively dirty should be cleaned before work starts. Cleaning will occasionally uncover trouble sources. 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. Special tools required for a job are listed in this manual.

Service Bulletins

In addition to the information contained in this Service Manual, Service Bulletins are issued to Authorized Dealers from time to time, which cover interim engineering changes and supplementary information. Service Bulletins should be consulted to complete information on models covered by this manual.

Replacement Parts

When replacement parts are required, use only original ARIENS approved parts. Failure to do so may result in product malfunction and possible injury to operator and/or bystander.

NOTE: All references to "Left", "Right", "Front" and "Back" are given from operators position.

NOTE: The descriptions and specifications contained in this manual were in effect at the time this manual was approved for printing. We reserve the right to to discontinue models without notice and without incurring obligation. The equipment identified as either standard or optional and the various illustrations may not have questions, always check with your dealer.

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Manual Part No. 000298
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Ariens 1994

Safety alert Symbol And Notations

The following safety notations are used throughout this manual to call attention to special information or operating procedures. Understand the message in each notation and be alert to unsafe conditions and the possibility of personal injury.

NOTE: A **NOTE** points out general reference information regarding proper operation and maintenance practices.

IMPORTANT: An **IMPORTANT** statement indicates specific procedures or information that is required to prevent damage to the machine or its attachments.

This safety alert symbol is used to attract your attention! PERSONAl SAFETY IS INVOLVED! When you see this symbol -

CAUTION: A CAUTION identifies safe operating practices or indicates unsafe conditions that could result in personal injury.

WARNING: A WARNING describes a condition where failure to follow the instruction could result in severe personal injury

DANGER: A DANGER designates a condition where failure to follow instructions or heed warnings will most likely result in serious injury or death.

Safety Precautions

BECOME ALERT - HEED ITS MESSAGE.

Before test operating or making repairs or adjustments to the unit, read and understand the operating and safety instructions in the Owner"s manual.

Disengage power to attachment, stop engine, remove key and wait for moving parts to stop before performing any repair or maintenance adjustment procedures. DO NOT make any adjustment or perform any maintenance or repair procedure while engine is running unless specifically instructed to do so in this manual.

DO NOT touch tractor or attachment parts which might be hot from operation. Before attempting to maintain, adjust or service, allow such parts to cool.

Open doors if engine is run in garage, exhaust fumes are dangerous. DO NOT run engine in an enclosed area.

Do repair work in a well-lighted, ventilated area.

To prevent accidental starting, disconnect wire to spark plug(s) and position wire away from plug.

Always wear safety goggles when cleaning or making repairs to parts or machine.

When unit is tipped to perform service procedures in this manual, remove enough fuel so that no spillage will occur and block securely.

Gasoline is highly flammable and its vapors are explosive. Handle with care. Use an approved fuel container. DO NOT smoke or allow open flame (match, pilot light, ect.) or sparks near equipment or fuel container when refueling or servicing fuel system.

Use non-flammable solvent to clean parts - DO NOT use gasoline.

Use only Ariens original replacement parts when making repairs.

After all repairs procedures are performed, make sure that unit is in good operating condition and all safety devices and shields are in place and in good working conditions. Be sure all fastener are tight, all adjustments are correct and all tools are removed.

DO NOT change engine governor setting or over speed engine.

Never store equipment with fuel in tank inside a building where fuel fumes may reach a open flame or spark. Allow engine to cool before storing in any enclosure.

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SPECIFICATIONS

This manual covers the models listed. Specific Model and Serial Numbers of your tractor are on a lable on the frame. Record these numbers in the space provided and use them whenever parts or service are required.

NOTE: Most hardware descriptions are given in decimals. Refer to the following table to find the equivalent in fractions:

.125 = 1/8
.188 = 3/16
.250 = 1/4
.312 = 5/16
.375 = 3/8
.438 = 7/16
.500 = 1/2
.562 = 9/16
.625 = 5/8
.688 = 11/16
.750 = 3/4
.812 = 13/16
.875 = 7/8

Model Number - Tractor _____

Serial Number - Tractor _____

Model Number - Engine _____

Serial Number - Engine _____

BOLT TORQUE SPECIFICATIONS

HARDWARE SIZE	GRADE2 (ft.lbs.)	(N.m)	GRADE 5 (ft.lbs.)	(N.m)	GRADE 8 (ft.lbs.)	(N.m)
1/4-20	5.5	7.48	8.0	10.88	12.	16.32
1/4-28	6.3	8.57	10.	13.60	14	19.04
5/16-18	11.	14.96	17.	23.12	25.	34.00
5/16-24	12.	16.32	19.	25.84	25.	34.00
3/8-16	20.	27.20	30.	40.80	45.	61.20
3/8-24	23.	31.28	35.	47.60	50.	68.00
7/16-14	32.	43.53	50.	68.00	70.	95.20
7/16-20	36.	48.96	55.	74.80	80.	108.80
1/2-13	50.	68.00	75.	102.00	110.	149.60
1/2-20	55.	74.80	90.	122.40	120.	163.20
9/16-12	70.	95.20	110.	149.60	150.	204.00
9/16-18	80.	108.80	120.	163.20	170.	231.20
5/8-11	100.	136.00	150.	204.00	220.	299.20
5/8-18	110.	149.60	180.	244.80	240.	326.40
3/4-10	175.	238.00	260.	353.60	380.	516.80
3/4-16	200.	272.00	300.	408.00	420.	571.20
7/8-9	170	231.20	430.	584.80	600.	816.00
7/8-14	180.	244.80	470.	639.20	660.	897.60
1-8	250.	340.00	640.	870.40	900.	1224.00
1-12	270.	367.20	710.	965.60	1000.	1360.00

SPECIFICATIONS

MODEL	936002	936003
LENGTH	67"	67"
HEIGHT	42"	42"
Width	53"	53"
Wheel Base	46"	46"
Shipping Weight	465 lbs	465 lbs
Battery	12 Volt 290 CCA.	12 Volt 290 CCA
Hour Meter	Optional	Optional
Brakes	Disc.	Disc
Steering	Gear	Gear
Turning Radius	26"	26"
Tire Size		
Front	15x6.00-6	15x6.00-6
Rear	20x8.00-8	20x8.00-8
Engine	OHV 12.5 Hp	OHV 12.5 Hp
Manufacture	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded
Idle R.P.M.	2100	2100
Governed R.P.M.	3250	3250
Crank Case Capacity	32 oz.	32 oz.
Air Cleaner	Dry element - Foam Precleaner	
Charging Capacity	5 Amp. Unregulated	5 Amp. Unregulated
Fuel Filter	120 Micron, 2 1/2 GPA Capacity	
Engine Oil Type	5W30 below 40 Degrees - 30W Above 40 Degrees	
Spark Plug Gap	.30 Champion RN-4C	.30 Champion RN-4C
Transmission	Peerless 940-011 5 spd	Peerless 1800-004
Speed - Forward Max.	0.8 - 5.5 mph	0.0 - 5.5 mph
Reverse Max.	1.9 mph	0.0 - 2.5 mph
Transmission Lube	Grease	Oil/Sealed Unit
Drive Belt	Belt Clutched	Belt clutched
Axle Capacity	150 ft. lbs	150 ft lbs
Allowable Added Weight	130 lbs.	130 lbs.
Rear Axle Maximum Load	450 lbs.	450 lbs
Tire Pressure With Loads		
Front/Rear Light	8 psi./6psi.	8psi./6psi.
Medium	12psi./8psi.	12psi./8psi.
Heavy	16psi./10psi.	16psi./10psi.
Lift System	Manual	Manual
Power Take Off		
Front	Electric	Electric
Mower Pan	40"	40"
Bagger	836003	836003
Sno-thro 36"	836004	836004
Dozer Blade 42"	836001	836001

Specifications

Model	936004	936005
Length	67"	67"
Height	42"	42"
Width	53"	53"
Wheel Base	46"	46"
Shipping Weight	465 lbs	465 lbs
Battery	12 Volt 290CCA.	12 Volt 290CCA.
Hour Meter	Optional	Optional
Brakes	Disc.	Disc.
Steering	Gear	Gear
Turning Radius	26"	26"
Tire Size		
Front	15x6.00-6	15x6.00-6
Rear	20x8.00-8	20x8.00-8
Engine	OHV 15 Hp	OHV 15 Hp
Manufacture	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded
Idle R.P.M.	2100	2100
Governed R.P.M.	3250	3250
Crank Case Capacity	54 oz.	54 oz.
Air Cleaner	Dry Element - Foam Precleaner	
Charging System	16 Amp. Regulated	16 Amp. Regulated
Fuel Filter	120 Micron, 2 1/2 GPA Capacity	
Engine Oil Type	5W30 Below 40 Degrees - 30W Above 40 Degrees	
Spark Plug Gag	.30 Champion RN-4C	.30 Champion RN-4C
Transmission	Peerless 1800-004	Peerless 940-011 5 Spd.
Speed - Forward Max.	0.0 - 5.5	0.8 - 5.5
Reverse Max.	0.0 - 2.5	1.9
Transmission Lube	Oil/Sealed Unit	Grease
Drive Clutch	Belt Clutched	Belt Clutched
Axle Capacity	150 ft. lbs.	150 ft. lbs.
Allowable Added Weight	130 lbs.	130 lbs.
Rear Axle Maximum Load	450 lbs.	450 lbs.
Tire Pressure With Loads		
Front/Rear Light	8psi./6psi.	8psi./6psi.
Medium	12psi./8psi.	12psi./8psi.
Heavy	16psi./10psi.	16psi./10psi.
Lift System	Manual	Manual
Power Take Off		
Front	Electric	Electric
Mower Pan	40"	40"
Bagger	836003	836003
Sno-thro 36"	836004	836004
Dozer Blade 42"	836001	836001

Specifications

Model	936006	936008
Length	67"	67"
Height	42"	42"
Width	39"	53"
Wheel Base	46"	46"
Shipping Weight	617 lbs	528 lbs
Battery	12 Volt 220 CCA.	12 Volt 220CCA.
Hour Meter	Optional	Optional
Brakes	Disc.	Disc.
Steering	Gear	Gear
Turning Radius	26"	26"
Tire Size		
Front	13x5.00-6	15x6.00-6
Rear	18x6.50-8	20x8.00-8
Engine	OHV 12 Hp	OHV 14 Hp
Manufacture	Tecumseh	Briggs&Stratton
Fuel	Unleaded	Unleaded
Idle R.P.M.	2100	2100
Governed R.P.M.	3250	3250
Crank Case Capacity	32 oz.	48 oz.
Air Cleaner	Paper element - Foam Precleaner	
Charging Capacity	3 Amp. Unregulated	3 Amp. Regulated
Fuel Filter	120 micron, 2 1/2 GPA Capacity	
Engine Oil	5W30 Below 40 Degrees 30W Above 40 Degrees	
Spark Plug Gap	.30 Champion RN-4C	.30 Champion RC12YC
Transmission	Peerless 940-011A 5 Spd	Peerless 940-011A 5 Spd
Speed - Forward Max.	0.8 - 5.5	0.8 - 5.5
Reverse Max.	1.9	1.9
Transmission Lube	Grease	Grease
Drive Clutch	Belt Clutched	Belt Clutched
Axle Capacity	150 ft. lbs.	150 ft. lbs
Allowable Added Weight	130 lbs.	130 lbs.
Rear Axle Maximum Load	450 lbs.	450 lbs.
Tire Pressure With Loads		
Front/Rear Light	8psi./6psi.	8psi./6psi.
Medium	12psi./8psi.	12psi./8psi.
Heavy	16psi./10psi.	16psi./10psi.
Lift System	Manual	Manual
Power Take Off		
Front	Electric	Electric
Mower Pan	32"	40"
Bagger	836002	836003
Sno-thro	N/A	N/A
Dozer Blade	N/A	N/A

Specifications

Model	936009	936010
Length	67"	67"
Height	42"	42"
Width	53"	53"
Wheel Base	46"	46"
Shipping Weight	685 lbs	675 lbs
Battery	12 Volt 290 CCA.	12 Volt 290 CCA.
Hour Meter	Optional	Optional
Brakes	Disc.	Disc.
Steering	Gear	Gear
Turning Radius	26"	26"
Tire Size		
Front	15x6.00-6	15x6.00-6
Rear	20x8.00-8	20x8.00-8
Engine	OHV 13 Hp	OHV 13 Hp
Manufacturer	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded
Idle R.P.M.	2100	2100
Governed R.P.M.	3250	3250
Crank Case Capacity	32 oz.	32 oz.
Air Cleaner	Paper Element, Foam Precleaner	
Charging Capacity	3 Amp. Unregulated	3 Amp. Unregulated
Fuel Filter	120 Micron, 2 1/2 GPA Capacity	
Engine Oil Type	5W30 Below 40 Degrees 30W Above 40 Degrees	
Spark Plug Gap	.30 Champion RN-4C	.30 Champion RN-4C
Transmission	Peerless 930-051 6 Spd	Hydro-gear 312-0750
Speed - Forward Max.	0.8 - 5.5	0.0 - 5.5
Reverse Max.	1.9	0.0 - 2.5
Transmission Lube	Grease	20W50 oil
Drive Clutch	Belt Clutched	Belt Clutched
Axle Capacity	150 ft. lbs.	175 ft. lbs
Allowable added Weight	130 lbs.	130 lbs.
Rear Axle Maximum Load	450 lbs	568 lbs.
Tire Pressure With Loads		
Front/Rear Light	8psi./6psi.	8psi./6psi.
Medium	12psi./8psi.	12psi./8psi.
Heavy	16psi./10psi.	16psi./10psi.
Lift System	Manual	Manual
Power Take Off		
Front	Electric	Electric
Mower Pan	40"	40"
Bagger	836003	836003
Sno-thro 36"	836004	836004
Dozer Blade 42"	836001	836001

Specifications

Model	936011	936012
Length	67"	67"
Height	42"	42"
Width	53"	53"
Wheel Base	46"	46"
Shipping Weight	615 lbs	675 lbs
Battery	12 Volt 290 CCA	12 Volt 290 CCA
Hour Meter	Optional	Optional
Brakes	Disc.	Disc.
Steering	Gear	Gear
Turning Radius	26"	26"
Tire Size		
Front	15x6.00-6	15x6.00-6
Rear	20x8.00-8	20x8.00-8
Engine	OHV 15 Hp	OHV 15 Hp
Manufacturer	Tecumseh	Tecumseh
Fuel	Unleaded	Unleaded
Idle R.P.M.	2100	2100
Governed R.P.M.	3250	3250
Crank Case Capacity	54 oz	54 oz
Air Cleaner	Paper element, Foam Precleaner	
Charging Capacity	16 Amp. Regulated	16 Amp. Regulated
Fuel Filter	120 Micron, 2 1/2 GPA Capicty	
Engine Oil Type	5W30 Below 40Degrees, 30W Above 40 Degrees	
Spark Plug Gap	.30 Champion RN-4C	.30 Champion RN-4C
Transmission	Peerless 930-051 6 Spd	Hydro-gear 312- 0750
Speed - Forward Max.	0.8 - 5.5	0.0 - 5.5
Reverse Max.	1.9	0.0 - 2.5
Transmission Lube	Grease	20W50 Oil
Drive Clutch	Belt Clutched	Belt Clutched
Axle Capacity	150 ft. lbs	175 ft. lbs.
Allowable Added Weight	130 lbs.	130 lbs.
Rear Axle Maximum Load	450 lbs.	568 lbs.
Tire Pressure With Loads		
Front/Rear Light	8psi./6psi.	8psi./6psi.
Medium	12psi./8psi.	12psi./8psi.
Heavy	16psi./10psi.	16psi./10psi.
Lift System	Manual	Manual
Power Take Off		
Front	Electric	Electric
Mower Pan	40"	40"
Bagger	836003	836003
Sno-thro 36"	836004	836004
Dozer Blade 42"	836001	836001

Electrical

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Electrical

Tools

There are some specialalized tools and test equipment that are needed for electrical repair work. A brief description of these follows:

Long or needle nose pliers - used to connect or bend wires and connector in close quarters.

Diagonal cutters - used to cut wires or trim connections.

Wire stripper/crimping tool - available separately or as a combination tool. Used to strip insulation from wires of various sizes, crimp terminals and connector on wires. Available at most automotive parts supply stores. Sometimes included with an assortment of various terminals, connector and insulators.

Soldering gun or soldering iron - used to solder all splices and connections to terminals, connector and ect. A soldering gun is faster and more convenient than waiting for a soldering iron to heat.

Multimeter - analog or digital to measure voltage, amperage and ohms.

Tachometer - used to measure engine speed. Required to properly test alternator and and charging circuits where output is dependent upon engine speed.

Heat gun - used to shrink insulated tubing in place. Used to replace electrical tape or insulated sleeving. To use, place a piece of heat shrink tubing over a joint, heat with the heat gun, and it shrinks tightly around the joint to insulate it.

Supplies - electrical tape, rosin core solder (never use acid or acid core solder on electrical joints), an assortment of various size terminals, connector, insulated or heat shrink tubing (for use on joints and connections),and an assortment of automotive type wire (in several colors).

Ariens Company recommends that all work be done in a professional manner. The use of tubing to cover joints and the soldering of connections contribute to a professional looking job. In addition to a pleasing appearance, repairs made in this manner are more likely to withstand vibration. (The weakest points in an electrical system is at the joints where wires are attached. Vibration causes wires to flex at these points and eventually to break.)

Replace all defective components with Ariens factory replacement parts only. Engine parts, such as rectifiers or alternator components should be secured through the nearest engine service center.

Ariens Company does not recommend attempting to repair electrical components. Most do not lend themselves to repair and you would have more money invested in "time of repair" than the part would cost and the results may not be as good.

Electrical Measurements

In many electrical circuits, there is some visible effect which indicates that the circuit is functioning properly. A switch is turned "on" and a lamp lights. A key is turned, a starter motor runs and cranks the engine.

If the lamp does not light, or the starter motor does not run, some means of measuring voltage, current flow, resistance and continuity is needed. (continuity means there is a complete electrical path through the circuit or component.)

To know exactly what conditions exist in an electrical circuit requires AC and DC Voltmeters, AC and DC Ammeter, and an Ohmmeter.

Multimeter

A single, combination meter that does all of these things is available . Such a meter is called a Multimeter or Volt-Ohm-Multitester (VOM). Meters of this kind are available in many forms and all change functions and ranges with switches, or by plugging test leads into different jacks. Multimeter are available in two basic types, Analog and Digital.

Analog Meters

Analog Meters have a needle that moves across a scale to give a reading. The longer the scale, the easier it is to read and the more accurate the reading will be. A jeweled movement is used to this type of meter and it is more likely to be damaged by rough handling (except for overloaded Protected Meters) or by measuring high values that exceed the range set on the meter than a digital meter. They provide excellent service for the money as long as they are used with care.

Digital Meters

Digital Meters do not have a movement and are therefore more rugged. The reading shows up directly on a display windows of some type. Since they read direct, no skill in reading the scale is required, nor is it necessary to set the range. The meter switches ranges automatically. One has only to select the function (DC Volts, AC Ampere, Ohms, ect.), connect the test leads, and the reading is shown on the display. Because of the internal circuitry and lack of a movement, these meters are not likely to be damaged by overload.

In the discussions that follow, either type of meter may be used. Test procedures are the same. It is best to learn proper procedures, even though some meters may be more forgiving of mistakes. Where differences in use may occur, they will be covered in the discussion.

Voltage Measurement

There are two basic rules to be remembered when using a voltmeter. A voltmeter measures the voltage difference between the test leads and the voltmeter is always connected across the circuit under test.

Current Measurement

The two rules to remember when measuring current with an ammeter are; an ammeter measures the current that flows through the meter, and to measure current an ammeter must be connected into the circuit.

The latter rule means that the circuit must be opened, and the ammeter wired into it. Because this procedure is usually difficult, an ammeter is seldom used for troubleshooting.

Resistance Measurement

An Ohmmeter is used to make resistance measurements and to check continuity through wires and electrical components.

There is one rule to keep in mind when using a ohmmeter. The ohmmeter has a self contained battery and requires no external power. Using the ohmmeter on a circuit that has power applied may result may in damage to the meter.

IMPORTANT; Disconnect the equipment battery when making Ohmmeter test or damage to the Ohmmeter may result.

An ohmmeter reads the resistance of whatever component is connected between the test leads. It can be used to check wires, coils, fuses, light bulbs, or any item that conducts current.

Switches

Switches either open a circuit to stop current flow or close and allow current to flow through.

A normally open (N.O.) switch prevent current flow until the switch is actuated, completing the circuit and allowing current to flow through it. An example is a light switch - the lights are off until the switch is actuated and the lights go on.

A normally closed (N.C.) switch allow current to flow until the switch is actuated, breaking the circuit and stopping current flow through it. An example is an ignition switch that grounds the magneto when in the off position (completing the circuit) but opens the circuit when in the ON position allowing the engine to operate.

Switches are selected with regard to Current rating (contacts must be of sufficient size to carry the required current), Voltage rating (switches insulated for specific voltages), Case or Housing (switches that are exposed to moisture must be sealed to prevent moisture from entering), and Actuating type (push,pull, rotary, momentary contact or micro switches).

NOTE: Check that the connections to switches are secure and that a switch is being activated properly before performing electrical test on switches. (Safety switches on speed selector and clutch levers may be out of adjustment and not activating.)

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

With an ohmmeter or multimeter set on the ohms scale, check the switch for three things: continuity

between contacts of a normally open switch that closes when switch is activated; that contacts of a normally closed switch open when switch is activated; and that there are no shorts between contacts or between contact and ground (switch case) that should not be there.

Variation from test results described indicates a defective switch.

Normally Open Switch

To test a normally open switch (key, headlight, safety or seat), connect the ohmmeter across the switch terminals. Meter should indicate open circuit (high Resistance). Activate the switch. Ohmmeter should read up scale to zero resistance (Closed Circuit). This indicates the switch is operating properly. Also check from each terminal to switch case (if case is metal). Reading should show high resistance indicating no short to ground.

Normally Closed Switch

To test a normally closed switch connect the ohmmeter across the switch terminals. Meter should indicate a closed circuit (Zero Resistance). Activate the switch and the meter should move to open circuit (High Resistance). Check from each terminals to ground (Switch Case). Meter should show open circuit (High Resistance).

Ignition Switch

NOTE: Refer to the circuit diagram of the unit involved to determine switch functions and test using the methods described.

The ignition switch incorporates a number of functions, although not all functions are used on all equipment. The switch has three positions; OFF, RUN and a momentary contact START position. use an ohmmeter to check continuity of a switch in each position.

OFF Position - Should be continuity between contacts G and M. These connections ground the engine magneto and stop the engine in OFF position.

RUN Position - Should be continuity between contacts B and A these connections supply power to the rest of the wiring harness. connections G and M open to each other.

START Position - Hold switch in START position while testing. there should be continuity between contacts S1 and S2. These connections apply power to close the solenoid and operate the starter motor.

In addition to the above tests, place the switch in RUN position and check between each contact and ground (metal case) to be sure no terminals are grounded. If the switch is operating properly, there will be no continuity between contacts other than those described.

Lighting Circuits

Lighting circuits are simple circuits and easiest to trouble shoot in most equipment. They consist of the lights connected in parallel, a normally open switch, a protective fuse and a source of power (battery or engine alternator).

If only one light is out, check the connector, then check the bulb for continuity (high resistance indicates a defective or burned out bulb).

If all the lights are out, check the fuse for continuity (high resistance indicates a defective or blown fuse). If the fuse is blown, check for a short in the wiring and correct before replacing fuse.

If the fuse and lamps are good, check the circuit with an AC/DC voltmeter.

Fuses

Fuses are connected in electrical circuits to protect the circuit from damage do to overload or short circuits. Fuses are a "weak link" in the circuit. They contain a metal link designed to melt when a certain current value is exceeded thus opening or disconnecting the wiring. The fuse is a one time device. Once the fuse blows or melts it must be discarded and replaced with a new fuse of the same value.

Since the function of the fuse is to protect the circuit, NEVER attempt to defeat the protective device by bridging or by replacing with a device of a higher current rating.

Electrical testing of these devices is simple, since the device either conducts current (and is therefore functioning) or the device is open and is therefore defective. Use an ohmmeter to check for continuity. Replace defective devices only with factory replacement parts.

Solenoid and Relays

Solenoid and relays are both magnetically operated devices. Both devices operate on the principle that passing a current of electricity through a coil of wire will create a magnetic field strong enough to attract a piece of iron or steel. Each device uses this principle in a slightly different manner.

Relay - a basic relay consists of a coil of wire wound around a soft iron (magnetic) core. When current is passed through to coil, the core is magnetized and pulls down a magnetic lever. The lever in turn is attached to several switch contacts which open or close other electrical circuits. In this fashion, a small current can control one or more larger electrical currents and actuate several other devices. In most cases a relay contact moves only a fraction of an inch and the magnetic pull is small.

Solenoid - A basic solenoid consists of a coil of wire wound around a hollow tube. A magnetic core slides inside the tube. When current is passed through the coil, the core is pulled into the solenoid with considerable force. With proper design, a solenoid can exert considerable force over a distance of several inches. A solenoid can therefore , pull a lever, close heaver contacts, or perform other jobs that require a straight line pull.

If a relay or solenoid fails to operate, the cause may be either electrical or mechanical.

To check electrically, connect a voltmeter across the coil of the device and activate the circuit that operates the relay or solenoid. If the meter indicates no voltage is applied, the cause is in the control circuit.

If the meter indicates proper voltage across the coil but the device does not function, remove the power, disconnect the wiring and check the continuity of the coil with an ohmmeter. The meter should indicate resistance, in the order of 3 to 5 ohms, if the coil is intact. A high resistance indicates an open coil and a defective device.

There are also a number of mechanical problems that may cause the problem.

The starter solenoid in the Ariens equipment is a sealed unit used to actuate the starter motors on the engines. These solenoid may have three or four connections. The two large connections carry high current to operate the starter motor. The small connections are connected to the coil and carry the control current.

To check the solenoid, disconnect the cable to the starter motor, turn the key switch to start position, and listen for the solenoid to snap the inside contacts closed.

If no snap is heard, check across the coil with a voltmeter. The voltage should read 12 volts with the key switch in the start position. If no voltage appears, the defect is in the start circuit.

If the voltage is correct, turn off the power and check continuity of the coil with an ohmmeter. If the coil is open, the solenoid is defective and must be replaced.

If the coil has the proper voltage applied, and the continuity check indicates the coil is in intact, the solenoid plunger is stuck or the contacts are welded shut and the solenoid must be replaced.

If the solenoid snaps shut, but the starter does not operate, check across the large contacts with an ohmmeter. If there is no continuity when the solenoid snaps shut, the contacts are defective and the solenoid must be replaced.

Didoes and rectifiers

Didoes are solid state, semiconductors devices. They contain no moving parts and conduct current better in one direction than the other. They are electrical "check valves" and permit current to flow in one direction, but not in the other.

Didoes allow current to flow through one circuit without "backing up" into another.In engine alternator circuits a diode is used to convert current which flows back and forth (AC) in a circuit to current which flows only in one direction (DC). A device which converts alternating current to a direct current is called a RECTIFIER. A diode is one type of rectifier.

To check a diode, isolate it from the circuit by disconnecting on end. With a multimeter set on the lowest Ohms scale setting, measure the resistance in one direction, reverse the test leads, and measure in the other direction. Readings should be high in one direction and low in the other. (If readings are low in both directions, the diode is shorted, and if readings are high, the diode is open.) If readings are the same in both directions, diode is defective and

must be replaced.

IMPORTANT: Didoes are marked to indicate polarity (a band on one end, an arrow on the side, or they fit in holder only one way).

Rectifiers

A battery is charged through the use of an alternator located in or on the engine. A charging circuit contains a rectifier Because alternator produce alternating (AC) current and batteries require direct current (DC) for charging.
The rectifier may be built into the engine or it may be an external part. It may also contain a regulator to prevent overcharging the battery. (Servicing of rectifiers are built into the engine should be done by an approved engine manufacturers service center. Such a service center has access to the information and parts required to test and repair or replace engine components, including rectifiers and regulators.

Units containing both a rectifier and regulator are tested in a working circuit to make sure the regulator portion of the device is operating.

3 AMP D.C. Alternator system (Diode in Harness Sleeve).

Included in the wiring harness (engine) is a diode which converts the alternating current generated in the engine to direct current and is used to charge the battery.

This system has a fuse holder in the wire at the terminal connector coming out of the engine.

CHECKING THE SYSTEM. Remove the fuse from the fuse holder and check to make certain it is good. If faulty, replace with correct fuse called for in the parts list.

To check D.C. output, separate the connector at the engine. Place the probe (+) in the red wire lead connector. Ground the other probe to the engine.

With engine running, minimum values should read:

2500 R.P.M.	8.0 Volts D.C.
3000 R.P.M.	9.5 Volts D.C.
3300 R.P.M.	10.5 Volts D.C.
3600 R.P.M.	11.5 Volts D.C.

If these minimum readings are noted, check for bad battery, ammeter, wiring, ect. If less than above, pull back the protective coating from the fuse holder and diode. Using an A.C. voltmeter check voltage from diode lead nearest the engine block.

With engine running, minimum values should read:

2500 R.P.M.	18.0 Volts A.C.
3000 R.P.M.	22.0 Volts A.C.
3300 R.P.M.	24.0 Volts A.C.
3600 R.P.M.	26.0 Volts A.C.

If low or no voltage is experienced, replace alternator. If the alternator puts out the minimum A.C. voltage, replace the diode.

Electric clutch

The electric clutch isused to turn on and off the attachments used on the tractor by use of a switch on the dash panel. The clutch is also designed so that a brake is applied to the output shaft when the clutch is disengaged (off) .

The field coil is mounted to a bearing support and does not rotate. The rotor is attached to the power output shaft and rotates around the field assembly.The armature assembly is attached to the output pulley. The armature assembly is held close to the rotor by the brake assembly. The clutch is engaged by applying voltage to the coil connection. This results in a current flowing through the coil, magnetizing the coil and pulling the armature onto the rotor with sufficient force to hold the two pieces together, effectively connecting output and input shafts. Pulling the armature against the rotor pulls it away from the brake, releasing the brake.

Testing and trouble shooting are relatively simple. Continuity through the clutch coil can be checked with an ohmmeter. Resistance will vary but should be in the order of 6.00 to 8.00 ohms. If the coil test open, check the connector and leads to the coil. Defective coils must be replaced.

Engine Electrical Components

Engine servicing and repair should be referred to local engine manufacturers service centers that have the service information and parts available to properly service the engine. Ariens dealers should be able to test engines and engine components to pinpoint troubles and narrow them down to properly advise the engine serviceman.

936000 SERIES PRINCIPAL OF OPERATION.

Initial check out. Make sure that all switches are in their proper position for starting: (A) PTO off. (B) transaxle in neutral position, (C) operator on the seat and (D) the parking brake set or the brake pedal pushed in. If no power to start the engine.

Start Checklist.

STEP 1:

Check out the battery. Use a hydrometer on all the battery cells to see if one or more is bad. Also use a voltmeter to check for proper voltage. Replace the battery if necessary and/or charge to proper level.

STEP 2:

Use a voltmeter to make sure you have power to terminal (B) on the back side of the key switch in the "off" position. If you don't have power to terminal (b) check connection on the battery and the starter.

STEP 3:

With the key switch in the run position, check to see if the voltage has been transferred from terminal (B) to terminal (A). Terminal (A) on the key switch supplies power to terminal (B) on the PTO switch and to the seat switch on the yellow color lead. Power is transferred through the PTO switch from terminal (B) to terminal (A) and on to the brake switch and the neutral switch. After the neutral switch
the voltage goes to terminal (F) on the PTO switch and comes out on terminal (C) which is connected to pin 85 on the relay.

The green color lead from the neutral switch also supplies power to terminal (S2) on the key switch.

STEP 4:

With the key switch in the start position, power is transferred from terminal (S2) to (S1). Terminal (S1) transfers power to one of the small terminals on the starter solenoid and comes out the other small terminal and goes back to the brake switch and then to ground. This will allow the starter to engage and start the tractor.

Steering

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List of Illustration

Steering

NOTE: For ease of access to steering components, remove rotary mower per instructions in rotary mower section.

SPINDLES AND DRAG LINKS

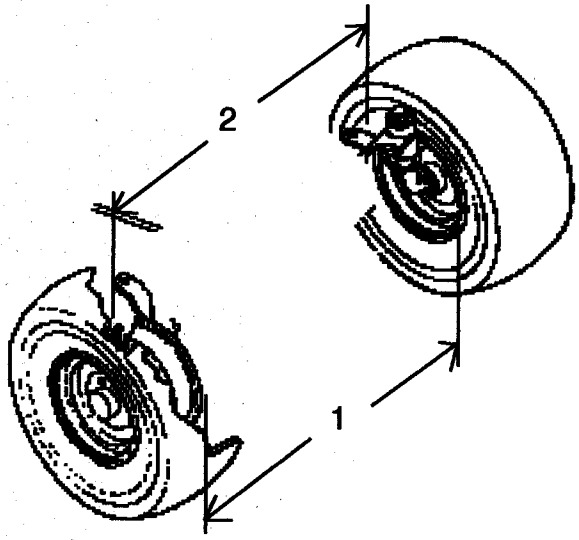
CAUTION: When raising tractor, block securely with jack stands under frame.

Raise and block front of tractor with tires off floor.

Remove hub cap(s), 1/4 X 1-1/2" cotter pin(s), or snap rings, spindle cup(s), washers and wheel(s) from spindle.

Disconnect drag links from spindles. Drive roll pin from top of spindle and remove spindle, washer and bushings from axle.

Check parts for excessive wear of damage, replace as necessary and assemble in reverse order.

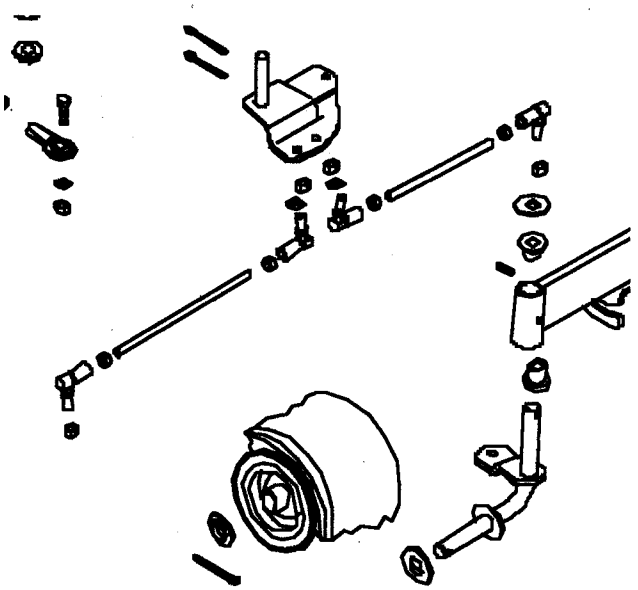


1. 1/16"-1/8" Less than 2
2. 1/16"-1/8" More than 1

Proper toe in (1/16" to 1/8" measured at horizontal center line of rim flange) is necessary to assure proper steering and to reduce tire wear.

On models with four ball joints, loosen jam nuts on drag links and rotate drag links to obtain proper toe in. When proper toe in is obtained, tighten jam nuts on drag links.

On Models with two ball joints, remove ball joints, loosen jam nuts on the drag links and rotate ball joints to obtain proper toe in. When proper toe in is obtained , reattach the ball joints to the spindle.



To remove front axle, remove spindles and drag links per above instructions. Then remove nut, 1/2-13 X 1-1/4" cap screw, axle and spacer from front axle support.

Check parts for excessive wear of damage, replace as necessary and assemble in reverse order.

STEERING PIVOT

To remove steering pivot, disconnect drag and steering links, remove two 1/8 X 1-1/4" cotter pins and pivot from steering pivot channel.

Remove flange bushing (2) from the Steering pivot channel.
Check parts for excessive wear or damage, replace as necessary and assemble in reverse order.

STEERING GEARS

Disconnect steering link from arm & shaft. Loosen two 5/16-18 X 1-3/4" cap screws on bevel gear.

Remove 3/16 X 1-1/4" cotter pin that secures arm & shaft in steering bracket.

Remove detent pin from steering wheel height adjustment tube, remove steering wheel and steering column boot.

Remove arm & shaft with washers, bevel gear, sleeve bushings and spacers from steering bracket.

Drive 3/16 X 1-1/8" roll pin from steering column shaft located flange bearing.

With steering column shaft raised enough for pinion gear to clear steering bracket, slide pinion gear up on shaft and drive pin from lower end of shaft.

Remove steering column shaft, washer, pinion gear and bushings on steering bracket from unit.

Remove 5/16-16 X 3/4" grade 5 cap screw from flange bearing and bearing from unit.

Check parts for excessive wear or damage, replace as necessary and assemble in reverse order.

STEERING LINK

Units with a ball joint allowing for centering of wheel for full travel. To adjust, loosen jam nut on link at ball joint, release the other end of the drag link from the steering arm and shaft. Rotate link until full travel is obtained and tighten jam nut. Reattach the drag link to the steering arm.

Clutch and Brake

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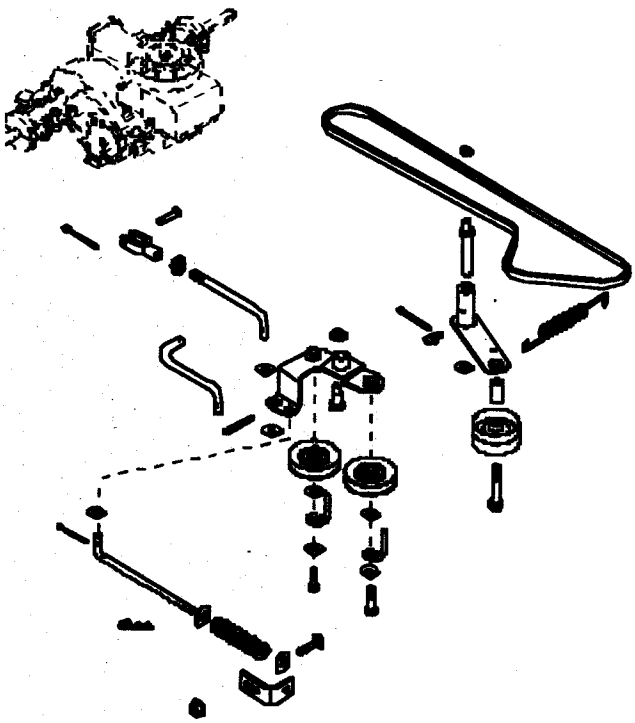
Clutch & Brake

CLUTCH ROD

936002, 05

With mower pan removed from the tractor, operate the clutch pedal and check for wear in the clutch link. Verify that the shoulder bolt is tight in the frame holding the idler pivot arm square to the frame.



CLUTCH PEDAL AND PIVOT

Check all linkage and pivot points for ease of operation, for wear or damage and replace as necessary. Assemble in reverse order.

Remove two way lock nut, securing brake rod to brake pedal.

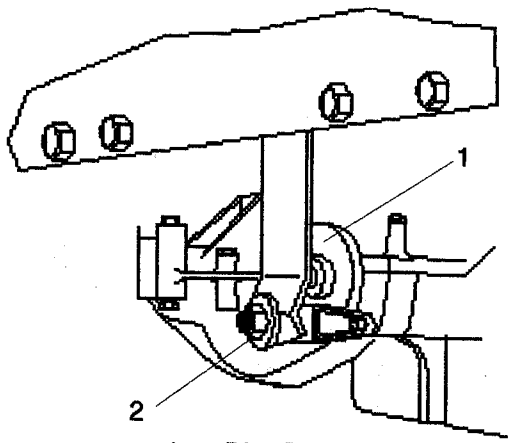
Remove hair pin securing brake rod to actuator lever and remove brake rod.

BRAKE ADJUSTMENT

Peerless Gear, Peerless Hydro, Hydro Gear

The disc brake is located on lower right side of transaxle.

With tractor on a smooth level surface, speed selector in neutral "N" and brake pedal released; (On hydro units the dump valve will need to be in the dumped position)



1. Disc Brake
2. Disc Brake Nut

Disc Brake Adjustment

Model 936002, 005 Peerless Gear

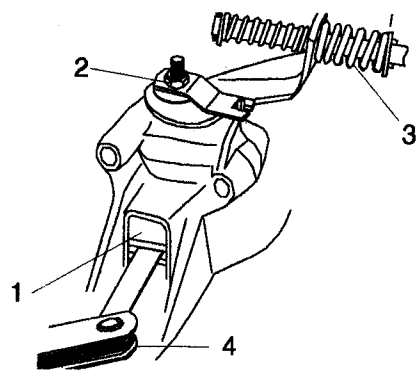
To adjust, tighten disk brake nut until it stops. With rear wheels off the ground, back of until the rear wheels brake drag is eliminated.

Model 936003, 004 Peerless 1800 Hydro

To adjust, tighten disk brake nut until it stops. With rear wheels off the ground, back off nut until the rear wheels brake drag is eliminated.

936003, 004 Hydro-gear Replacement 536009
936010, 012 Hydro-gear

The brake was factory set for a specific running clearance.



1. Disc Brake
2. Adjustment Nut
3. Compression Spring
4. Feeler Gage

Disc Brake Adjustment (Hydro)

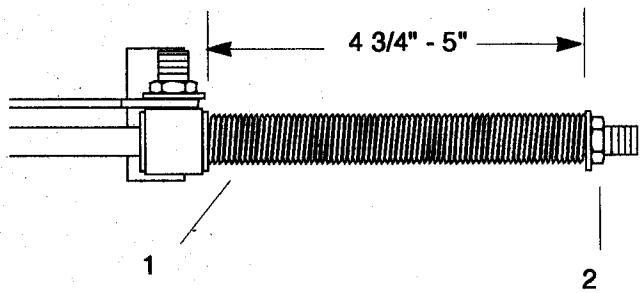
To check for proper setting, place feeler gage between the two discs. With clutch/brake pedal released there should be from 0.015" to 0.025" clearance. If adjustment is needed make the necessary adjustment with the adjustment nut, clockwise to tighten, Counterclockwise to loosen.

Brake Pedal

To adjust brake pedal free play, tighten nut on end of brake rod until nut just contacts spring.

936010, 012 Brake spring

The brake arm compression spring should be compressed to 7/8" with the brake in the "on" position.



1. Compression Spring
2. Jam Nut

Brake Spring

936002, 005 Brake spring

The compression spring on the brake arm should be compressed to 4 3/4" to 5" with the brake in the off position. Brake spring compression is done by adjusting the jam nut.

PARKING BRAKE

The Parking Brake is provided to prevent the tractor from rolling when parked or left unattended.

To engage Parking Brake, shift the unit into neutral, depress brake pedal (Brake/Clutch on Hydro) and pull parking brake knob out, then release brake pedal.
Clutch pedal on gear drive must not be depressed when locking parking brake. Parking brake lock is disengaged by depressing brake or clutch pedal.

BRAKE PEDAL AND PIVOT

Check all linkage and pivot points for ease of operation, for wear or damage and replace as necessary. Assemble in reverse order.

DISK BRAKE REMOVAL AND ASSEMBLY

Peerless Gear Drive model 930, 940 used on 936000 , 936000, 936000.

Peerless 1800 Hydro Drive used on 936000, 936000.

Hydro-gear Hydro drive used on models 936000, 936000, 936000, 936000 and the 536009 transaxle replacement package.

Gear Transaxle

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Gear Transmission

TRANSAXLE REMOVAL (Gear)

CAUTION: When raising tractor, block securely with jack stands under rear of frame

CAUTION: Use sturdy gloves or padding to protect hands when working with axles because keyways may be sharp.

Raise and block rear of tractor with tires off floor.

Remove hub caps, "E" rings, spindle cups, and wheels from axle shaft.

Remove washers, spacers and keys from axle shaft.

Remove rear tailboard from the rear of the tractor, Depress the clutch and remove the main drive belt from the transaxle.

Remove the (2) taptite at the front of the transaxle that secure it to the front torque mount.

Block transaxle, remove four cap screws securing transaxle to transaxle mount and remove transaxle from unit.

NOTE: Clean outside surfaces of transaxle thoroughly before proceeding to disassemble it.

Remove the shift link from the transaxle

Refer to the appropeate Manufacture repair information for you unit.

Peerless - Tecumseh

Tecumseh Products
900 North Avenue
Grafton WI 53024

Phone (414) 377-2700
Fax(414) 377-4485

Peerless Gear Drive Series 930-051 used in

Model # 936006, 936009, 936011.

Peerless Gear Drive Series 940-011a used in

Model # 936002, 936005, 936008.

DISK BRAKE REMOVAL

Refer to the appropeate Manufactures repair information for your unit.

Peerless Gear Drive Series 930-051

Model # 936006, 936009, 936011.

Peerless Gear Drive Series 940-011a

Model # 936002, 936005, 936008.

TRANSAXLE DISASSEMBLY

Refer to the appropeate Manufactures repair information for your unit.

Peerless Gear Drive Series 930-051

Model # 936006, 936009, 936011.

Peerless Gear Drive Series 940-011a

Model # 936002, 936005, 936008.

DISK BRAKE ASSEMBLY

Assemble per manufacture instructions, and adjust disk brake according to instructions in Clutch and Brake Section of this manual.

TRANSAXLE INSTALLATION (Gear)

Block transaxle under tractor frame, align holes with holes in transaxle mount and secure with four grade 5 3/8-16 X 2-3/4" cap screws and grade C lock nuts.

5/16-18 X 1/2" taptite is used to secure transaxle to front torque strap.

Install brake link and shift link to transaxle.

When installing rear wheels, be sure all burrs have been removed from axle. Place washer, spacer, washer and wheel on axle shaft. Align key way in wheel with key way in axle shaft and install 3/16x3/16x2" key. Secure wheel and spindle cup to axle with "E" ring.

Install hub cap on spindle cup.
Adjust brake according to instructions in Clutch and Brake Section before operating unit.

Hydro Transmission

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Hydro Transmission

NEUTRALIZER CHECK (Hydro)

With engine running and Transmission Disconnect engaged; test unit by placing Speed Selector in neutral (N) tractor must not move forward or backwards .

If movement (creeping) of tractor is noted stop engine and start the following neutral adjustments.

NEUTRAL ADJUSTMENT (Peerless and Hydro-gear.)

CAUTION: When raising tractor, block securely with jack stands under rear of frame.

Raise and block rear of tractor with both wheels off floor. Remove the left rear wheel on peerless drive units and right rear wheel on the Hydro-gear units.

Neutral adjustment,Peerless Hydro 1800

Place the shift lever in neutral, loosen 1/2-13 nut on left side of transaxle on the shift lever. Shift lever should be in the vertical position on the axle shift shaft. Start the tractor and release the clutch with someone on the seat. Rotate the shaft with a pin driver through the hole in the shaft behind the shift arm. Rotate forward and reverse, center between these two points when the rear wheels start to turn. Torque the 1/2-13 nut down on to the shift arm. Neutral should be set Repeat if necessary.

Neutral Adjustment, Hydro-gear

Place shift lever in neutral. Remove right rear wheel. Start Tractor and release the clutch pedal with some one in the seat. Move the speed selector plate front to rear until the rear wheels stop turning, center between these points and lock speed selector plate in place. Neutral should be set. Repeat if necessary.

Neutral Adjustment 536009

Place shift lever in neutral position. Remove right rear wheel. Loosen the two 3/8-16 cap screws on the shift arm to allow for neutral to be adjusted. Loosen jam nuts on ball joints on the transaxle. Start the tractor and release the clutch with someone on the seat. Adjust the ball joints till the rear wheels stop turning. Lock the jam nuts in place. Tighten the two 3/8-16 cap screw on the upper shift arm. Check neutral adjustment. Repeat if necessary.

WARNING: Rotating fan, keep hands, loose clothing and tool away or injury may result.

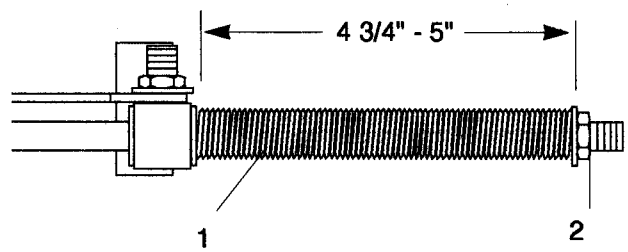
BRAKE ADJUSTMENT

Peerless Hydro, Hydro-gear.

The disc brake is located on the lower right side of the transaxle.

With tractor on a smooth level surface, speed selector in neutral "N" and the brake pedal released; ()n hydro units the dump valve will need to be in the dumped position).

Model 936003, 004 Peerless 1800 Hydro



1. Compression Spring
2. Jam Nut

To adjust, tighten disk brake nut until it stops. With the rear wheels off the ground, back off the nut until the rear wheels brake drag is eliminated.

Model 936003,004 Hydro-gear Replacement 536009.
Model 936010, 012 Hydro-gear

The brake was factor set for a specific running clearance.

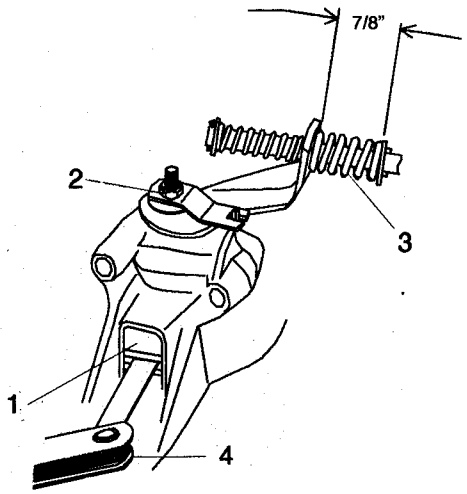
To check for proper setting, Place feeler gage between the two discs. With clutch/brake pedal released there should be from 0.015" to 0.025" clearance. If adjustment is needed, make the necessary adjustment with the adjustment nut, Clockwise to tighten, Counterclockwise to loosen.

Hydro Transmission

Brake Pedal

To Adjust brake pedal free play, tighten nut on end of brake rod until nut just contacts spring.

936010,012 Brake Spring



1. Disc Brake
2. Adjustment Nut
3. Compression Spring
4. Feeler Gage

The brake arm compression spring should be compressed to 7/8" with the brake in the "on" position.

SPEED SELECTOR

Speed selector will not return to neutral when the brake pedal is pushed. The 936000 series tractor has no automatic neutralizing device. To neutralized the shift lever has to manually be put into the neutral slot.

SPEED SELECTOR DISASSEMBLY (936003,004)

Rear deck, and gas tank will need to be remove from tractor to remove the speed selector.

Remove cap screws and washers securing outer arm to arm, and remove speed selector lever assembly from tractor.

Remove center lock nut and washer from end of speed selector lever. Remove the arm from shift rod. Remove the woodruff key from the shift rod and push shift rod bronze bushings in the brace in rear deck support.

SPEED SELECTOR DISASSEMBLY (936010,012)

Release shift lever tension spring from spring anchor to shift arm.

Remove shift lever from pivot rod by removing the 1/4-20 cap screw and bushings and remove from tractor.

Remove shift pivot\spring anchor rod by unbolting it from transaxle shift arm and remove from pivot holder.

Refer to the appropeate Manufacture Repair Information for your unit.

Peerless Hydro Drive 1800

Model # 936003, 936004.

Hydro-gear Hydro Drive

Model # 936010, 936012.

Hydro-gear Replacement Drive 536009

Model # 936003, 936004.

Hydro-gear, inc.
P.O. Box 530
Sullivan, IL 61951
Phone: (217) 728-7665
FAX: (217) 728-7665

Peerless - Tecumseh
Tecumseh Products
900 North Ave.
Grafton, WI. 53024
Phone: (414) 377-2700
Fax: (414) 377-4485

TRANSAXLE REMOVAL (HYDRO)

CAUTION: When raising tractor, block securely with jack stands under rear of frame

CAUTION: Use sturdy gloves or padding to protect hands when working with axles because keyways may be sharp.

Remove attachment from tractor then raise and block rear of tractor with tires off floor.

Hydro Transmission

Raise and block rear of tractor with tires off floor.

Remove hub caps, snap rings, spindle cups, wheels, washers, spacers and keys from axle.

Remove main and traction drive belt according to instructions in Engine and Drive Belt section.

Removal of rear deck and gas tank will be needed to ease in the removal of the transaxles.

Peerless 1800

Remove the tailboard from the tractor. Remove the cotter pin from the brake rod and remove.the brake rod from the brake arm. Remove the shift link from the transaxle shift arm Release the dump valve return spring. Release the front torque straps by removing the front two taptites. Support the axle and remove the (4) four 5/16-18 cap screws on the rear axle and remove the axle from the tractor.

Hydro-gear

Remove the rear tailboard from the tractor. Remove the brake arm from the side of the transaxle. Remove the shift arm from the transaxle. Release the front torque straps by removing the front two (2) cap screws on the transaxle. Support the axle and remove the four (4) cap screws on the rear axle, and remove the axle from the tractor frame.

536009 Hydro-gear axle kit.

Remove the tailboard from the tractor. Remove the cotter pin from the brake arm extension. Remove the ball joint from the axle shift arm. Remove the brake switch bracket and switch from the right side of the frame. Remove the Two (2) cap screws from the front torque straps. Support the transaxle and remove the four (4) 5/16-18 cap screws holding the axle to the frame. Lower the transaxle out of the frame

DISK BRAKE REMOVAL AND ASSEMBLY

Refer to manufactures repair information for the model machine that you own.

TRANSAXLE INSTALLATION (HYDRO)

Block transaxle under tractor frame. align holes with holes in transaxle mount and secure with four (4) grade 5, 3/8-16x2-3/4" cap screws and grade c lock nuts.

Secure the front of the trans axle with the appropitate hardware Models 936003, 936004 will use two (2) 5/16-18 x 1/2" taptite. Models 936010, 936012 will use one (1) 5/16-18 x 1 1/2 and one (1) 5/16-18x 2 1/2 grade 5 cap screws.

Install brake link and shift link to the transaxle. Install the brake switch bracket on the 536009 replacement axle units.

Reinstall the gas tank and rear deck to ease in the set-up and adjustment of neutral.

When installing rear wheels, be sure all burrs have been removed from axle. Place washer, spacer(s), and wheel on axle shaft. Align key way in the wheel with key way in axle shaft and install 3/16x3/16x2" key. Secure wheel and spindle cup to axle with "E" ring.

Install hub cap on spindle cup.

Adjust brake according to instructions in the clutch and brake sections before operating unit.

Adjust neutral per the neutral adjustment section.

Oil level Hydro-gear

The oil should be between 1.0 and 1.25" from the top of the housing. It may be checked by removing the expansion hose. Typically, an API classification SG/CD engine oil is used with a viscosity range equivalent to 20W50.

Start-up Sequence Hydro-gear

The following is suggested start-up sequence for new or repaired transaxles to assure proper operation.

1. Locate the tractor on a flat level surface to limit the chance of the tractor rolling while performing the following procedure.

2. actuate the bypass (freewheel control)

3. Start the engine and allow to run at low idle.

4. Stroke the shift lever forward for five seconds and then reverse for five seconds. Do this three times in

each direction.

5. Return the shift lever to neutral.

6. Disengage the bypass and drive the tractor forward and then reverse. Do this three times each way for a distance of approximately five feet.

7. Some tractors may require repeating the previous six steps to achieve proper operating performance.

Engine and Belt Drive Systems

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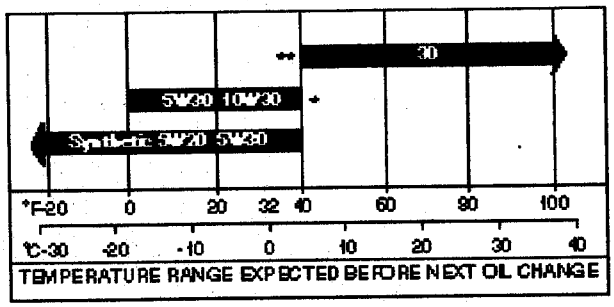
Engine/Belt Drive

ENGINE OIL

Use a high quality oil classified for Service SF, SE SD or SC. These oils keep engine cleaner and retard formation of gum and varnish deposits. DO NOT add anything to recommended oil.

Refer to engine owners manual for your model unit for recommended viscosity grades to use with temperature range anticipated before next oil change.



*If not available, a synthetic oil may be used having 5W-20 or 5W-30 viscosity.

SPARK PLUG

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

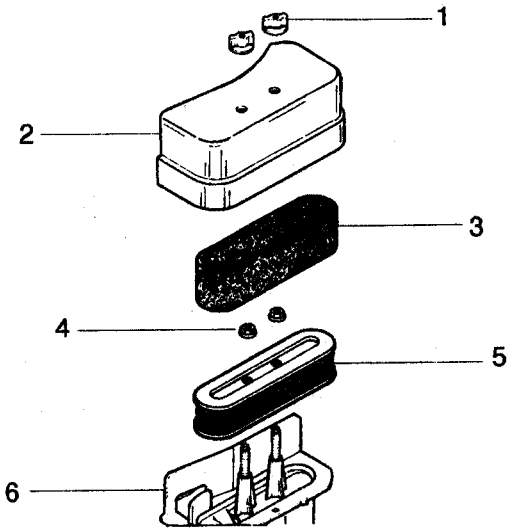
To clean, remove spark plug from engine, scrape or wire brush, and wash with a commercial solvent. DO NOT blast clean

NOTE: Sparking can occur if wire terminal does not fit firmly on spark plug. Re-form terminals if necessary.

MUFFLER

CAUTION: Worn out mufflers are more than just a noise nuisance and should be replaced immediately. Continued use could result in fire or explosion.

AIR CLEANER



1. Wing Nuts
2. Cover
3. Filter A (Foam)
4. Nuts
5. Filter B (Paper)
6. Body

IMPORTANT: DO NOT run engine with air cleaner removed. Operating engine with an extremely dirty air cleaner for only a brief period of time can cause engine damage. DO NOT blow dirt off paper cartridge with compressed air. This will damage cartridge.

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

Remove the air cleaner cover by removing screws, or lifting up and outward on tab depending on which type of air cleaner is on your engine.

Remove filter pre-cleaner and wash thoroughly in warm water and detergent. Rinse in clear water and wrap filter in clean cloth and squeeze (DO NOT twist) until dry.

Saturate filter pre-cleaner with engine oil and squeeze (DO NOT twist) to distribute and remove excess oil.

Clean inside of cover and air cleaner body. In stall filter, cover and secure.

Engine/Belt Drive

Refer to the appropeate Manufacture Repair and Technical Information For your Unit

Tecumseh Engine Powered Units
(936002, 003, 004, 005, 006, 007, 009, 010, 011, 012)

Briggs Engine Powered Units
(936008)

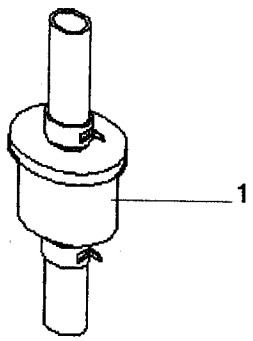
Peerless - Tecumseh

Tecumseh Products
900 North Ave.
Grafton WI> 53024
Phone: (414) 377-2700
Fax: (414) 377-4485

Briggs

Briggs&Stratton
P.O. Box 702
Milwaukee WI. 53201-0702
Phone: (414) 259-5333
Fax: (414) 259-5338

FUEL FILTER



1. Fuel Filter

WARNING: Gasoline is flammable and must be handled with care. DO NOT allow open flame, matches or smoking in area. Wipe up any spills.
Use approved (RED) fuel container.

Fuel filter should be replaced every season. (Refer to Gasoline Tank and Fuel Lines Section for removal.)

GASOLINE TANK AND FUEL LINES

CAUTION: Drain gasoline from tank and l ines before attempting removal of tank and lines to avoid spilling of gasoline.

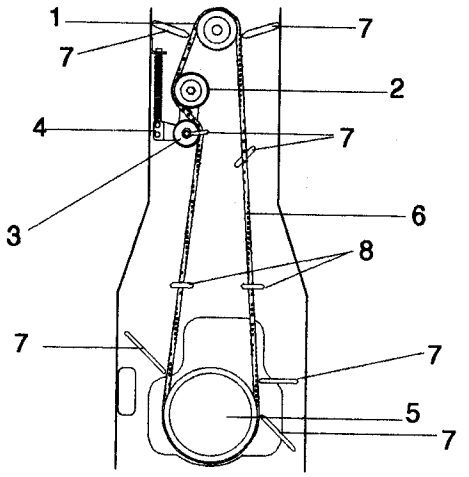
Remove hose clamp at fuel filter and drain gas from tank into an approved container.

Remove clamp on other side of fuel filter and remove filter draining gas into proper container.

Check lines and filter and replace as necessary.

GEAR TRACTION DRIVE BELT

WARNING: Stop engine, remove key and remove wire from spark plug before attempting to replace belts.



1. Engine Sheave
2. Vee Idler
3. Flat Idler
4. Clutch Idler Arm
5. Transaxle Pulley
6. Traction Drive Belt
7. Belt Finger (7)
8. Belt Guide (2)

Traction Drive Belt (Gear Drive)

GEAR MAIN DRIVE BELT

Remove front or center mounted attachment and attachment drive belt.

Set parking brake to releases main drive belt tension.

Engine/Belt Drive

Remove clutch anchor strap and clutch power plug.

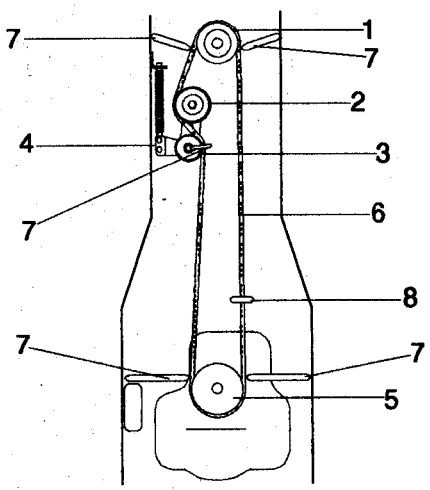
Remove the steering drag link.

Loosen the belt finger on the clutching idlers system.

Remove the drive belt from the unit.

Install new belt in reverse order, checking for belt alignment and clearance to belt finger on the clutching idlers and rear belt fingers..

HYDRO MAIN DRIVE BELT



1. Engine Sheave
2. Vee Idler
3. Flat Idler
4. Clutch Idler Arm
5. Transaxle Pulley
6. Traction Drive Belt
7. Belt Finger (5)
8. Belt Guide

Traction Drive Belt (Hydro)

Remove front or center mounted attachment and drive belt.

Set parking brake to release drive belt tension.

Remove clutch anchor strap and clutch power plug.

Remove the steering drag link.

Loosen the belt fingers on the clutching idler system.

Remove the drive belt from the unit.

Install new belt in reverse order, checking for belt alignment and clearance to belt finger on the clutching idlers and rear belt fingers.

ENGINE PULLEY AND PTO CLUTCH

Remove front or center mounted attachment and drive belt according to instructions appropriate section of this manual.

Remove cotter pin securing idler arm to idler pivot and remove idler arm, flange bushings and washers on the PTO clutch idler.

Remove cap screw and lock nut securing idler to idler arm and remove idler.

Remove the cap screw, lock washer and washer securing PTO clutch and engine pulley onto the engine crankshaft.

Check the clutch is operating correctly with proper coil resistance and brake wear.

Check the engine sheave for wear in the sheave and key areas.

Assemble in reverse order.

Engine/Drive Belts

IDLERS AND IDLER ARMS

Check all idler arms for proper operation, (travel square to the frame) . Verify that all idlers spin freely. Check all belt fingers are in there

Disconnect springs from idler arms. Remove hair pin securing idler arms to idler pivot and arms from unit.

Check all parts for wear or damage and replace as necessary.

Assemble in reverse order and refer to Engine and Belt Drive for adjustment.

Bearing mounted field clutch used on 936000 Series Tractor

Step 1 Measure Clutch Coil Resistance

1. Turn engine and PTO switch off.
2. Disconnect clutch wire connections
3. Select meter to check ohms.
4. Connect meter leads wires to clutch terminal.
5. If meter reads below 6.00ohms or above 8.00 ohms, then the clutch has failed and needs to be replaced.

If meter reads between 6.00 and 8.00 ohms proceed to step 2

Step 2 Measure Clutch Current Draw

1. Turn off engine
2. Disconnect clutch wire connections.
3. Select meter to check amps (10 amp scale).
4. Connect one meter lead wire the clutch wire.
5. Connect the other meter lead wire to the corresponding wire in the mating connector.
6. Connect a short wire to the other 2 connectors to complete the circuit.
7. Turn the PTO switch on with the key switch on and operator in the seat.
8. If the meter reads below 3.5 amps, the problem would be in the electrical system leading to the clutch (battery, relay, switch).

If you find after completing Steps 1 and 2 that:

1. The resistance falls between 6.00 to 8.00
2. The amp draw is 3.50 or above.
3. The electric clutch is within factory specifications and is not the source of the problem.

Burnishing Procedure for Electric Clutch/Brake (To be performed with mower deck attached.)

1. Run engine at 50% throttle.
2. Engage and disengage the clutch 5 times. (10 seconds/10 seconds off)
3. Increase to 75% throttle.
4. Engage and disengage the clutch 5 times. (10 seconds on/10 seconds off)

Electric Clutch (Removal)

Front or center mounted attachments should be removed from tractor.

Disconnect electric clutch lead and remove hardware securing clutch strap to frame.

Remove cap screw, lock washer, and flat washer securing Electric clutch to extension shaft.

Remove electric clutch from extension shaft.

Electric Clutch Disassembly

Disassemble the clutch removing the sheave section from the rotor. Check the bearing for proper operation. Check the rotor for excessive wear and rough surfaces.

Check the coil for proper readings and conditions of the coil windings.

Attachment Lift

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ATTACHMENT LIFT

Remove front or center mounted attachments from the unit.

Remove cotter pins from lift link and remove lift link from the tractor. Remove one center lift bracket by removing the carriage bolts holding it to the frame. With center lift bracket removed the center lift lever will be able to be removed from the under side of the frame.

Remove the battery and battery tray from the Dash tower.

Remove the steering wheel from the steering column and remove the upper support bearing in the dash tower.

Remove the steering column from the dash tower by removing the whole steering system. to allow access to upper lift system and ease removal of the lift lever.

Remove the Quadrant from the dash tower and steering bracket.

Push lift lever into dash tower and pull whole assemble out the left side of the tractor over the engine.

Remove the cotter pin that holds washer and flange bushing into the quadrant.

Remove the quadrant from the lift arm.

Check all remaining parts for wear and replace as necessary. Assemble in reverse order.

Rotary Mower

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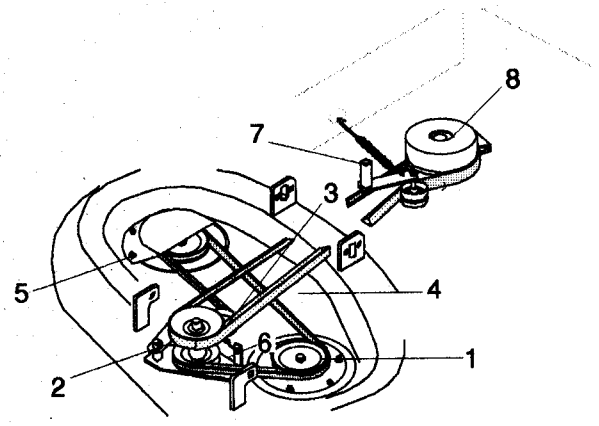
Rotary Mower

ROTARY MOWER REMOVAL

WARNING: Stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before attempting the following procedures.

Lower mower pan, release pto drive belt idler spring and remove pto drive belt. Raise the mower pan and place 2" by 4" blocks under the mower pan and lower the mower pan. Release adjustable lift links on mower pan from center lift hooks. Remove blocks from under the mower deck. Release the latch pins from the rear hanger bracket. Pull mower pan forward to release the mower from the front hooks. Raise front of tractor with floor jack and remove from under the tractor. Lower front of the tractor.

Mower spindle belt removal (40")



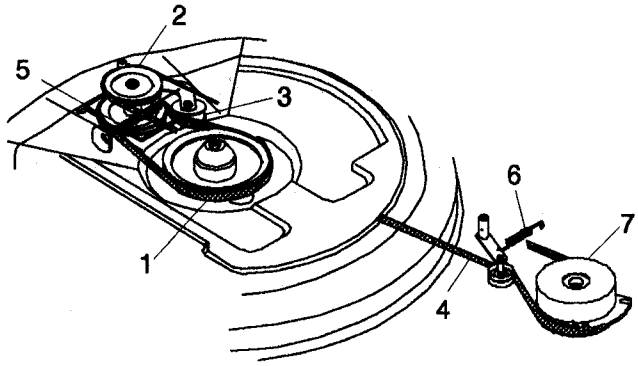
1. Mower Belt
2. Drive Pulley
Spring
3. Idler
4. Mower Drive Belt
5. Belt Cover
6. Mower Idler
7. Main Idler Spring
8. Electric Clutch

Remove spindle guard from the left side spindle.

Release idler tension spring from spring anchor.

Remove belt from mower deck, check idler for proper operation and that it is not rubbing on the deck.

Mower spindle belt removal (32")



1. Mower Belt
2. Drive Pulley
3. Idler
4. Mower Drive Belt
5. Mower Idler Spring
6. Main Idler Spring
7. Electric Clutch

32" Mower Belt Replacement

Release idler tension spring from spring anchor.

Remove belt from mower deck, checking for proper operation and that it is not rubbing on the deck.

MOWER SPINDLE REMOVAL 40", 32"

CAUTION: Use sturdy gloves or padding to protect hands when working with mower blade.

Remove idler tension spring from spring anchor. Remove mower pan spindle belt , check for glazing and cracking.Check jackshaft pulley assembly that it is spinning freely. Replace if necessary.

Remove jam nut under the blade, lock nut, support plate(40") blade, blade tray, retaining hub, bearing slinger, spindle key.

Remove spindle hardware and remove the spindle from the deck stamping. Press spindle shaft from spindle housing. Press spindle bearings from spindle housing, check all parts for wear, replace if necessary, assemble in reverse order.

Rotary Mower

MOWER BLADE

WARNING: Stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before attempting any maintenance procedures.

CAUTION: Wear of mower blade will cause structural weakness. **DO NOT** install new or replace ment vanes on worn blades.

CAUTION: Use sturdy gloves or padding to protect hands when working with mower blade.

Regularly check mower blade(s) for wear (vanes if used) and that lock washer is fully compressed by nut (requires 50-60 ft. lbs. of torque on nuts).

When blade needs sharpening, block blade to prevent rotation and remove nut, lock washer and blade from shaft

Sharpen both ends of blade at original angle (25 degrees), removing equal amounts of material from each end to maintain proper blade balance. New blades are balanced to within 1.3 ounces 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. Blades are available through your Ariens Dealer.

Install blade and lock washer and tighten nut until lock washer is fully compressed (requires 50-60 ft. lbs. of torque on nuts).

NOTE: If mower is used under sandy soil conditions, replace blades when air lifts become eroded through at ends.

SPINDLE HOUSING REMOVAL

Remove cap screws securing spindle housing to mower pan and remove spindle housing.

Remove retainer hub and key from spindle shaft. Remove spindle shaft and bearings from spindle housing.

Inspect all parts for wear or damage and replace as necessary.

Assemble in reverse order.

Remove seal, spacer and washers from drive plate shaft.

Inspect all parts for wear or damage and replace as necessary.

Assemble in reverse order.

SPINDLE HOUSING REMOVAL 40" 32"

Remove jam nut and lock washer securing blade and blade tray to spindle pulley and remove blade and tray. Remove retainer hub and key from spindle shaft. Remove spindle pulley from spindle housing. Remove cap screws securing spindle housing to mower pan and remove spindle housing. Remove bearing slinger, bearings, spacer and washers from spindle housing.

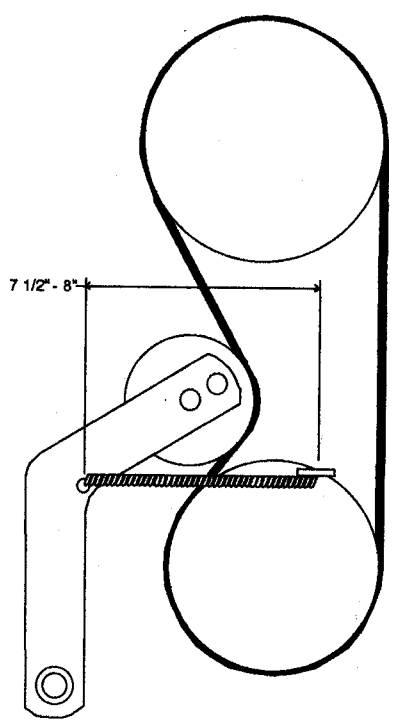
Check all parts for wear or damage and replace as necessary.

Assemble in reverse order.

MOWER BELT TENSION (32")

For proper mower belt tension the idler spring should be stretch from 7 1/2" to 8" in length.

32" Belt

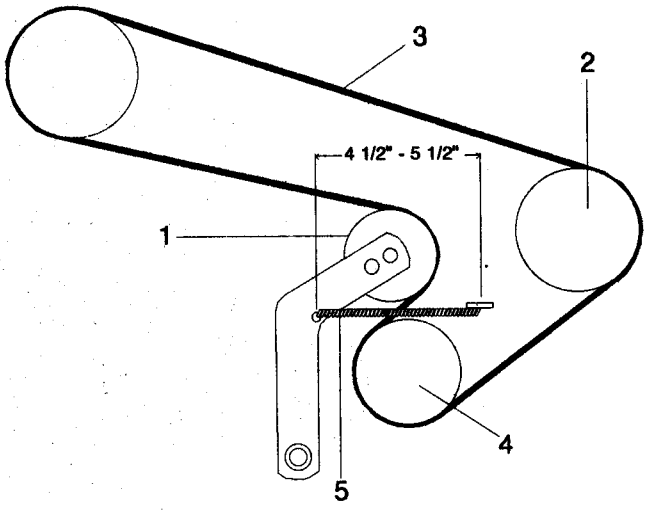


Rotary Mower

MOWER BELT TENSION (40")

For proper mower belt tension the idler spring should be stretch from 4 1/2" to 5 1/2" in length.

40"Belt



1. Idler
2. Mower Pulley
3. Mower Belt
4. Jackshaft Pulley
5. Idler Spring

MOWER BRAKE

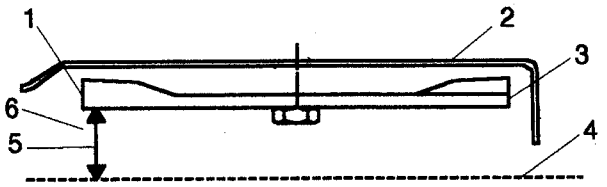
WARNING: With improper use, injury may result if Implement Power is disengaged "off"Mower and brake does not stop rotary mower blade(s) within 5 seconds.

Mower pan brake is part of the electric pto clutch. If the blades do not stop within the recommended time the clutch will need to be replaced.

LEVEL (SIDE TO SIDE)

WARNING: Stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before attempting the following adjustment procedures.

CAUTION: Use sturdy gloves or padding to protect hands when working with mower blade(s). Rotate mower blade with implement clutch disengaged (off) and take measurements with implement clutch engaged (on).



1. Cutting Tip
2. Mower Pan
3. Blade
4. Ground Level
5. Cutting Height
6. Discharge Chute

Mower Pan Leveling (Side to Side)

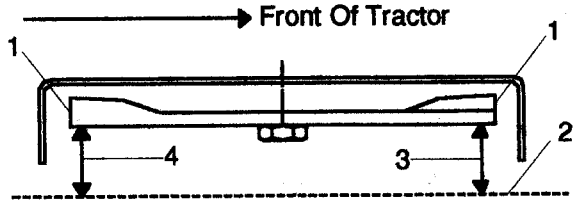
NOTE: A wood block (about 1" square by 5" long) may be used under pan for blade measurement. Wrap block with masking tape mark tape with cutting edge of blade and measure distance from end of block to mark(s). (This method avoids errors by having to read any measurements under pan.)

With tractor positioned on a smooth, flat, level surface and tire pressure properly set, preform the following procedures in order of appearance.

With blade(s) parallel to tractor wheels, measure distance of blade(s) tips to floor at right and left side of mower pan. Rotate blade(s) 180 degrees and check again. The measurement should be equal within 1/8 of an inch side to side.

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

PITCH



1. Blade Cutting Edges
2. Ground Level
3. Front Blade Height
4. Rear Blade Height

Mower Level and Pitch

Proper blade pitch is when blade tip is 1/4" to 3/8" lower at front of mower pan than when same tip is at rear of mower pan.

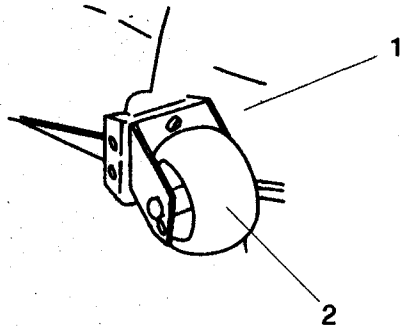
Mower Attachment Lift

Depress thumb pin and move attachment lift lever to rear
for maximum cutting height (3 1/2")on 32" and (4") on 40" mower pan. Depress thumb pin and move attachment lift lever to forward position for lowest cutting height (1"). Intermediate positions allow selection of cutting heights between these values.

Anti-Scalp Rollers (40" Mower Pan)

Secure rollers in middle position for average lawn mowing. Use lowest roller position when mowing in higher cutting heights and rough terrain to guard against most scalping. 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" above flat hard smooth surface after setting height of cut.



1. Mower Pan
2. Roller

Roller

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

Front Blade

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Front Blade

BLADE INSTALLATION

WARNING: Stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before attempting any maintenance procedures.

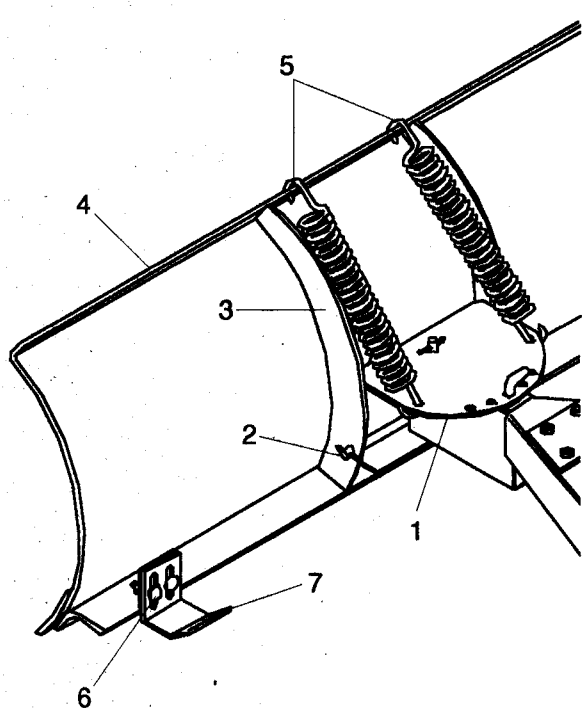
Lock tractor brake, raise attachment lift lever and remove ignition key.Remove the front bumper on the front of the tractor.

With tractor and blade attachment positioned on a flat surface, roll tractor into position over frame. Raise the rear of the blade frame and secure to front axle ears with latch pins on each side of frame.

Place lift handle plate to the right side of the lift lever and locate just above the upper bend in the lift lever. Secure lift handle plate to the lift lever with U-bolts, lockwashers, and nuts making sure that the hole for the lift strap is forward on the lift link lever.

Place one end of the lift strap into slot on lift brace using a washer on each side of the slot. Secure with a cotter pin.

BLADE ANGLE LEVER



1. Positioner
2. Rod
3. Rib
4. Blade
5. Springs
6. Hardware
7. Skid Shoe

Blade can be rotated to five different positions in mounting frame by pulling blade angle pin and manually angling the blade and reinserting the angle pin into the correct holes.

BLADE SKID SHOES

Skid shoes can be adjusted by loosening attaching bolts and moving shoes up or down. Always adjust both shoes evenly.

Shoes should be raised for smooth surface, lowered for rough terrain.

BLADE HEIGHT

Blade height range is 5" above ground level to 1-1/2" below ground level by setting attachment lift lever to desired position.

BLADE CUTTING EDGE

Blade edge is reversible by removing seven bolts and reversing blade.

Sno-Thro

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IMPORTANT: For stability and safe braking, wheel weights (80 pounds) or weight box (with 50 pounds minimum - 125 pounds maximum) MUST be installed on tractor when using Sno-Thro attachment. Both wheel weights (80 pounds) and weight box (125 pounds maximum) may be used, for a maximum total of 205 added rear weight. Too much rear wheel traction will result in drive train overload and possible damage.

NOTE: Tire chains are recommended for best traction when operating on ice and packed snow when using Sno-Thro attachment (they are NOT recommended for use on bare asphalt or concrete surfaces).

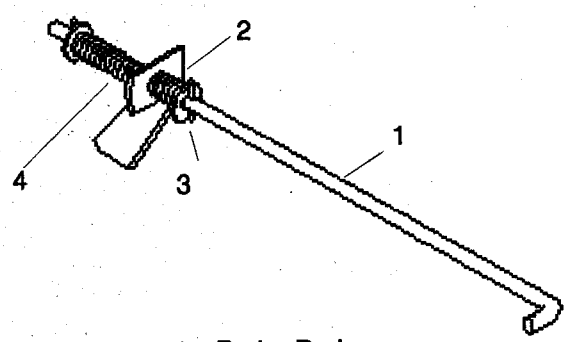
Preparation For Operation

When attaching the sno thro housing to the pivot frame, make sure that the double idlers are up and toward the large pulley before putting pivot rod through the pivot frame.

On models 936002, 936003, 936004, & 936005 before positioning belts on drive spindle, remove spindle shaft and pulleys. Add a washer (064042) next to lower pulley on spindle shaft. Reinstall pulley and spindle shaft making sure that the small pulley is on bottom.

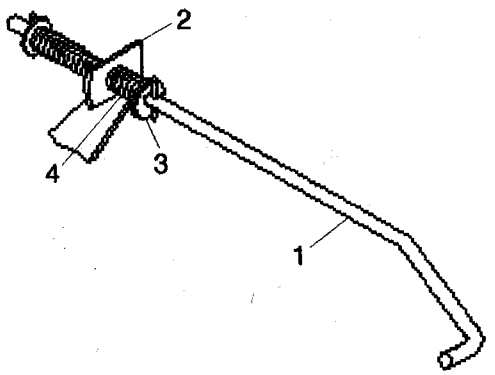
Tractor Preparation

On model 936010 S/N 000101 - 000231, remove brake rod and replace with brake rod that has a additional bend. Add two additional 1/16 thick washers as shown in figure 1B



1. Brake Rod
2. Transaxle Brake Arm
3. One Washer
4. Short Spring

Figure 1A: Existing Brake



1. Brake Rod
2. Transaxle Brake Arm
3. Three Washers
4. Short Spring

Figure 1B: Revised Brake

On model 936004 with a muffler to the right side of the engine, drill two holes as showed in figure 2. Secure chute crank support and brace plate to these new holes.

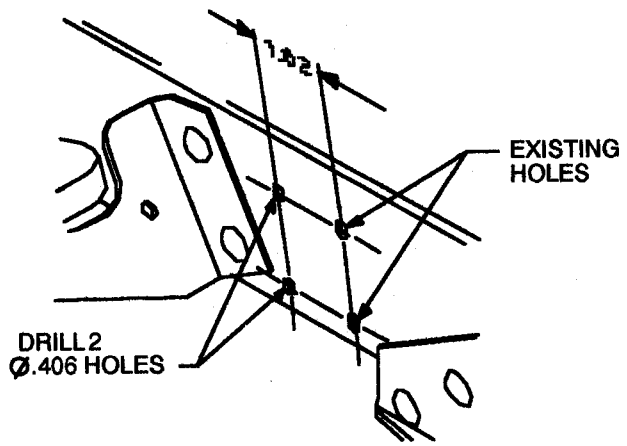


Figure 2

Installation

Remove bolt or taptite from right front engine mounting bolt. Place brace plate under main frame. Refer to figure 4, item number 5 of sno thro manual 036221. If taptite is used, replace with cap screw, washers and nut. But if the hole is a blind hole, do not use brace plate.

With housing and push frame assembly positioned on a flat level surface, roll tractor into position over

push frame with front of tractor over pivot support.

Latch quick disconnect latches into front of tractor frame.

Release the top of the gas cylinders from there anchors. Releasing of the gas cylinders will allow connecting of the front anchor point of the sno thro easier.

With the latch pins locked out, raise rear of the carriage frame and secure to tractor hanger brackets with latch pins (yokes straddles anger brackets).

With latch pins locked out, lift pivot frames into position on front axle support and release latch pins into front axle support.

Connect lift links to lift arms and secure with washers and cotter pins.

Attach front end of lift tube to the link on the pivot rod with a clevis pin and hair pin. Attach rear end of the lift tube to the actuator lever with clevis pin and hair pin

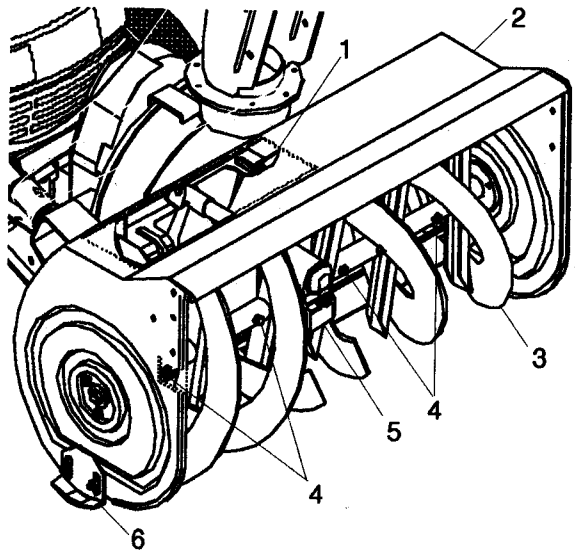
Connect PTO drive belt from tractor PTO clutch to upper pulley of drive spindle on push frame.

Manually lift front of auger/impeller housing and block it 3 to 4 inches from floor. Insert counterbalance gas cylinders onto anchor arm.

Secure chute crank support to frame side with cap screws and lock nuts.

SHEAR BOLT REPLACEMENT

WARNING: Stop engine, lower attachment, remove key and wait for moving parts to stop before leaving operator's position and attempting to maintain or inspect auger.



1. Impeller
2. Auger/Impeller Housing
3. Auger
4. Shear Bolts(s)
5. Auger Gear Case
6. Runner(s)

Shear Bolts

Occasionally an object may enter auger/impeller housing and jam auger, breaking shear bolts which secures auger to shaft. This allows auger to turn freely on shaft preventing damage to gear drive.

IMPORTANT: Use only Ariens Shear Bolts for replacement. Use of any other type of shear bolt may result in severe damage to unit.

To replace shear bolt, slide auger outward against roll pin and align hole in shaft with hole in auger (holes in shaft for roll pins and shear bolts line up). Drive shear bolt through hole (if shear bolt was broken this will drive remaining part from shaft) and secure with nut.

MULE DRIVE BELT

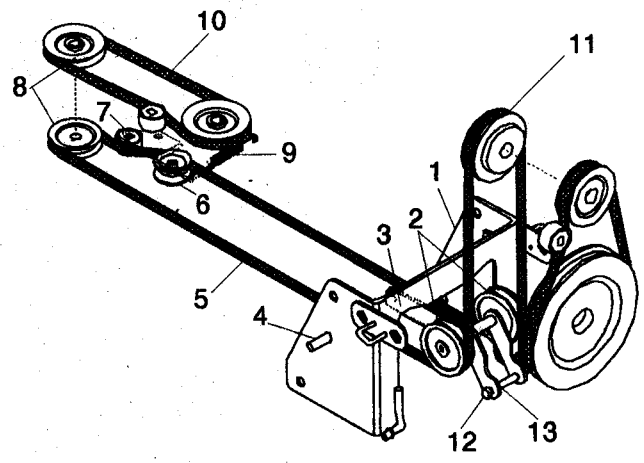
Remove belt guard hardware and guard from housing.

Release tension on flat idler and remove belt from "V" and flat idler on push frame.

Remove lower mounting rod and stabilizer strap from pivot support (to free mule drive belt from double idler).

Remove belt from drive spindle pulley and housing double pulley. Replace mule drive belt in reverse order; be sure belt seats properly in housing pulley, idlers, over lower mounting pin, around bottom groove in drive spindle pulley and around two idlers on idler bracket (flat idler rides against back of "V" groove and "V" groove idler against frame.

MULE DRIVE BELT

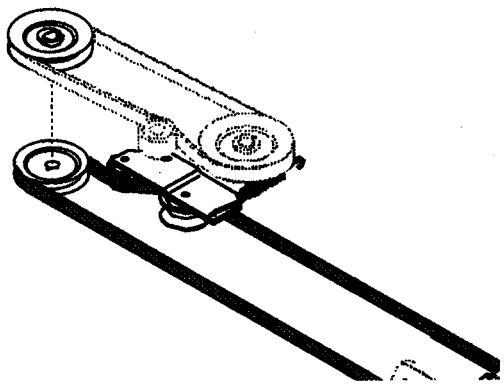


1. Pivot Frame
2. Double Idlers
3. Stabilizer Strap
4. Mounting Pin
5. Mule Drive Belt
6. "V" Idler
7. Flat Idler
8. Drive Spindle Pulley
9. Spring
10. PTO Belt
11. Double Pulley
12. Clevis Pin
13. Idler Bracket

Sno-Thro Belts

Mule drive belt idler spring is to extend 4 inches inside hook to inside hook. To increase tension position pivot pin (on idler assembly at bottom rear of housing) to next lower hole in mounting bracket.

POWER TAKE OFF (PTO) BELT



Release tension on push frame idlers and remove mule drive belt from drive spindle pulley.

With Implement Power control disengaged (OUT), loosen belt fingers at PTO pulley and at drive pulley and turn away from pulley.

Loosen cap screw in slotted idler bracket and slide idler away from belt.

Remove PTO belt from PTO and drive spindle pulley.

Replace PTO belt in reverse order and adjust according to instructions in Adjustments Section of this manual.

Position belt fingers on PTO and drive spindle pulley so that they clear belt by 1/16 of an inch.

PTO BELT ADJUSTMENT

With implement power clutch engaged, loosen stationary "V" idler cap screw, push idler against belt until space between belt at clutched idler is 1 to 1-1/2 inches and tighten cap screw.

AUGER/IMPELLER DRIVE BELT

Remove belt guard hardware and guard from housing.

Release tension on flat idler and remove mule drive belt from "V" and flat idler on push frame, and double pulley on auger/impeller housing.

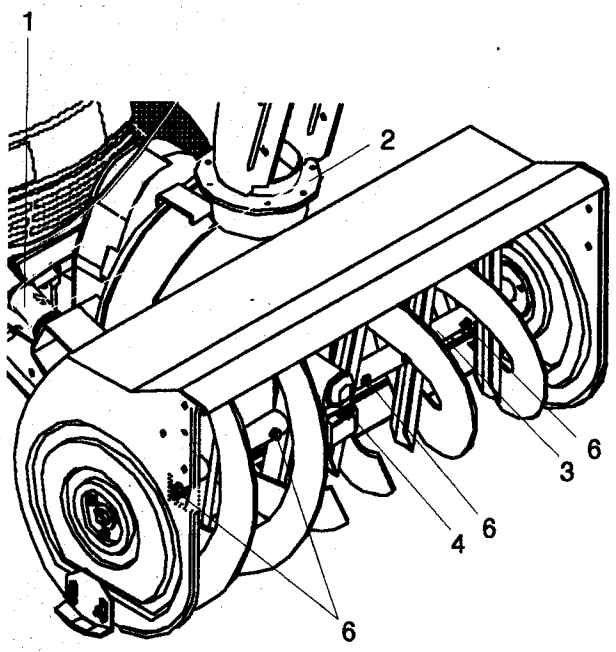
Pull spring loaded idler away from drive belt, remove belt from large lower pulley and top double pulley.

SNO-THRO BRAKE

WARNING: With improper use injury may result if implement power control is disengaged and brake DOES NOT stop auger/impellerwithin 5 seconds.

The Sno thro belt brake is part of the pto clutch. If clutch does not stop in 5 seconds the pto clutch will need to be replaced.

OIL AND GREASE LOCATIONS



1. Chute Spool (Grease)
2. Discharge Chute Base (Oil)
3. Auger Shaft
4. Gear Case (Ariens Special L-2 Gear Lubricant
5. Carriage Frame (Grease)
6. Shear Bolts (Grease)

Oil and Grease Locations

Scraper blade is adjustable to compensate for wear.

To adjust scraper blade, raise and block Sno-Thro securely. With runners adjusted to their full up position, loosen lock nuts retaining scraper blade, reposition it down, (flush with runners) and tighten lock nuts.

RUNNERS

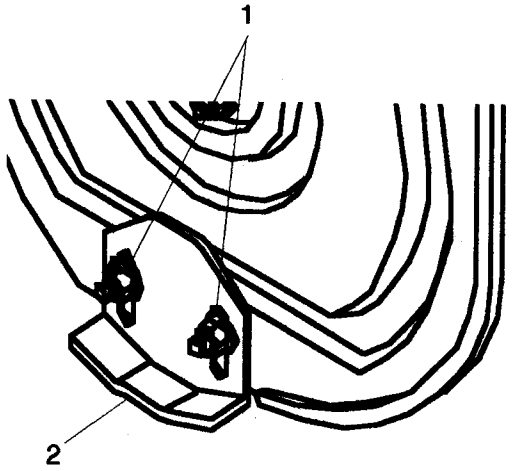
CAUTION: Adjust auger/impeller housing height to provide clearance over gravel or crushed rock surfaces to avoid throwing these objects.

Runners should be adjusted as conditions require. Raising or lowering runners controls distance scraper blade is held above surface to be cleared.

RUNNERS

When operating unit on gravel surface, lower runners so that housing will not pick up gravel. On concrete, Blacktopped or packed snow surfaces raise runners so that scraper blade scrapes clean. To reduce tendency of housing to ride up over heavy wet or hard-packed snow, remove runners and install in their narrow edge down position.

To adjust runners, place unit on a flat level surface and insert a spacer under center of scraper blade that will provide desired clearance, loosen runner hardware, raise or lower runners to surface unit is



1. Hardware
2. Runner(s)

Runner(s)

resting upon and tighten hardware.

NOTE: Uneven rear tire pressure or runner adjustment will result in uneven clearing.

DISCHARGE CHUTE CABLE

To adjust discharge chute cable loosen clamp, rotate discharge chute in desired direction (to stop) and reposition cable. Tighten clamp and replace guard.

AUGER/IMPELLER, GEAR CASE REMOVAL

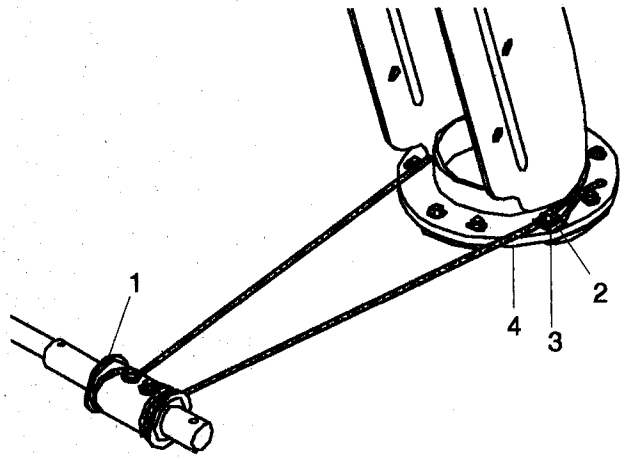
Remove taptite, washer, cap screw, washer and lock washer securing belt guard to housing and remove belt guard.

Remove belt from pulley.

Remove set screws securing pulley to worm shaft and remove pulley and woodruff key.

Remove three nuts securing flange bearing to housing and remove bearing.

Remove cap screw, lock washer, washer and flange bushing from ends of auger shaft.
Remove rib neck bolts and flange whiz lock nuts securing bearing supports to housing and remove



1. Chute Crank Spool
2. Cable Clamp
3. Long Taptite
4. Chute Clamp

Discharge Chute Cable

supports.

Pull auger/impeller and gear case from housing.

AUGERS

Remove two way lock nuts and shear bolts securing augers to auger shaft and remove augers.

IMPELLER

Drive roll pins securing impeller to worm shaft and remove impeller.

GEAR CASE

Remove four bolts from bearing flange.

Remove flange and gasket.

NOTE: At this point bronze gear cannot be removed.

Using bearing adjustment wrench remove adjustment plug.

While holding input shaft in one hand and using a mallet, strike case until bearing cone pops out of the case.

Bronze gear can then be removed from case.

After bronze gear is removed, input shaft can then be removed.

NOTE: It is not necessary to remove the end cap from case.

To remove worm gear and bearings, simply remove bolt and washer from end of shaft.

Check all parts for wear or damage and replace as necessary.

Assembly is done by inserting bronze and worm gear at same time.

Using adjustment wrench, tighten down on adjustment plug until input shaft is snug.

Replace side cover using a sealant on threads of two bottom bolts.

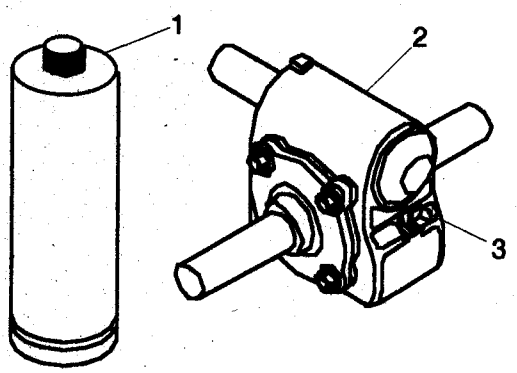
GEAR CASE LUBRICATION

Fill gear case with Ariens Special L-2 Gear Lubricant

(Part No. 000080) until level reaches bottom of threads in filler hole.

Check auger gear case lubricant level every 25 hours of operation.

To check, place unit in a warm location overnight to allow lubricant to flow to level. Remove filler plug. Lubricant must be at least up to bottom of filler hole with unit resting on a level surface (extra lubricant will not damage gear case).



1. Ariens Gear Lube L-2
2. Auger Gear Case
3. Lube Fill

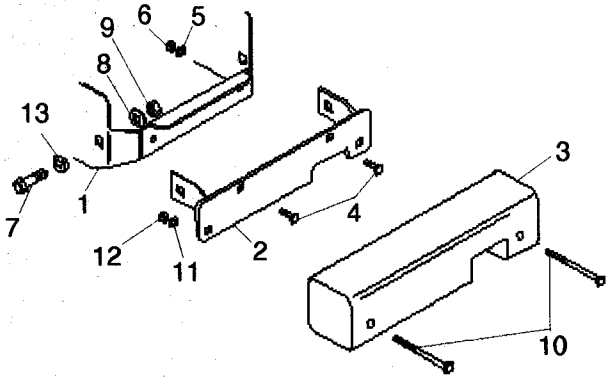
Auger Gear Case

Bagger Vac

Table of Contents

32" & 40" Bagger-Vac

Front Weight Installation



1. Tractor Frame
2. Adapter Plate
3. Counter Weight
4. Carriage Bolt 3/8-16 x 1"
5. Lockwasher 3/8
6. Hex Nut 3/8 - 16
7. Cap Screw 5/8-11 x 1 1/4"
8. Lockwasher 5/8
9. Hex Nut 5/8 - 11
10. Carriage Bolt 7/16 - 14 x 4 1/2
11. Lockwasher 7/16
12. Hex Nut 7/16 - 14
13. Washer 5/8

Front Weight Installation

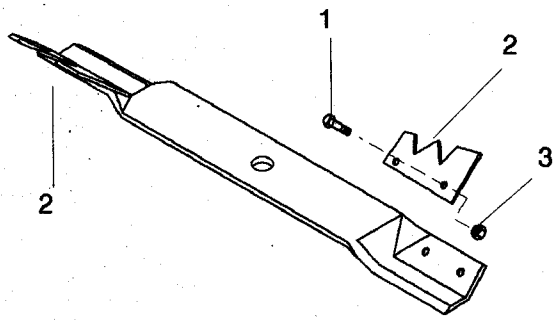
Remove front bumper, spacer, and hardware from the tractor.

Install the adapter plate to the tractor frame using the carriage bolts, flat washers, lockwashers, and nuts supplied.

Attach the counter weight to the adapter plate with carriage bolts, lockwashers, and nuts provided.

Vane Installation

Since vanes generally require more power and generate more noise Ariens Company recommends that user try mower without vanes first. If performance is satisfactory, use bagger without vanes. Generally, broad leaf grasses can be cut and bagger without vanes. Fine grasses or extremely damp conditions may require vanes.



1. Cap Screw 5/16-24 x 3/4 Gr 8
2. Vane
3. Top Lock Nut 5/16-24 Gr C

Vane Installation

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

CAUTION: Special cap screws 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 x3/4" cap screws from top down with top lock nuts on bottom.

CAUTION: When rotating blade by hand wear heavy gloves to prevent accidental cutting of hands.

IMPORTANT: When using vanes, there must be at least 1/4" clearance between top of vanes and top of pan at the rear on 40" mower.

Check clearance by carefully rotating mower blade by gloved hand while measuring distance between blade vane and top of mower pan.

If proper clearance cannot be obtained, check blade and spindle assembly for wear or damage. Repair or replace as required.

Bagger Assembly

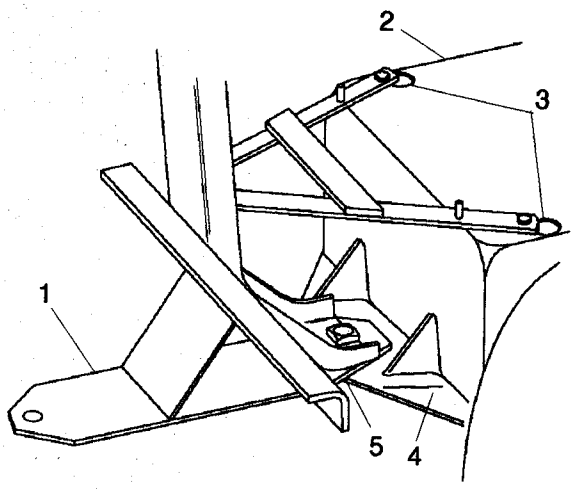
Hook frame in the slots on the tractor frame. Secure frame mounting bracket to tractor drawbar with one (1/2-13x3/4 cap screw.

Secure bagger assembly onto frame mounting bracket with wing nuts on cap screws at top of service bar and hair pin at bottom.

Snap upper boot into stationary cover from the inside out and rotate into the proper position.

Slide bagger baskets into position on the tube frame then lower and secure cover with hooks through eye of eye bolts. (Make sure that covers fit together properly.)

32" & 40" Bagger-Vac



1. Bagger Frame
2. Tractor Frame
3. Slots
4. Drawbar
5. Capscrew 1/2 - 13 x 3/4

Bagger Frame Assembly

CAUTION: DO NOT operate mower without bagger cover closed and secured, collector boot and tube fastened securely or chute deflector in operating position.

CAUTION: Prior to each usage check bagger parts for structural damage, wear of deterioration. Replace ONLY with Ariens original service parts.

WARNING: Front counter weight must be installed to insure sufficient stability during operation.

Grass bagger baskets are designed to all use of standard 30 gallon heavy weight trash bags as liners. Liners are placed into baskets and wrapped over edges of baskets. When full, they may be tied up while in the basket and then removed for disposal.

NOTE: Fore ease of removal of full liner, remove basket with liner from unit, lay them on their side and slide liner out of basket.

When starting to bag grass, start unit at a slower than normal ground speed with throttle set at fast engine speed. Use speed selector to increase speed slowly for best cutting and bagging action. Generally, first to third ground speed are best for cutting and bagging grass. Best bagger performance requires mower deck, boot and tube to be clean and free of debris build up.

High moisture content grasses will necessitate more frequent cleaning of mower pan and bagger parts.

With lush, extra heavy or wet grass, it may be necessary to make two cutting passes. First cut with the mower set at its highest cutting height (maximum cutting height from ground surface) and the recut grass at a lower setting.

If bagger tube or boot plugs, momentarily stop tractor forward movement and allow tube to clear itself.

WARNING: If tube or boot does not clear, disengage mower clutch, stop engine, remove key and wait for rotating parts to stop before attempting to clear by hand.

Remove tube and boot (if plugged) from unit to clear.

Bagger works best when bagging dry grass. (Between 10 A.M. and 6 P.M. when dampness has left in the morning but before evening dew).

Use full throttle setting on tractor at all times when bagging. This provides best air flow in bagger.

check tire pressure regularly. uneven tire pressure may cause uneven grass cutting.

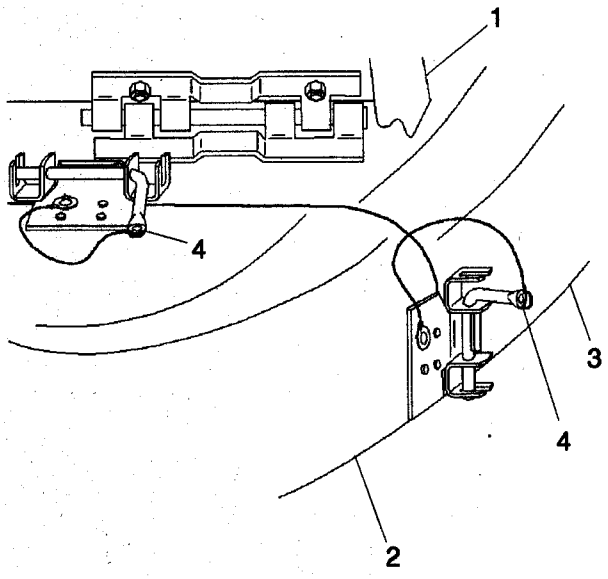
Check all hardware at regular intervals for tightness.

Periodically check mower blade and vanes (if used) for wear.

Prior to each use check bagger parts for structural damage, deterioration or wear, replace only with Ariens original service parts.

Lower Boot Installation.

Model 836003 Only



1. Deflector
2. Lower Boot
3. Mower Pan
4. L-Pins

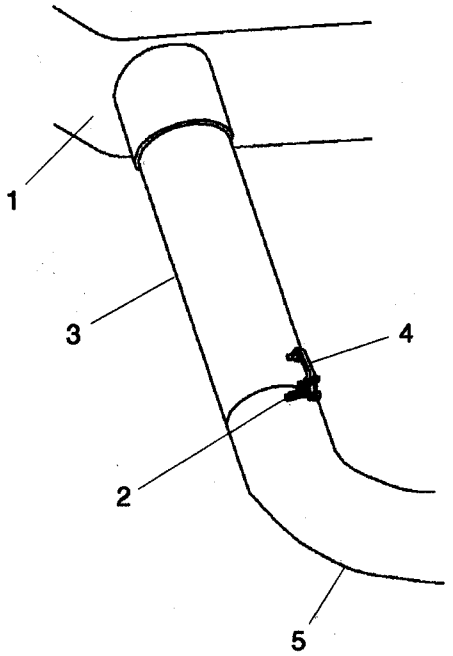
Lower Boot Installation

Lift deflector and slide lower boot into place. Secure boot to mower pan with both L-pins.

Model 836003 Only

Remove the deflector and hinge from the mower deck. Position lower boot so the rear pan clips are in line with the clips riveted to the boot. Place boot in front clip. Rotate boot counterclockwise until rear pan clips are seated properly in the boot clips. Secure boot with L-pin.

Bagger Tube Installation



1. Upper Boot
2. Tube Retainer
3. Tube
4. Handle
5. Lower Boot

Bagger Tube Installation

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.

Ask your dealer for information about these other fine Ariens Products:

- Front and Rear Tine Tillers
- 21" Walk-Behind Lawn Mowers
- Walk-Behind Sno-Thros
- Rear Engine Riding Mowers
- Yard and Garden Tractors
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