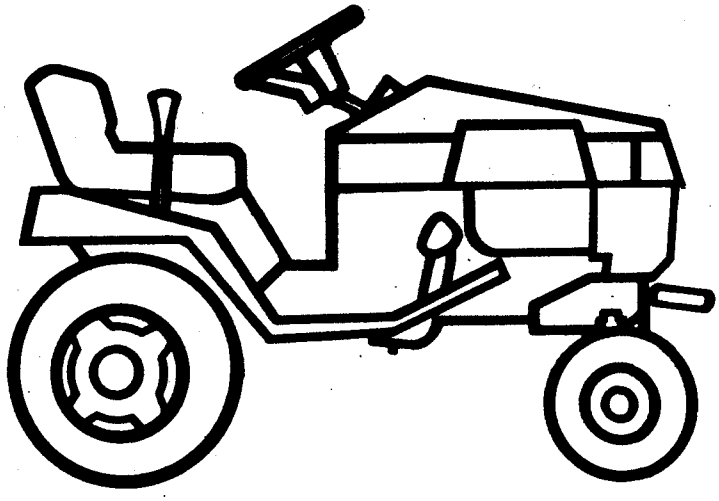
Ariens 934 Series

HT Hydro Garden Tractor

Service Manual



Ariens Service

A Message To Ariens Repair Manual User

Your Ariens Dealer will be happy to supply any service or advice which may be required to keep your Ariens equipment operating at peak efficiency. He stocks genuine Ariens 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 Ariens equipment and is ready and able to serve you. If engine repair or service are required, they can be obtained from an Ariens dealer or from an authorized engine manufacturer's service center. 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 Ariens Dealers' trained servicemen and serves as a supplement to and reminder of training sessions conducted by Ariens 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 Ariens 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 Ariens Service manual is arranged for quick, easy reference and is 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 consists 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 incidences 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 at the end of this Introduction.

Service Bulletins

In addition to the information contained in this Ariens Service Manual, Ariens Service Bulletins are issued to Ariens 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 genuine Ariens 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 the manual was approved for printing. Ariens company reserves the right to discontinue models without notice and without incurring obligation. The equipment identified as either standard or optional and the various illustrations may not all be applicable to your unit. If you have questions, always check with your Ariens dealer.

Part No. 934-RM-89
Manual Part No. 000146
Printed in U.S.A. 8-89

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 - BECOME ALERT - HEED ITS MESSAGE.

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 instructions could result in severe personal injury.

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

Safety Precautions

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 procedures 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, etc.) 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 repair 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 condition. Be sure all fasteners 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 an open flame or spark. Allow engine to cool before storing in any enclosure.

Index

Notes

Specifications

Length	66.75"
Height	46.5"
Width	39.25"
Wheelbase	48.5"
Turning Radius	24.63
Shipping Weight (Approx.)	640 lbs.
Curb Weight	518 lbs.
Cutting Width	42" - 48" or (60" HT 18)
Engine HP and RPM	16 or 18 HP - 3250 RPM
Fuel and Capacity	Unleaded - 4.14 Gallons
Engine Oil	SAE 30 Wt. Summer
	SAE 10 Wt. Winter
Spark Plug Gap	Kohler: .025"
Air Cleaner	Duel Element
Transaxle	Hydrostatic
Transaxle Fluid	SAE 20W Motor Oil
Forward Speed	Variable 0 to 7.5 M.P.H.
Reverse Speed	Variable 0 to 3.2 M.P.H.
Travel Brake	Multi-Disc
Steering	Gear and Sector
Front Tire	15-6.00 X 6
Rear Tire	23-10.50 X 12
Tire Pressure	Load = Light - Medium - Heavy
	Front = 8 psi - 12 psi - 16 psi
	Rear = 6 psi - 8 psi - 10 psi

Tools

Hammer
Flat Screw Driver (Meduim)
Pliers
Socket Set (1/2" , 9/16" , and 3/4")
2 - 7/16" Combination Wrench
2 - 1/2" Combination Wrench
2 - 9/16" Combination Wrench
1 - 3/4" Combination Wrench
3/16" Roll Pin Driver
Spark Plug Wrench
.025 or .030 Feeler Gauge
1-1/8" Wrench for Blade
Snap Ring Pliers

Torque Values

Common bolts and nuts. Tightening Torque ± 20%

SIZE	GRADE 2	GRADE 5	GRADE 8
1/4-20	70 in.-lb.	115 in.-lb.	165 in.-lb.
1/4-28	85 in.-lb.	140 in.-lb.	200 in.-lb.
5/16-18	150 in.-lb.	250 in.-lb.	350 in.-lb.
5/16-24	165 in.-lb.	270 in.-lb.	30 ft.-lb.
3/8-16	260 in.-lb.	35 ft.-lb.	50 ft.-lb.
3/8-24	300 in.-lb.	40 ft.-lb.	60 ft.-lb.
7/16-14	35 ft.-lb.	55 ft.-lb.	80 ft.-lb.
7/16-20	45 ft.-lb.	75 ft.-lb.	105 ft.-lb.
1/2-13	50 ft.-lb.	80 ft.-lb.	115 ft.-lb.
1/2-20	70 ft.-lb.	105 ft.-lb.	165 ft.-lb.
9/16-12	75 ft.-lb.	125 ft.-lb.	175 ft.-lb.
9/16-18	100 ft.-lb.	165 ft.-lb.	230 ft.-lb.
5/8-11	110 ft.-lb.	180 ft.-lb.	260 ft.-lb.
5/8-18	140 ft.-lb.	230 ft.-lb.	330 ft.-lb.
3/4-10	150 ft.-lb.	245 ft.-lb.	350 ft.-lb.
3/4-16	200 ft.-lb.	325 ft.-lb.	470 ft.-lb.

Electrical

Table of Contents

List of Illustrations

Electrical

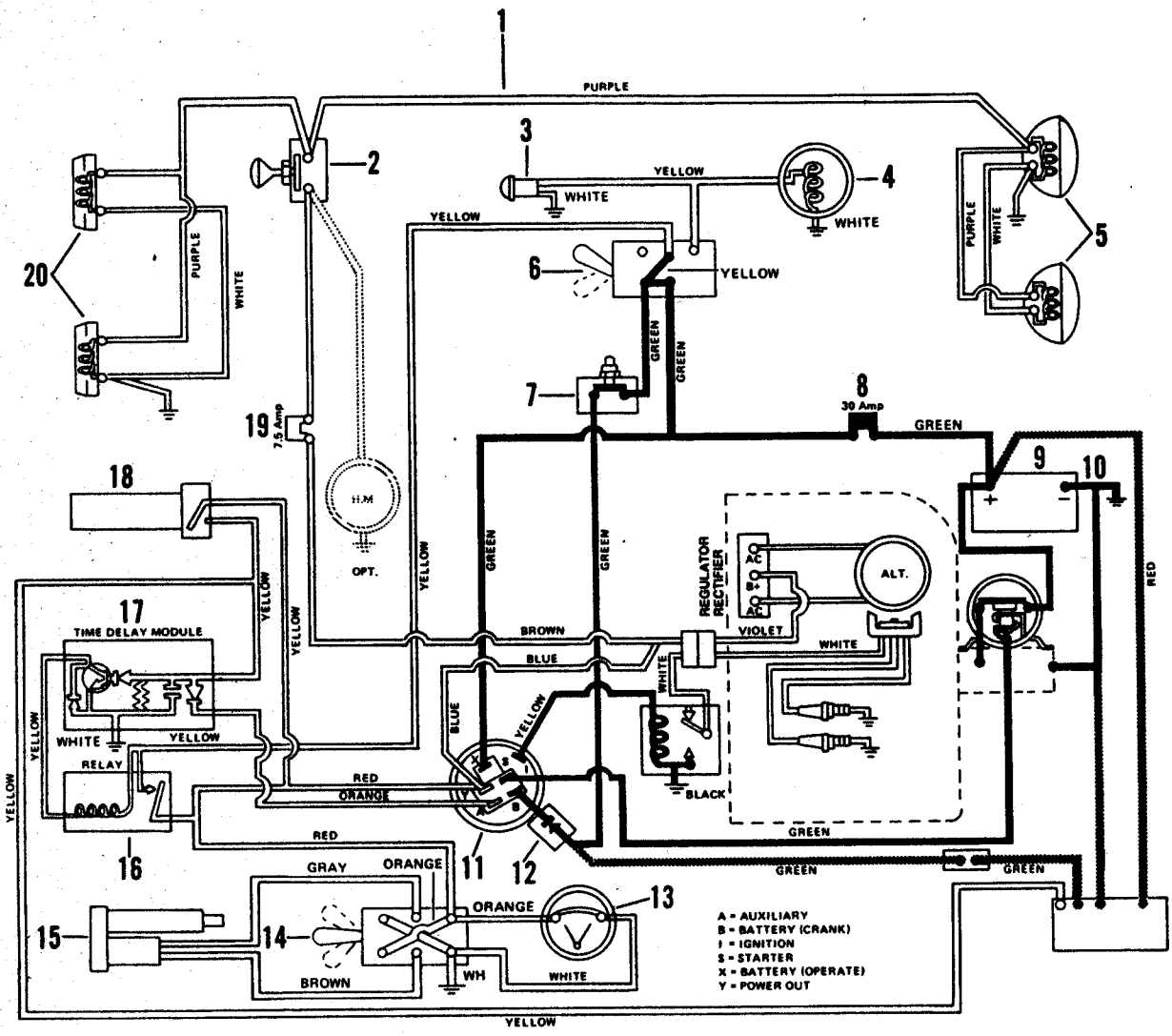


Figure 2-1: Cranking Circuit

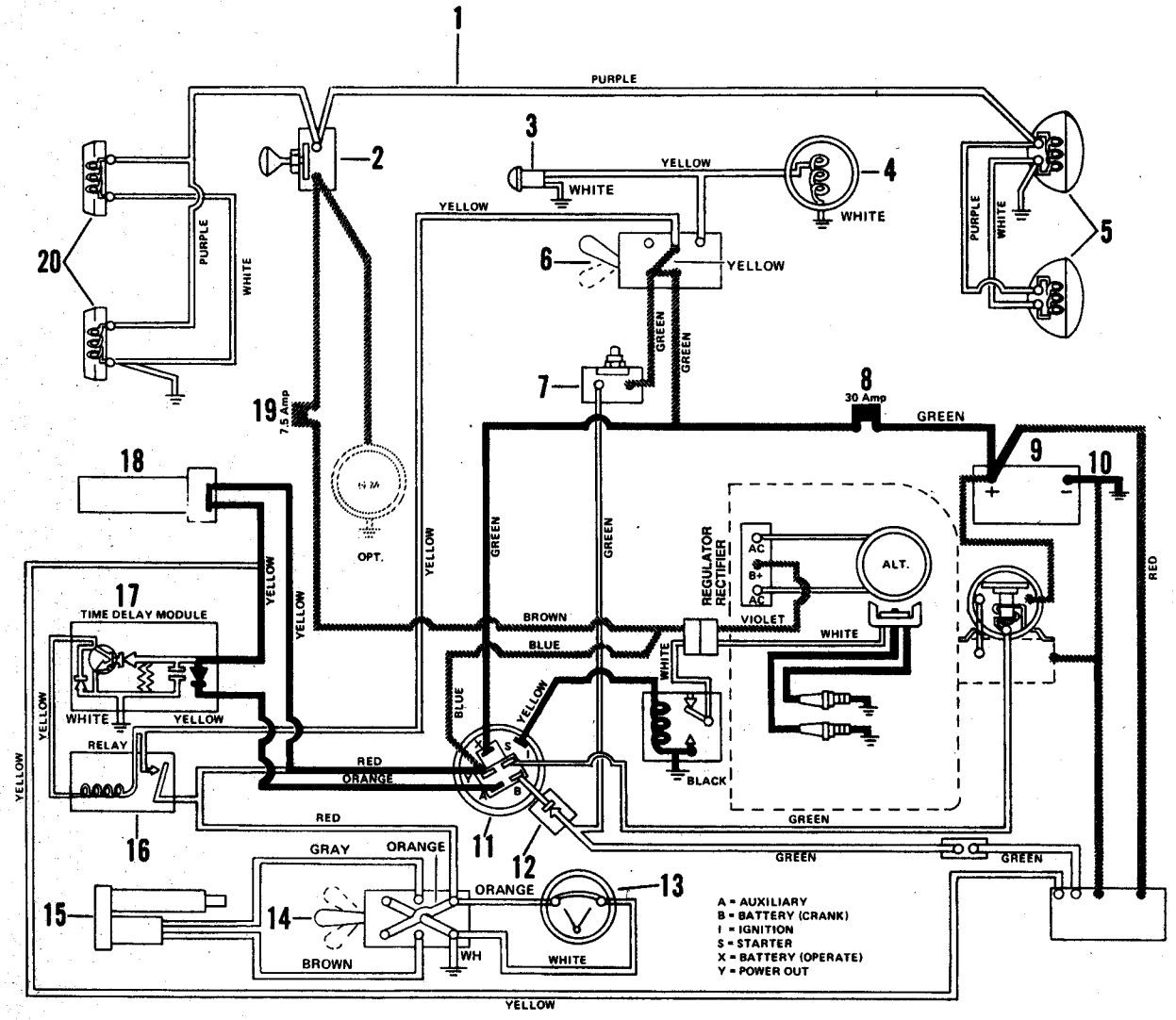


Figure 2-2: Running Circuit

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Wiring Harness	1	11	Switch Assembly	1
2	Light Switch	1	12	Diode Assembly	1
3	P.T.O. Indicator Light	1	13	Voltmeter	1
4	Electric Clutch	1	14	Lift Switch Assembly	1
5	Headlight Bulb	2	15	Actuator	1
6	P.T.O. Switch	1	16	Relay	2
7	Safety Switch	1	17	Time Delay Module	1
8	30 Amp Fuse	1	18	Seat Switch	1
9	Battery	1	19	7.5 Amp Fuse	1
10	Ground Cable	1	20	#168 Wedge Base Tail Light Bulb	2

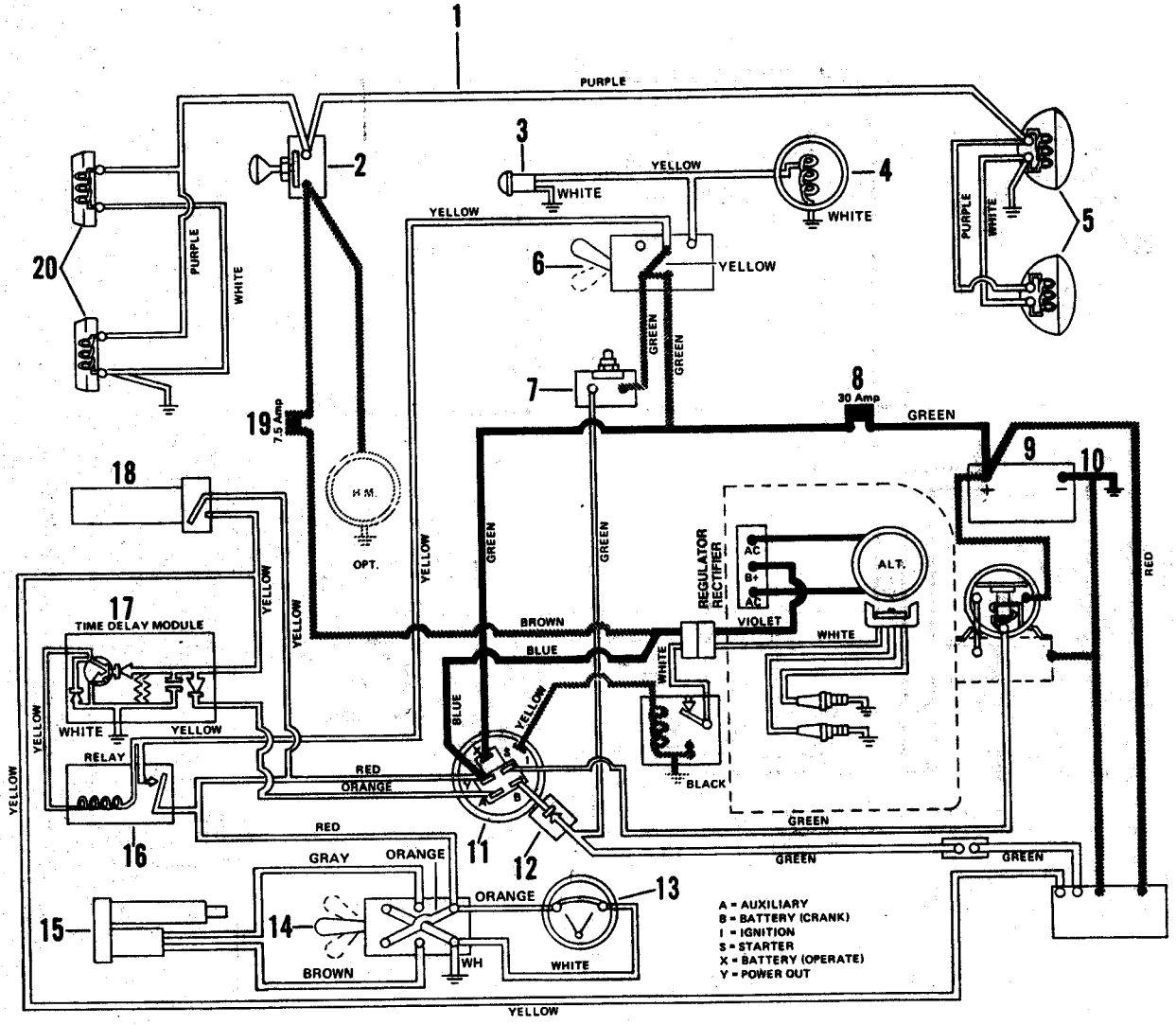


Figure 2-3: Charging Circuit

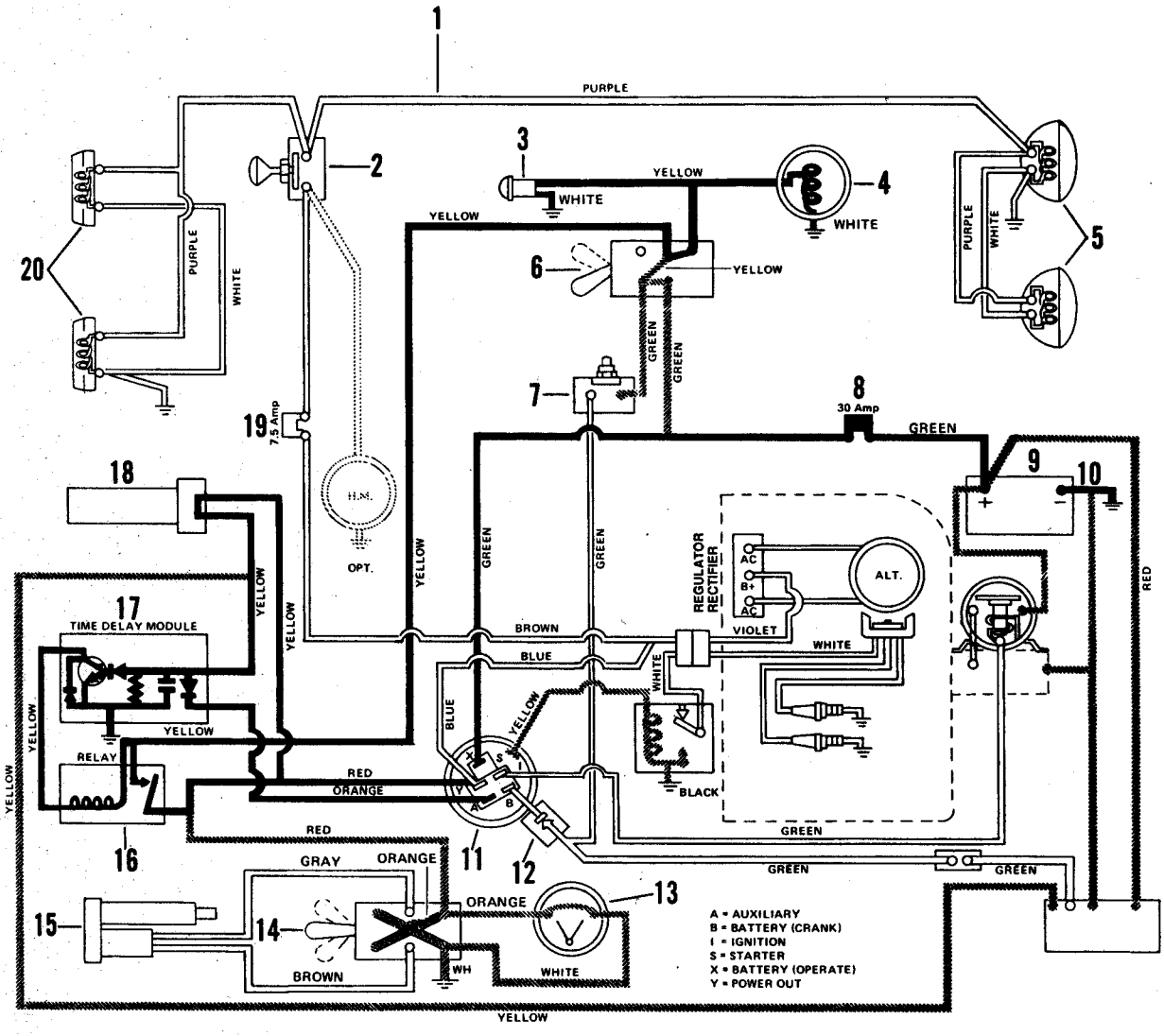


Figure 2-4: PTO Circuit

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Wiring Harness	1	11	Switch Assembly	1
2	Light Switch	1	12	Diode Assembly	1
3	P.T.O. Indicator Light	1	13	Voltmeter	1
4	Electric Clutch	1	14	Lift Switch Assembly	1
5	Headlight Bulb	2	15	Actuator	1
6	P.T.O. Switch	1	16	Relay	2
7	Safety Switch	1	17	Time Delay Module	1
8	30 Amp Fuse	1	18	Seat Switch	1
9	Battery	1	19	7.5 Amp Fuse	1
10	Ground Cable	1	20	#168 Wedge Base Tail Light Bulb	2

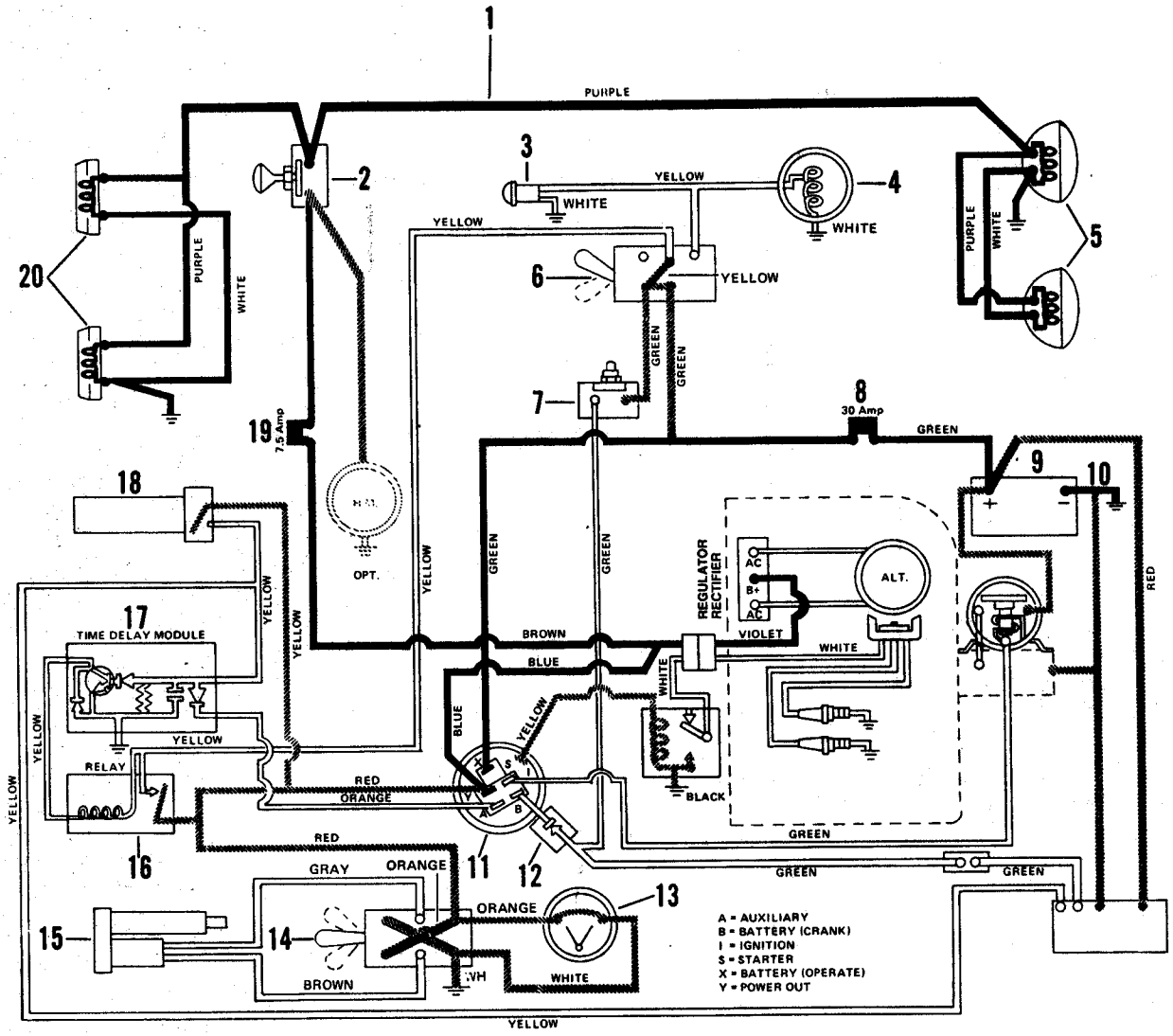


Figure 2-5: Lighting Circuit

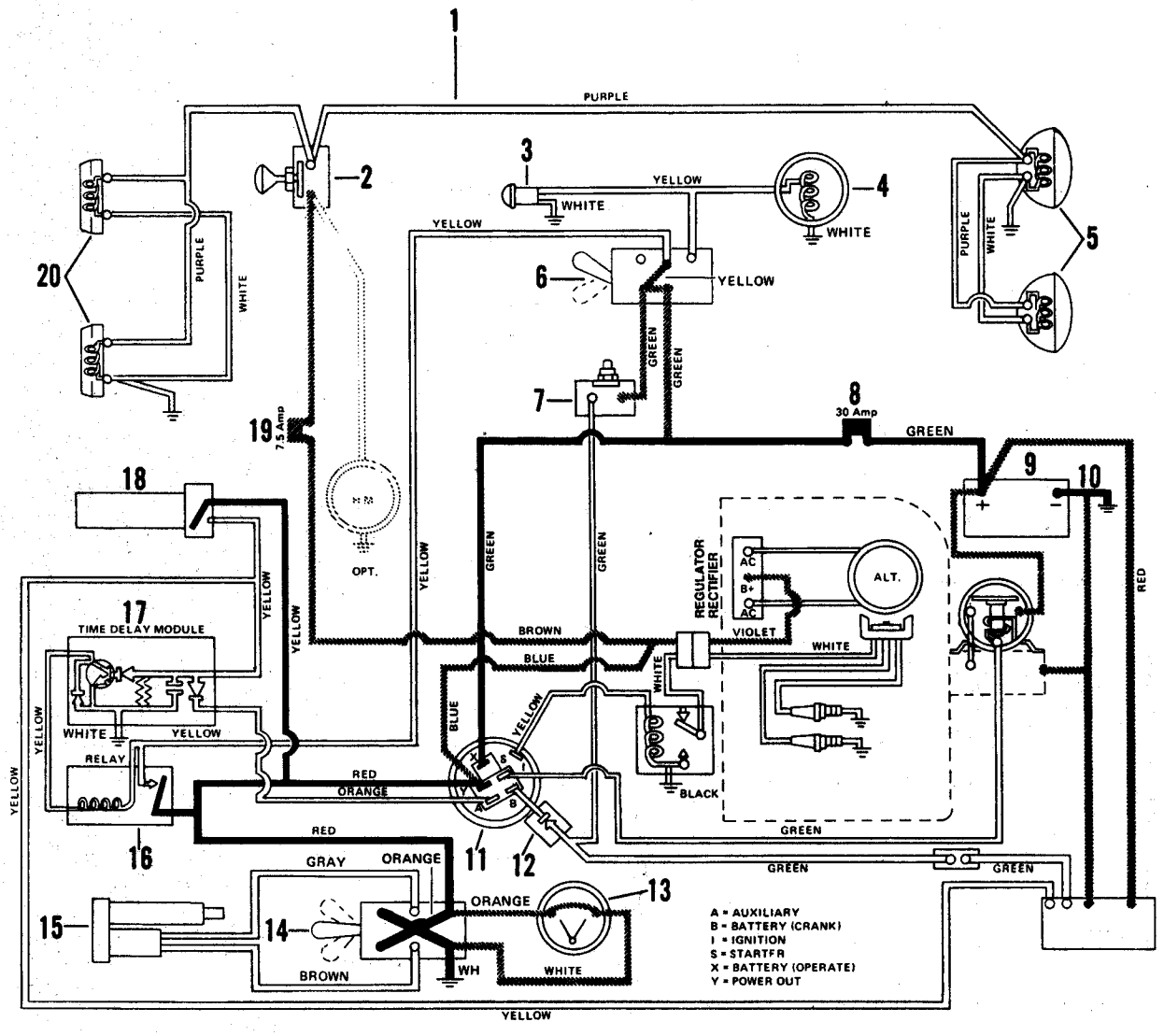


Figure 2-6: Electric Lift Circuit

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Wiring Harness	1	11	Switch Assembly	1
2	Light Switch	1	12	Diode Assembly	1
3	P.T.O. Indicator Light	1	13	Voltmeter	1
4	Electric Clutch	1	14	Lift Switch Assembly	1
5	Headlight Bulb	2	15	Actuator	1
6	P.T.O. Switch	1	16	Relay	2
7	Safety Switch	1	17	Time Delay Module	1
8	30 Amp Fuse	1	18	Seat Switch	1
9	Battery	1	19	7.5 Amp Fuse	1
10	Ground Cable	1	20	#168 Wedge Base Tail Light Bulb	2

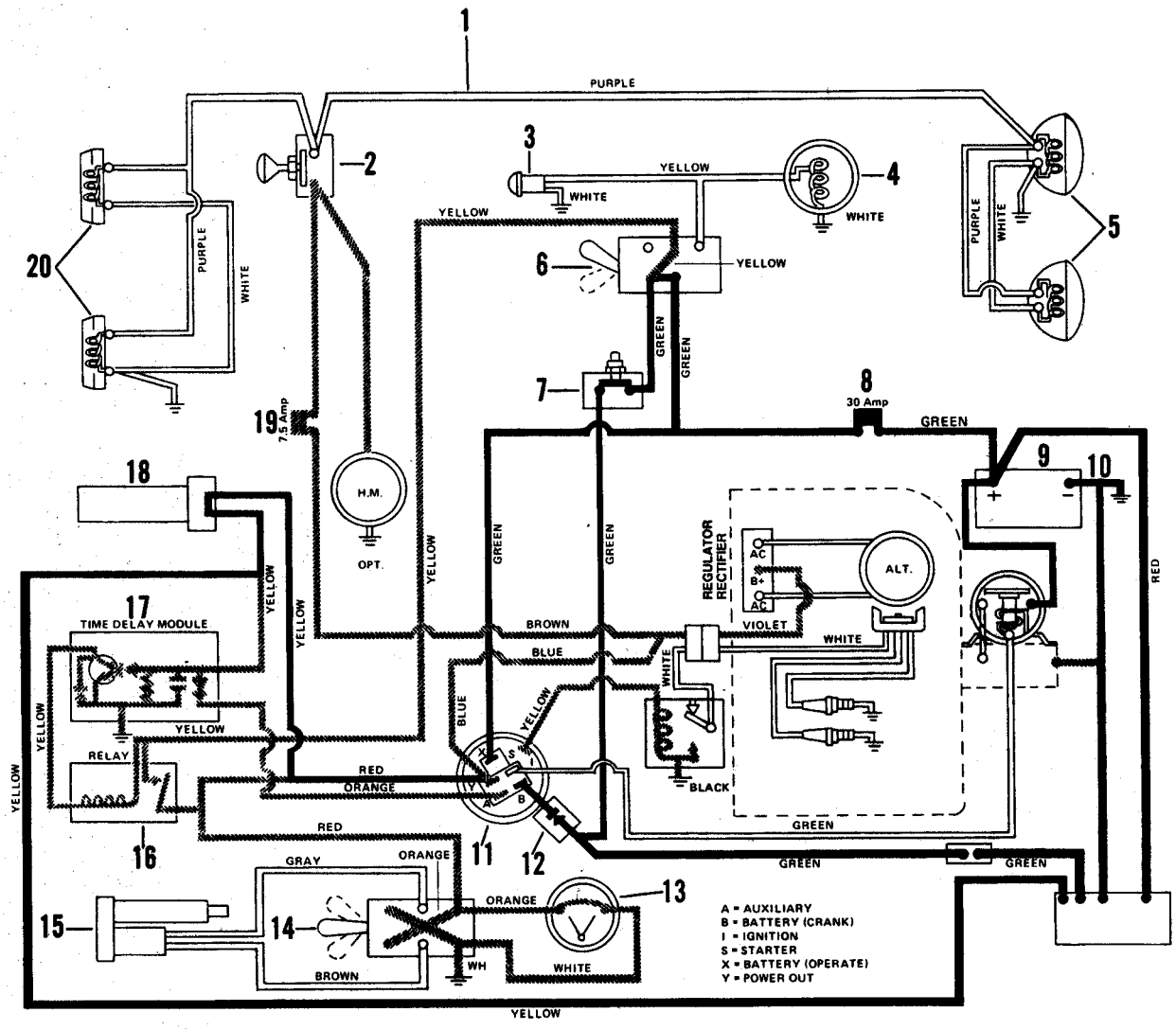


Figure 2-7: Rear Attachment Circuit

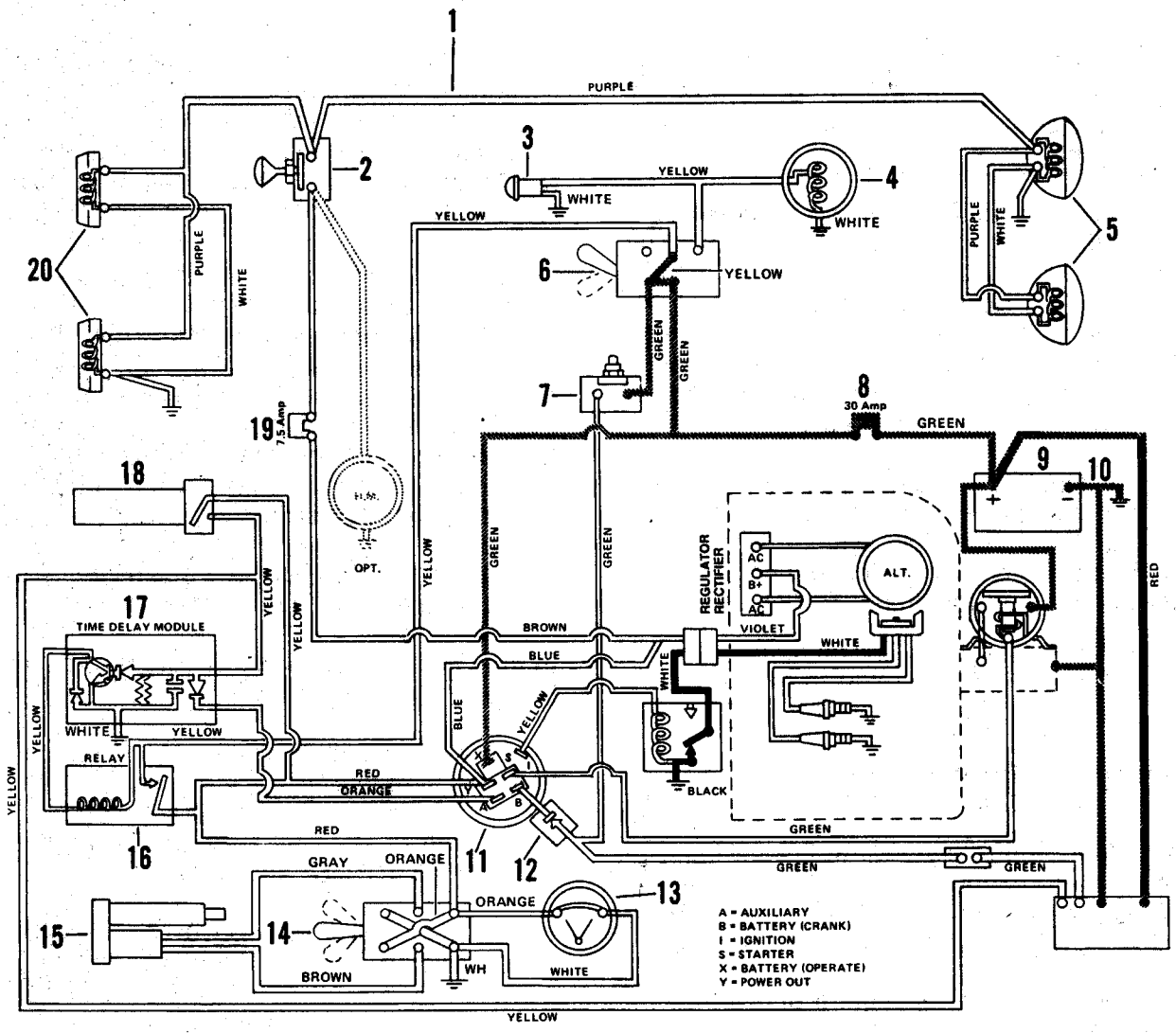


Figure 2-8: Engine Off Circuit

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Wiring Harness	1	11	Switch Assembly	1
2	Light Switch	1	12	Diode Assembly	1
3	P.T.O. Indicator Light	1	13	Voltmeter	1
4	Electric Clutch	1	14	Lift Switch Assembly	1
5	Headlight Bulb	2	15	Actuator	1
6	P.T.O. Switch	1	16	Relay	2
7	Safety Switch	1	17	Time Delay Module	1
8	30 Amp Fuse	1	18	Seat Switch	1
9	Battery	1	19	7.5 Amp Fuse	1
10	Ground Cable	1	20	#168 Wedge Base Tail Light Bulb	2

Electrical

2.1 Safety Interlock System

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

Check the safety interlock system to make sure that it is functioning properly. With operator on seat, tractor must not start unless Speed Selector is in neutral (N), Brake/Neutralizer pedal is depressed and Implement Power is disengaged (OFF). Engine MUST stop if operator leaves seat when Speed Selector is in any drive position or with implement lever engaged (ON).

Interlock system grounds engine ignition if Brake/Neutralizer and Implement Power switches are not closed. Also, interlock system will ground ignition if seat switch is not closed when opening Brake/Neutralizer or Implement Power switches.

2.2 Trouble Shooting

Check that all wiring connections are secure and that switches are being activated properly before performing electrical tests. (Safety switch may be out of adjustment and not activating properly.)

Check engine electrical function. If engine has no spark or voltmeter does not register 12 to 15 volts when engine is running (at any speed above a slow idle) problem is in engine, refer to engine repair manual.

When voltmeter indicates 11 or fewer volts, battery or engine service may be required.

If engine electrical system functions properly and has spark, check that all wires of units electrical system are connected properly (refer to electrical schematics in this section). Then check switches per the following instructions.

2.3 Switches

IMPORTANT: When checking switches electrically, remove them from their respective circuits by disconnecting the wires from the switch at the connector(s) before testing or damage could result to meter or interlock module. (DO NOT remove switches from unit when checking them.)

To test a normally open key, safety or seat switch, connect an ohmmeter across switch terminals. Meter should indicate high resistance (open circuit). Activate the switch. Meter should read up scale to .01 to .1 resistance (closed circuit) indicating switch is operating properly. Check from each terminal to switch case (if case is metal), reading should show high resistance indicating no short to ground.

The ignition switch has three positions; OFF, RUN and a momentary START position.

In the OFF position, there should be no continuity between contacts.

In the RUN position, there should be continuity between contacts "B"+"I"+"A" and "X"+"Y".

In the START position, there should be continuity between "B"+"I"+"S" and "X"+"Y".

If after performing the above checks the engine does not start, refer to Trouble Shooting.

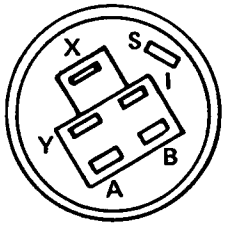
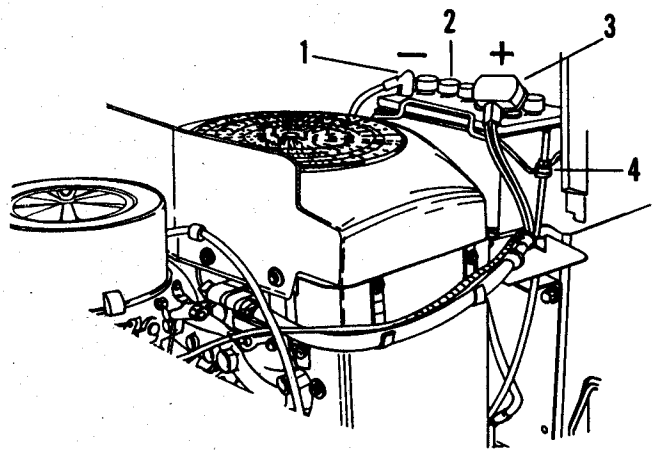


Figure 2-9: Ignition Switch

2.4 Battery

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

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



1. Negative (-) Terminal
2. Caps
3. Positive (+) Terminal
4. Tie Down

Figure 2-10: Battery

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

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

Keep battery and its terminals clean, and inspect monthly to maintain best performance.

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

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

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

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

To charge battery remove battery from tractor, remove vents, and charge at a rate of 4 to 6 amps. (Specific Gravity reading of 1260 plus or minus 5 points on all cells indicates a fully charged battery.)

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

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

Notes

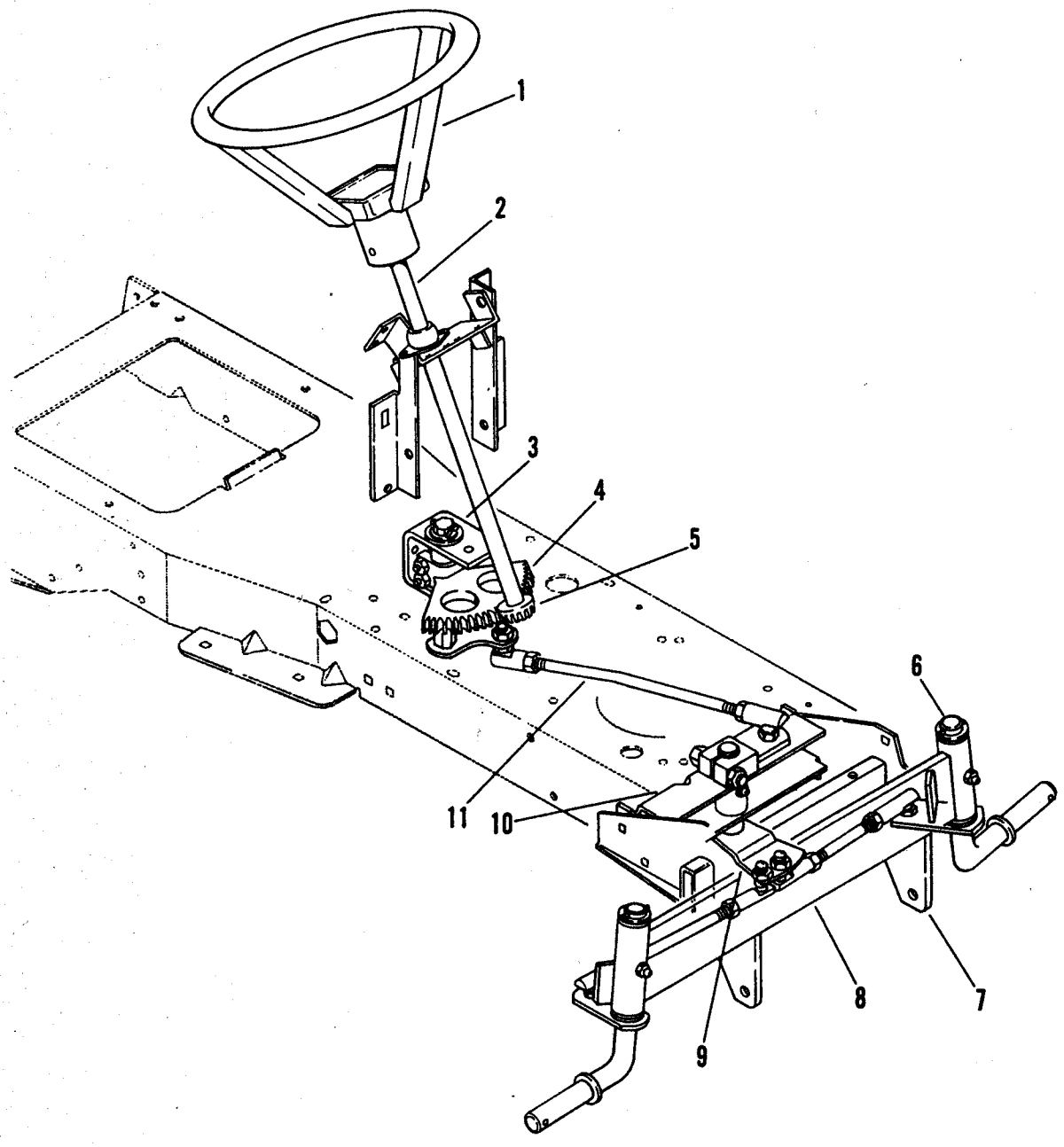
Steering and Front Axle

Table of Contents

List of Illustrations

Notes

Steering and Front Axle



1. Steering Wheel
2. Steering Column
3. Steering Bracket
4. Steering Bevel Gear
5. Steering Pinion Gear
6. Spindle
7. Front Axle Support
8. Front Axle
9. Steering Pivot
10. Steering Pivot Channel
11. Steering Link

Figure 3-1: Steering Assembly

Steering and Front Axle

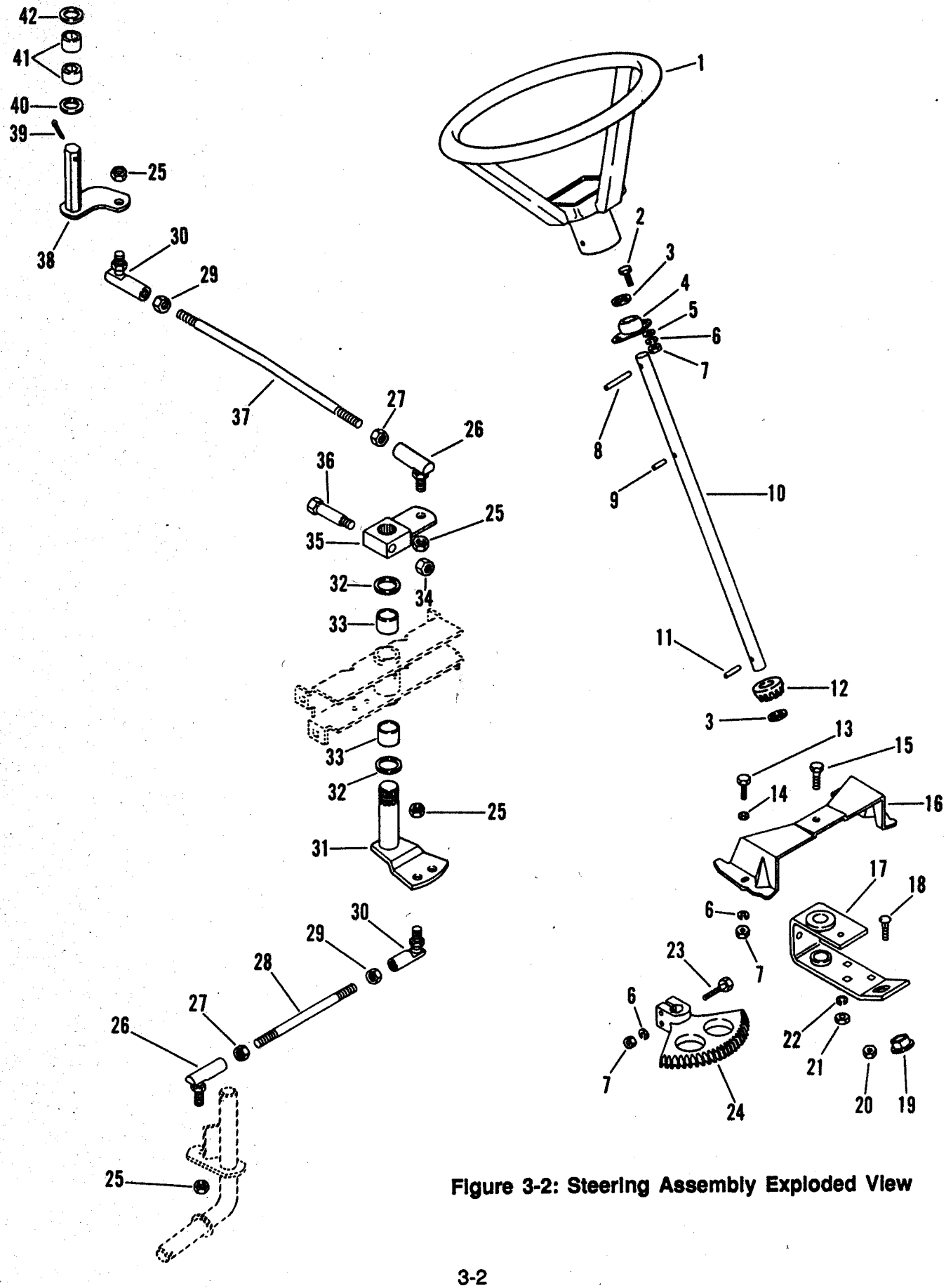


Figure 3-2: Steering Assembly Exploded View

Steering and Front Axle

ITEM NO	DESCRIPTION	QTY
1	Steering Wheel Assembly	1
2	Cap Screw 5/16-18 x 3/4	2
3	Washer .750/.781 x 1.125 x .062	2
4	Flange Bearing 3/4 ID	1
5	Washer .307/.327 x .734 x .065	2
6	Lock Washer 5/16 ID	8
7	Nut 5/16-18	8
8	Roll Pin 1/4 x 2''	1
9	Roll Pin 3/16 x 1''	1
10	Steering Column	1
11	Roll Pin	1
12	Steering Pinion Gear	1
13	Cap Screw 5/16-18 x 1''	4
14	Washer .312/.343 x .625 x .062	4
15	Cap Screw 3/8-16 x 1''	1
16	Steering Support Brace	1
17	Steering Bracket	1
18	Carriage Bolt 3/8-16 x 1''	3
19	Flange Bushing 3/4 x 1-3/32 x 5/8	1
20	Flange Whiz Lock Nut 3/8-16	3
21	Nut 3/8-16	1
22	Lock Washer 3/8 I.D.	1
23	Cap Screw 5/16-18 x 1-3/4	2
24	Steering Bevel Gear	1
25	Lock Nut 1/2-20	6
26	L.H. Ball Joint	2
27	L.H. Thread Jam Nut 1/2-20	2
28	Tie Rod	2
29	Jam Nut 1/2-20	4
30	R.H. Ball Joint	4
31	Steering Pivot	1
32	Plastic Washer	2
33	Sleeve Bushing 1'' x 1-1/8 x 7/8	2
34	Crown Lock Nut 1/2-13 Gr C	1
35	Arm	1
36	Lock Bolt	1
37	Steering Link	1
38	Arm & Shaft	1
39	Cotter Pin 3/16 x 1-1/4	1
40	Washer .877/.887 x 1.250 x .062	2
41	Sleeve Bushing 3/4 x 1'' x 3/4	2
42	Washer .868/.905 x 1.250 x 14 Ga	1

Steering and Front Axle

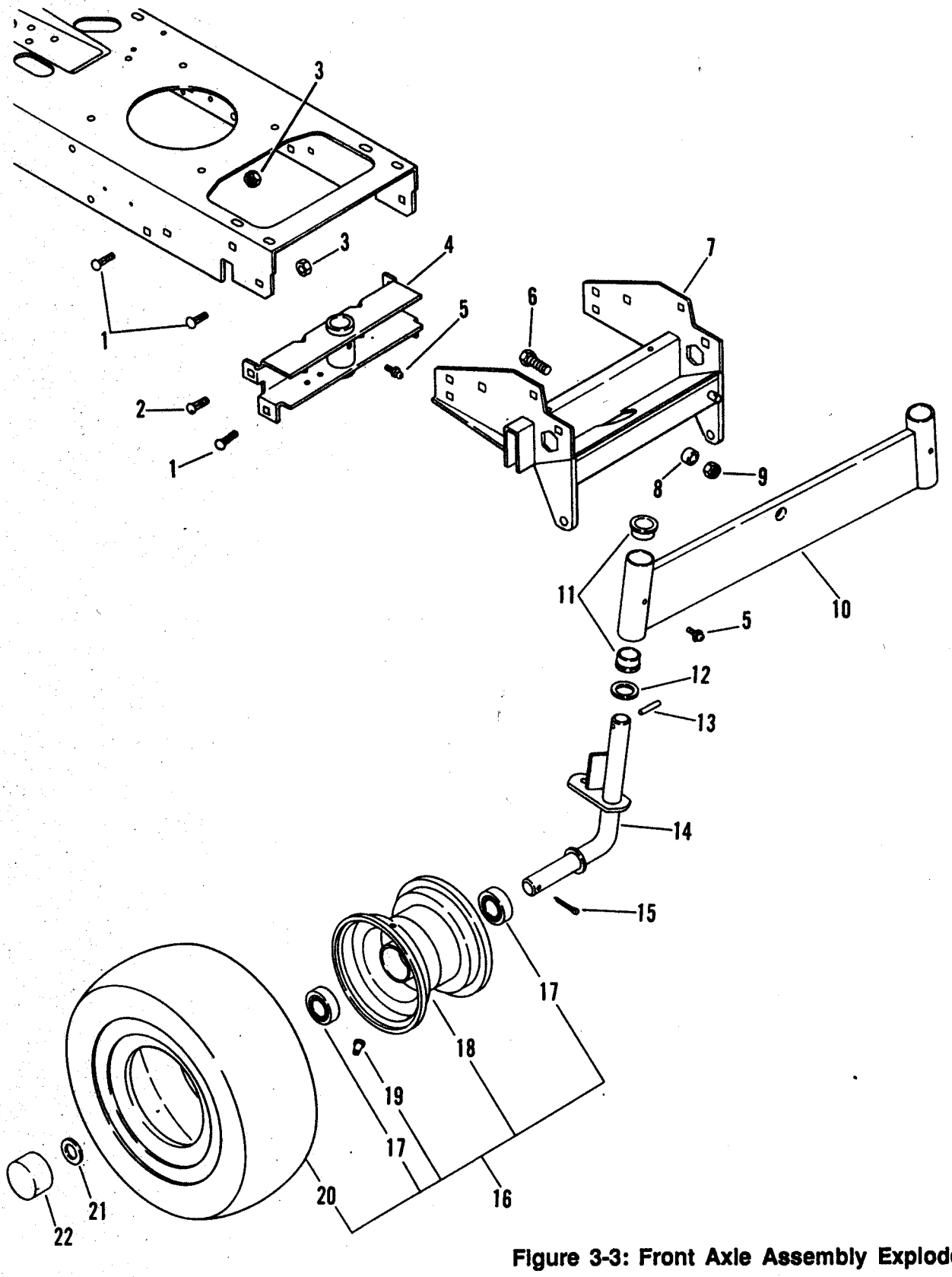


Figure 3-3: Front Axle Assembly Exploded View

Steering and Front Axle

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Carriage Bolt 3/8-16 x 3/4	8	13	Roll Pin 1/4 x 1-3/8	2
2	Carriage Bolt 3/8-16 x 1"	2	14	L.H. Spindle	1
3	Flange Whiz Lock Nut 3/8-16	10		R.H. Spindle	1
4	Pivot Channel	1	15	Cotter Pin 1/4 x 1-1/2	2
5	Zerk Fitting	3	16	Tire & Wheel Assembly	2
6	Cap Screw 1/2-13 x 1-1/2	1	17	Wheel Bearing	4
7	Front Axle Support	1	18	Rim	2
8	Spacer	1	19	Zerk Fitting	2
9	Crown Lock Nut 1/2-13 Gr C	1	20	Turf - Mate Tire	2
10	Front Axle	1	21	Washer 1.000/1.031 x 1.500 x .125	2
11	Flange Bushing 1" x 1-1/4 x 3/4	4	22	Front Hub Cap	2
12	Washer 1.005/1.015 x 1.505 x .062	2			

Steering and Front Axle

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

3.1 Spindles and Tie Rods

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

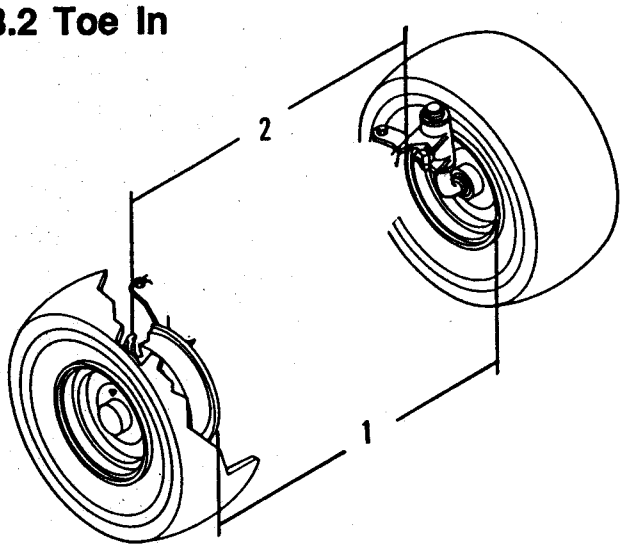
Raise and block front of tractor with tires off floor.

Remove hub cap(s), cotter pin(s), washers and wheel(s) from spindle.

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

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

3.2 Toe In



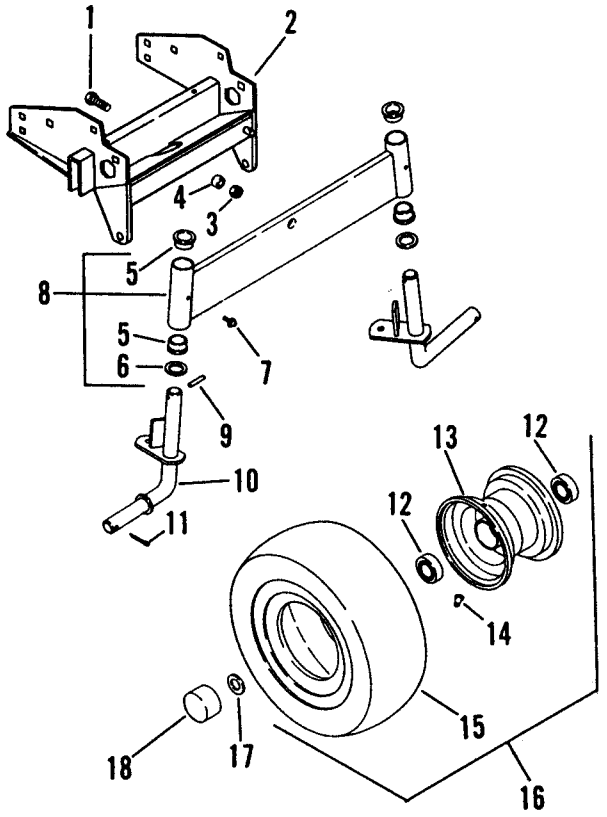
1. 1/16" - 1/8" Less than 2
2. 1/16" - 1/8" More than 1

Figure 3-4: Toe In

Proper front wheel toe-in is necessary to assure proper steering and to reduce tire wear. Proper toe-in is when front of wheels are 1/16" to 1/8" closer together than rear of wheels (measured at horizontal center line of rim flange).

If tractor wanders or excessive tire wear develops, toe-in should be checked. To correct toe-in, loosen jam nuts at tie rod ends, turn tie rod clockwise to decrease or counterclockwise to increase toe-in and tighten jam nuts.

3.3 Front Axle



1. Capscrew
2. Front Axle Support
3. Nut
4. Spacer
5. Flange Bushing
6. Washer
7. Zerk Fitting
8. Front Axle
9. Roll Pin
10. Spindle
11. Cotter Pin
12. Wheel Bearing
13. Rim
14. Zerk Fitting
15. Turf Mate Tire
16. Wheel w/Tire
17. Washer
18. Front Hub Cap

Figure 3-5: Front Axle

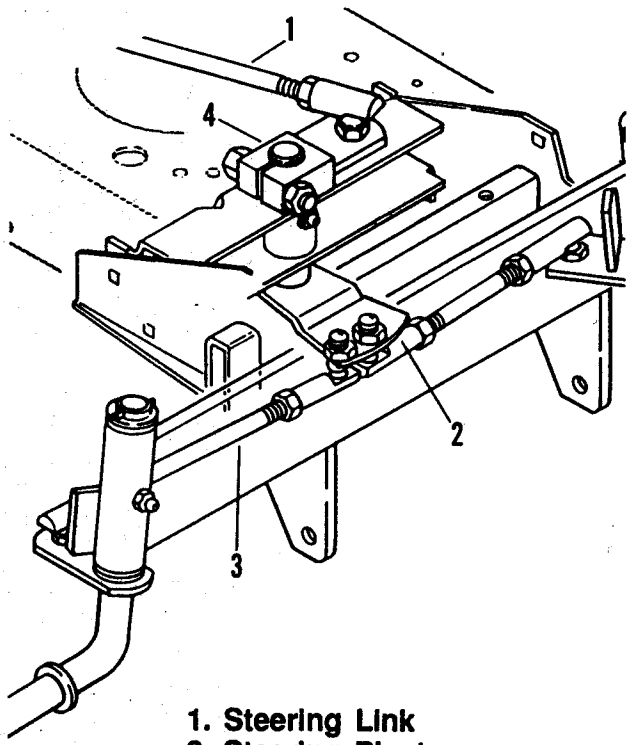
To remove front axle, remove spindles and tie rods per above instructions. Then remove nut, cap screw, axle and spacer from front axle support.

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

3.4 Steering Pivot

To remove steering pivot, disconnect tie rods and steering link from arm and pivot. Remove crown lock nut from lock bolt, bolt from arm and arm from steering pivot. Remove steering pivot from steering pivot channel. Note position of bushings and washers.

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



1. Steering Link
2. Steering Pivot
3. Tie Rod
4. Arm

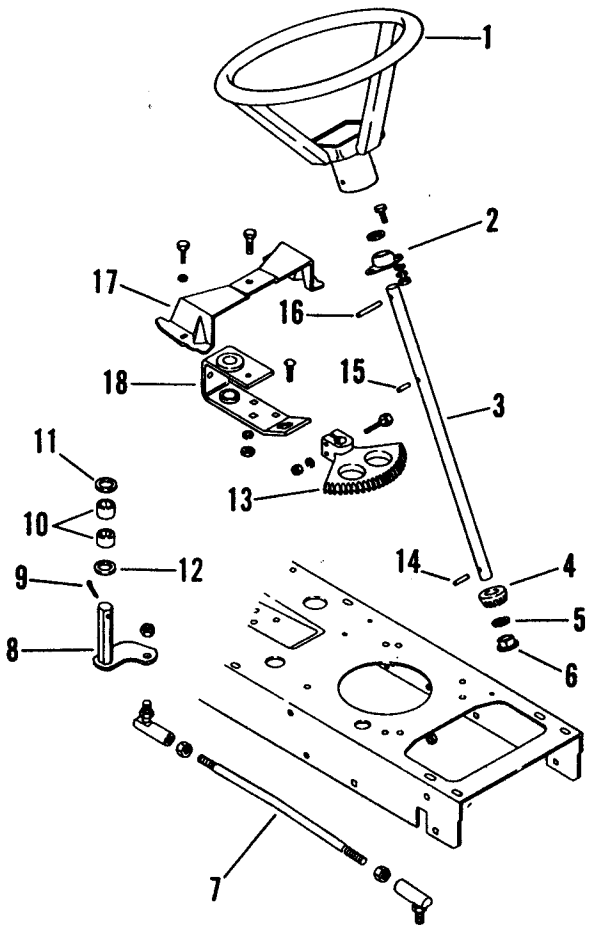
Figure 3-6: Steering Pivot

3.5 Steering Gears

Disconnect steering link from arm and shaft. Loosen two cap screws on bevel gear.

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

Drive roll pin located under flange bearing from steering column shaft



1. Steering Wheel
2. Flange Bearing
3. Steering Column
4. Pinion Gear
5. Washer
6. Flange Bushing
7. Steering Link
8. Arm and Shaft
9. Cotter Pin
10. Sleeve Bushing
11. Washer
12. Washer
13. Bevel Gear
14. Roll Pin
15. Roll Pin
16. Roll Pin
17. Steering Support Brace
18. Steering Bracket

Figure 3-7: Steering Gears

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 cap screws from flange bearing and bearing from unit.

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

3.6 Steering Link

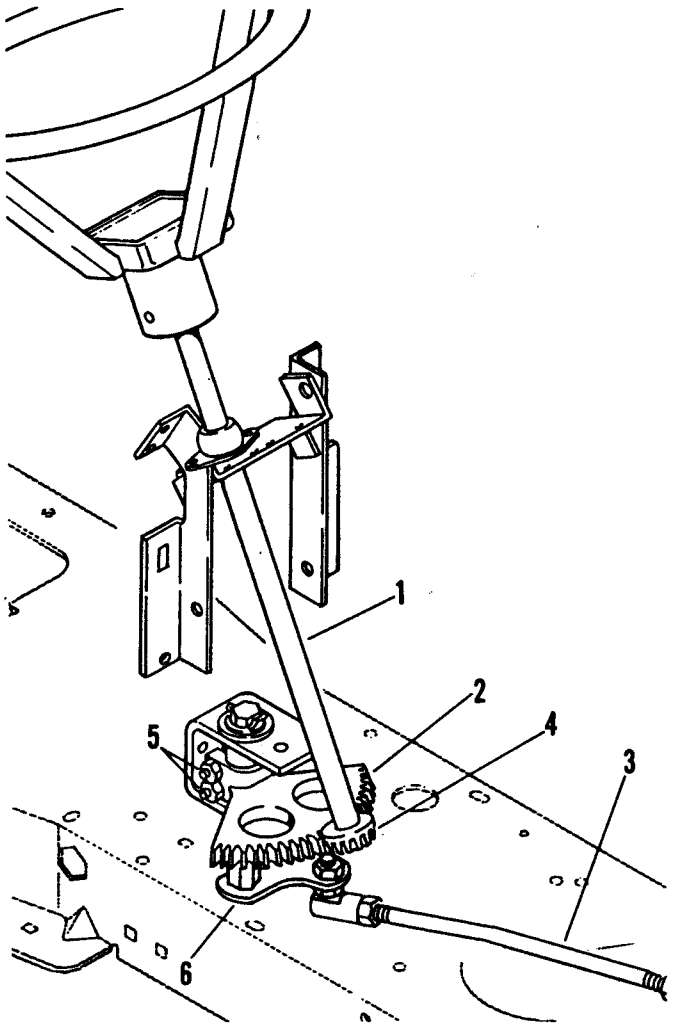
Ball joints on steering link allow for centering of wheel for full travel. To adjust, loosen jam nuts on link at ball joints, rotate link until full travel is obtained and tighten jam nuts.

3.7 Steering Adjustment

If loosness occures in steering system, check all hardware for tightness.

To adjust steering gear backlash, open note box and loosen two cap screws that secure bevel gear to pivot post.

Insert screw driver under bevel gear and raise to align bevel gear with pinion gear then tighten cap screws.



1. Steering Column
2. Steering Bevel Gear
3. Steering Link
4. Steering Pinion Gear
5. Cap Screw
6. Arm and Shaft

Figure 3-8: Steering Adjustment

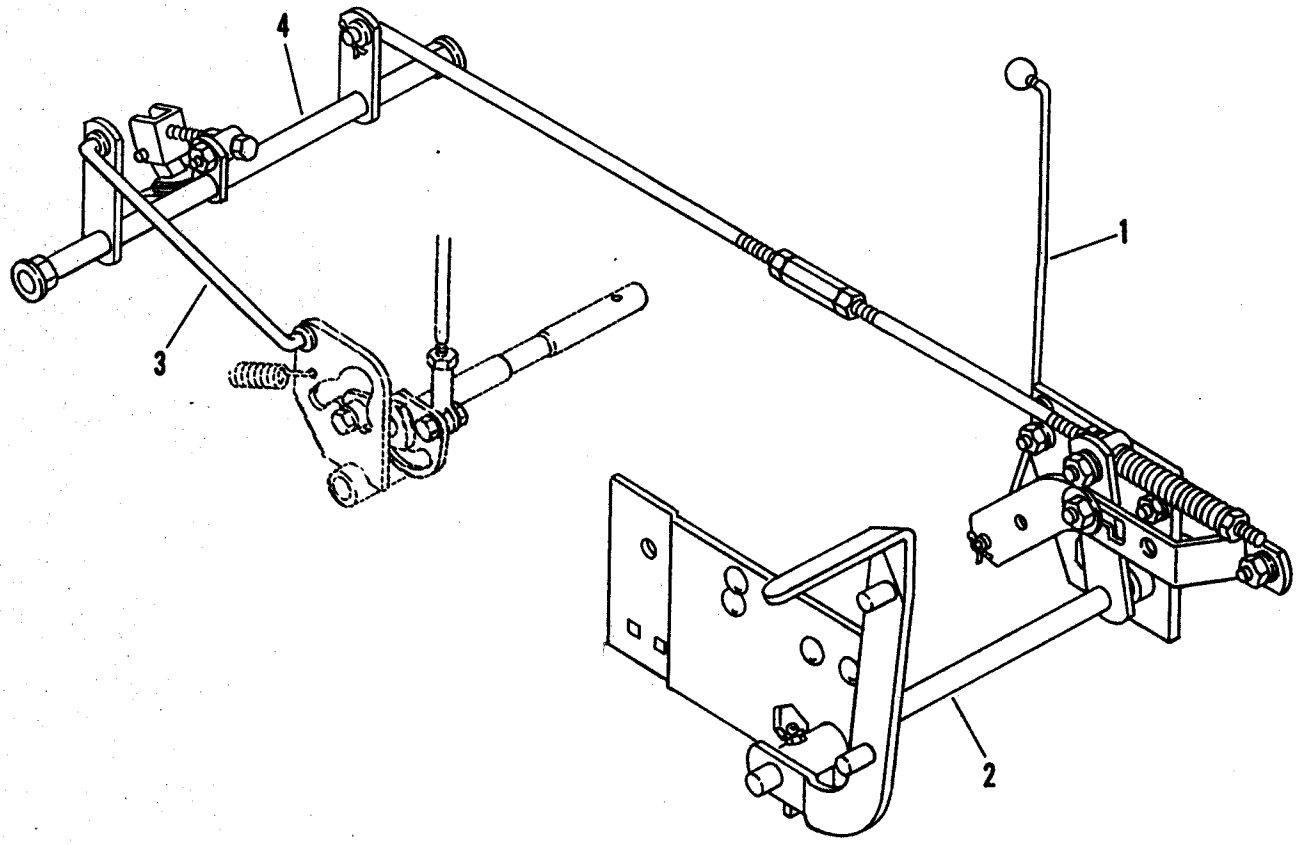
Brake/Neutralizer

Table of Contents

4

List of Illustrations

Brake/Neutralizer



1. Park Brake Rod
2. Brake/Neutralizer
3. Neutal Rod
4. Brake Shaft

Figure 4-1: Brake/Neutralizer Assembly

Brake/Neutralizer

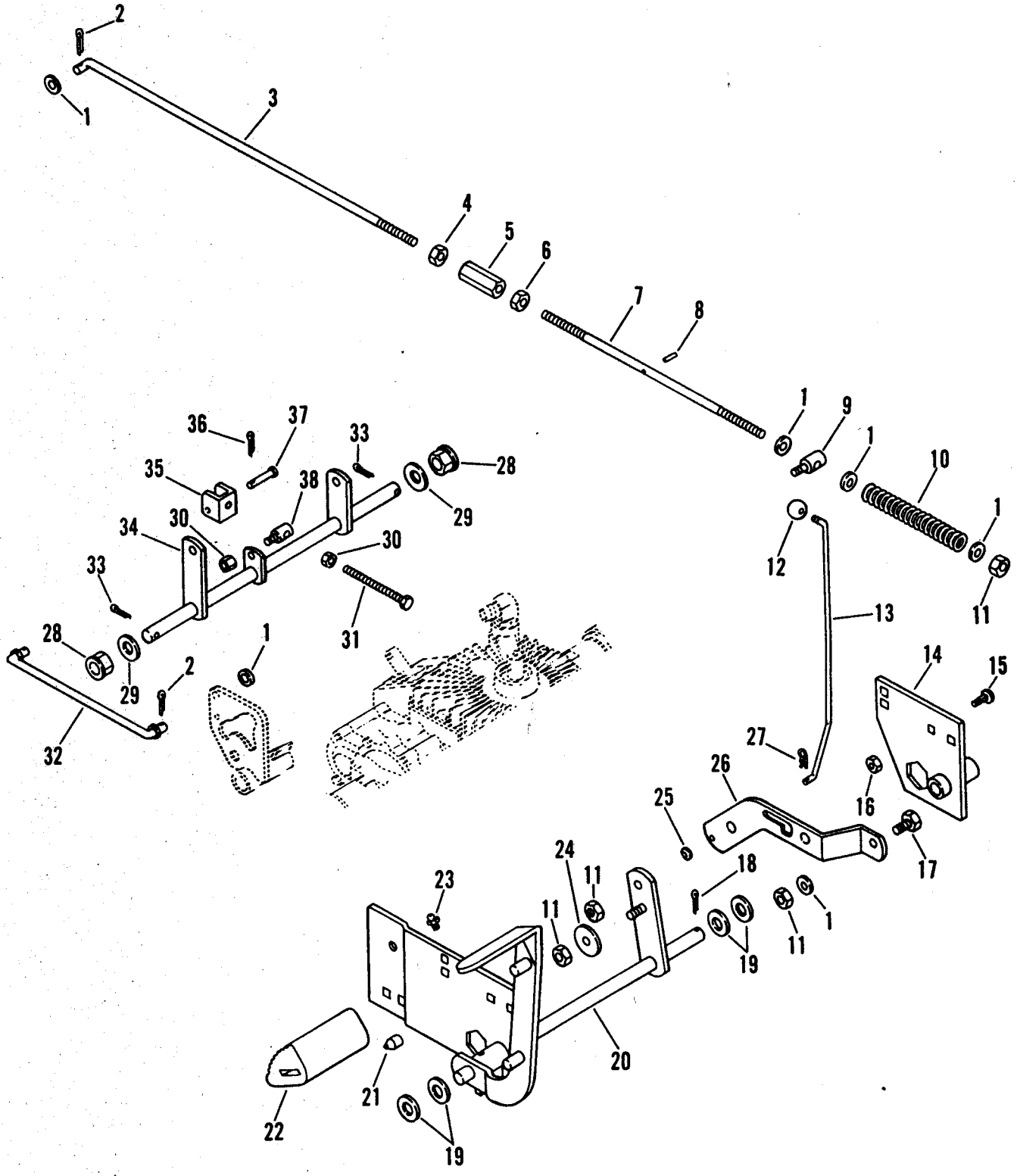


Figure 4-2: Brake/Neutralizer Exploded View

Brake/Neutralizer

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Washer .401/.421 x .812 x .065	7	20	Brake/Neutralizer	1
2	Cotter Pin 3/32 x 1"	3	21	Grip	2
3	Rear Brake Rod	1	22	Pedal Cover	1
4	L.H. Thread Nut 3/8-16	1	23	Zerk Fitting	2
5	R.H. & L.H. Coupling Nut Thd. 3/8-16	1	24	Washer .406 x 1.500 x .049	1
6	Nut 3/8-16	1	25	Washer .183/.196 x .438 x .049	1
7	Front Brake Rod	1	26	Park Arm	1
8	Roll Pin 1/8 x 3/4	1	27	Hair Pin 1/16 x 49/64	1
9	Pivot	1	28	Flange Bushing 5/8 x 7/8 x 3/4	2
10	Compression Spring	1	29	Washer .649/.686 x 1.312 x .095	2
11	Two Way Lock Nut 3/8-16	4	30	Two Way Lock Nut 5/16-18	2
12	Push/Pull Control Knob	1	31	Cap Screw .312-18 x 3.50 Gr 2	1
13	Park Brake Rod	1	32	Neutral Rod	1
14	Bracket	1	33	Cotter Pin 5/32 x 1-1/4	2
15	Carriage Bolt 5/16-18 x 3/4	8	34	Brake Shaft	1
16	Flange Whiz Lock Nut 5/16-18	8	35	Clevis	
17	Cap Screw 3/8-16 x 3/4	1	36	Cotter Pin 3/32 x 3/4	1
18	Cotter Pin 3/16 x 1-1/4	1	37	Clevis Pin	1
19	Washer .694/.704 x 1.375 x .059	4	38	Rod Pivot	1

Brake/Neutralizer

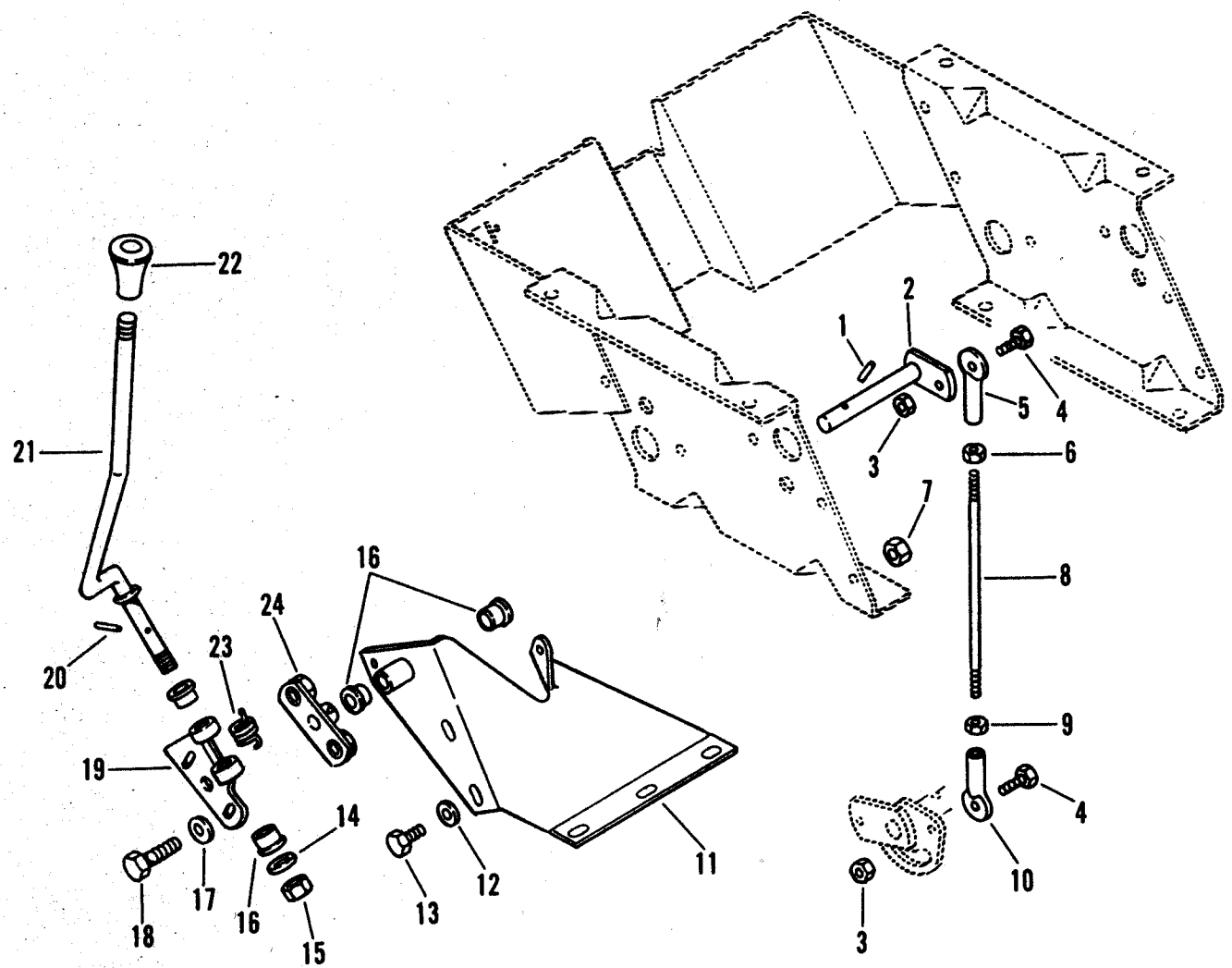


Figure 4-3: Speed Selector Exploded View

Brake/Neutralizer

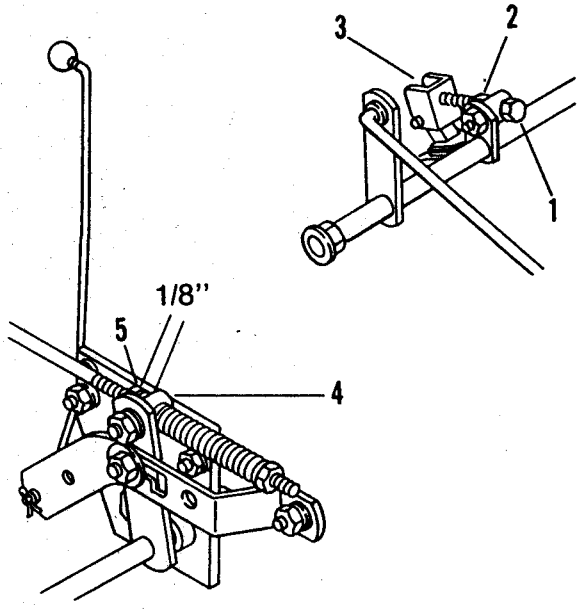
ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Drive Pin 3/16 x 3/4	1	13	Cap Screw 5/16-18 x 5/8	3
2	Rod	1	14	Washer .515/.547 x .827 x .062	1
3	Center Lock Nut 1/4-20	2	15	Center Lock Nut 1/2-20	1
4	Cap Screw 1/4-20 x 3/4	2	16	Flange Bushing 1/2 x 5/8 x 5/8	4
5	R.H. Rod End	1	17	Washer .380/.385 x .812 x .062	2
6	Nut 1/4-28	1	18	Cap Screw 3/8-16 x 1"	2
7	Two Way Lock Nut 5/16-18	3	19	Outer Arm	1
8	Shift Rod	1	20	Roll Pin 1/8 x 1"	1
9	L.H. Hex Nut .25-28 Gr.2	1	21	Speed Selector Lever	1
10	L.H. Rod End	1	22	Knob	1
11	Speed Selector Brace	1	23	Spring	1
12	Washer .307/.327 x .734 x .065	2	24	Arm	1

Brake/Neutralizer

4.1 Parking Brake

Set Parking Brake and check gap between pivot and washer. There should be approximately 1/8" gap.

To adjust for 1/8" gap, loosen locking nut at clevis pivot, turn cap screw in direction needed to obtain proper gap and tighten locking nut. Recheck gap by releasing and then engaging Parking Brake.



1. Cap Screw
2. Lock Nut
3. Clevis
4. Pivot
5. Washer

Figure 4-4: Parking Brake

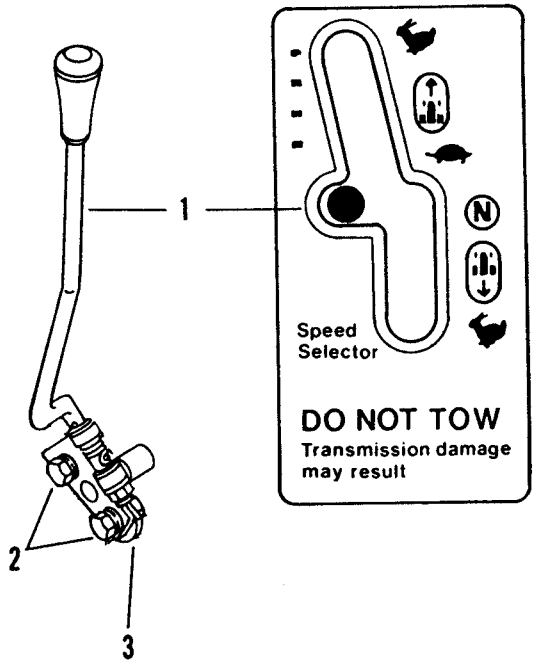
4.2 Brake/Neutralizer

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

With engine running, test unit by placing Speed Selector in forward and then depress Brake/Neutralizer pedal. Speed Selector should return to neutral (N) position with no movement (creeping of tractor). Repeat procedure for reverse.

4.3 Speed Selector

If Speed Selector does not return to neutral (N) detent in deck when Brake/Neutralizer is depressed, depress Brake/Neutralizer and lock Parking Brake. Loosen cap screws at outer arm of Speed Selector Lever. Move Speed Selector Lever to neutral (N) detent and tighten cap screws. If movement (creeping) continues, further adjustment is needed. (Refer to Section 6.5 Neutral Adjustment.)



1. Neutral Position
2. Arm
3. Cap Screws

Figure 4-5: Speed Selector

4.4 Speed Selector Disassembly

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, drive out roll pin securing spring and remove lever, spring and flange bushings from outer arm.

Remove roll or groove pin securing arm to rod and remove arm from rod.

Remove center lock nut and cap screw securing rod to shift rod end, remove rod and flange bushings from speed selector brace.

Remove center lock nut and cap screw securing rod end to drag. Remove shift rod from drag.

4.5 Brake/Neutralizer Removal

Remove cotter pin and washer securing rear brake rod to brake shaft. Remove brake rod from brake shaft.

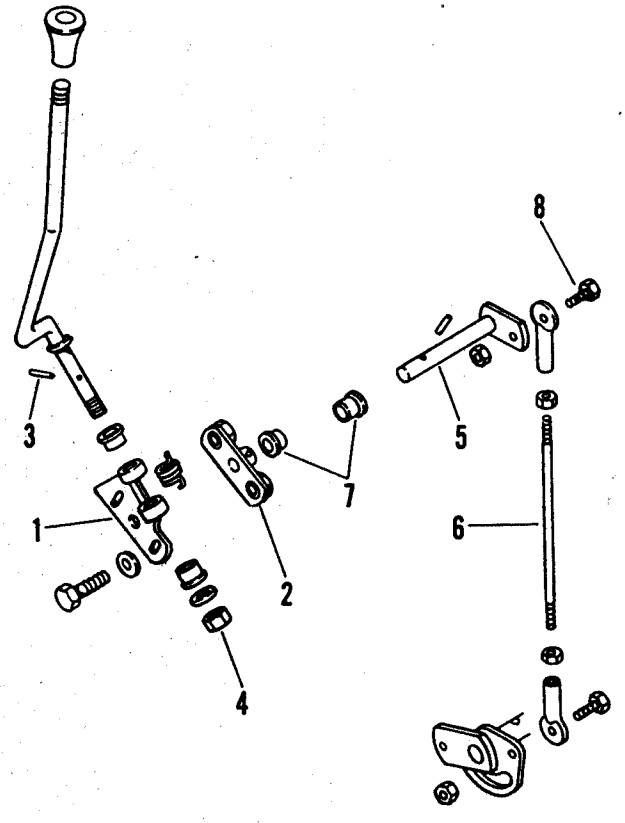
Remove lock nut from pivot and remove brake rod assembly from brake neutralizer.

Remove cotter pin and washer securing neutral rod to brake shaft. Remove neutral rod from brake shaft.

Remove cotter pin and washer securing neutral rod to cam. Remove neutral rod from cam.

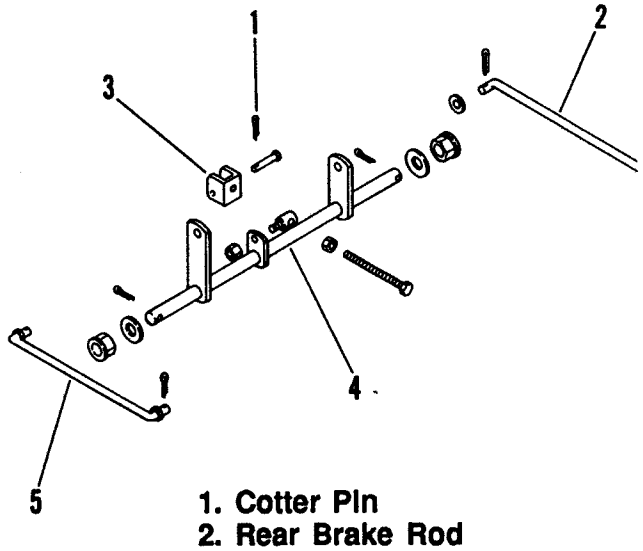
Remove cotter pin from clevis pin. Remove clevis pin securing clevis to transaxle.

From one end of brake shaft, remove cotter pin, washer and flange bushing. Slide brake shaft out of flange bushing and remove from frame.



1. Outer Arm
2. Arm
3. Roll Pin
4. Lock Nut
5. Rod
6. Shift Rod
7. Flange Bushing
8. Cap Screw

Figure 4-6: Speed Selector Disassembly



1. Cotter Pin
2. Rear Brake Rod
3. Clevis
4. Brake Shaft
5. Neutral Rod

Figure 4-7: Brake Shaft

Brake/Neutralizer

Remove hair pin and washer securing park brake rod to park arm and remove park brake rod from park arm.

NOTE: Foot rest brace must be removed to provide clearance for pedal assembly removal.

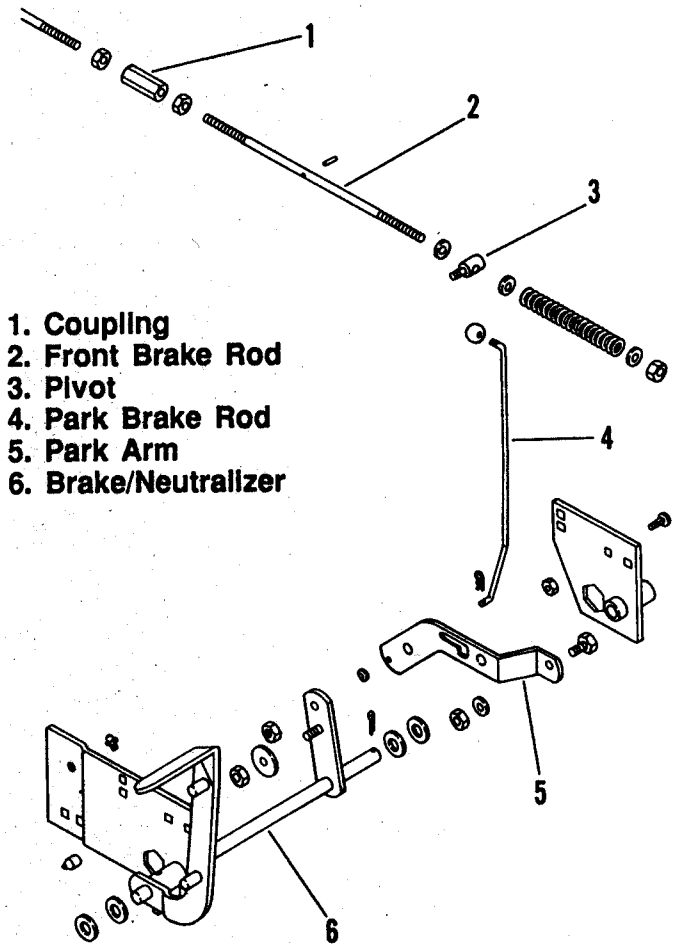
NOTE: Lift link and actuator must be disconnected from lift pivot before removing pedal assembly. (Refer to Lift Section)

Remove flange whiz lock nuts and carriage bolts securing pedal assembly to frame. Remove assembly from tractor.

Remove two way lock nuts and cap screw securing park arm to pedal assembly and frame.

Remove cotter pin securing pedal assembly to bracket.

Check parts for wear or damage, replace as necessary and assemble in reverse order being sure to lubricate all pivot points.



1. **Coupling**
2. **Front Brake Rod**
3. **Pivot**
4. **Park Brake Rod**
5. **Park Arm**
6. **Brake/Neutralizer**

Figure 4-8: Brake Removal

Rear Deck, Fuel and Engine

Table of Contents

List of Illustrations

Rear Deck, Fuel and Engine

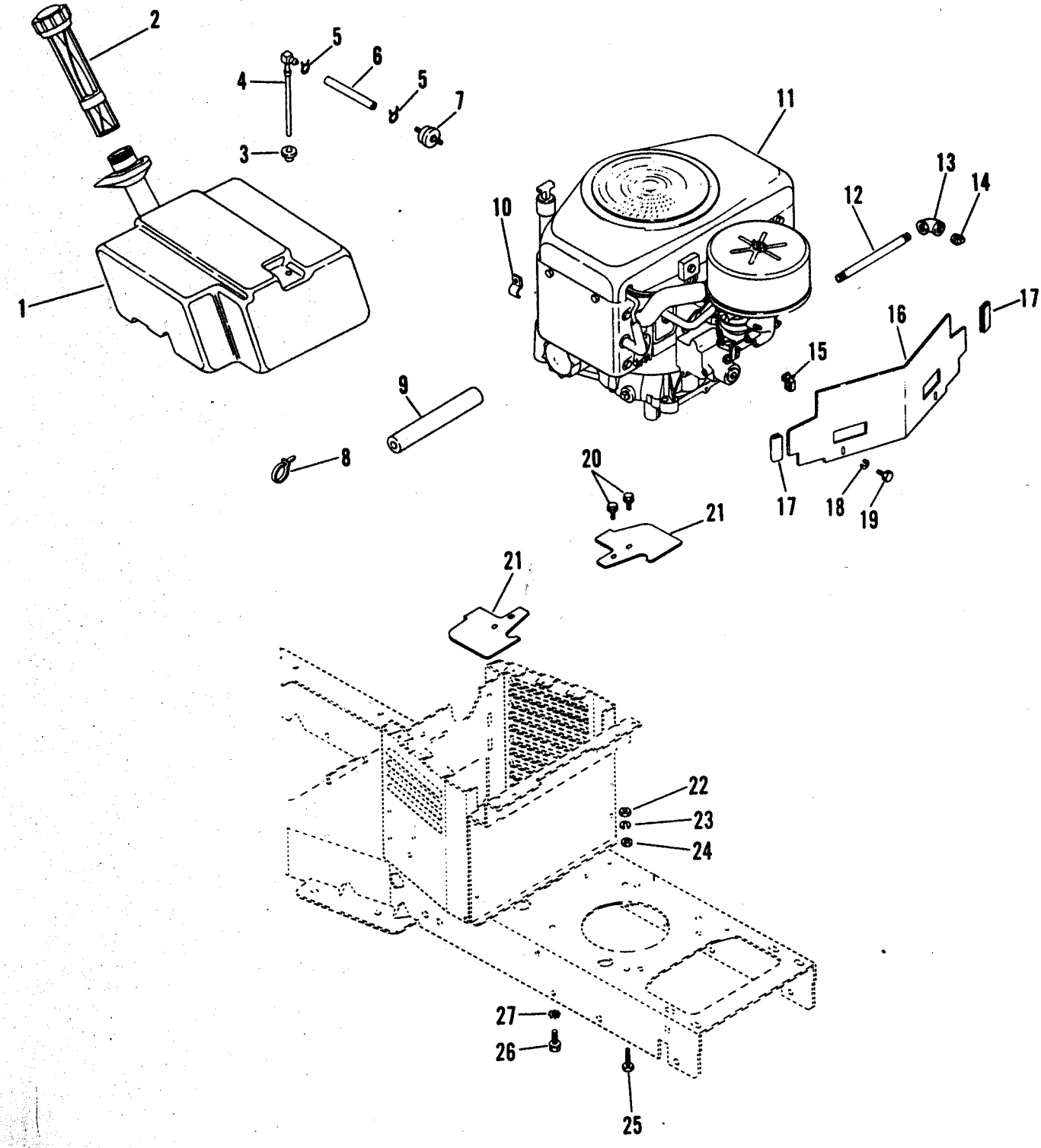


Figure 5-1: Rear Deck, Fuel Lines and Engine Exploded View

Rear Deck, Fuel and Engine

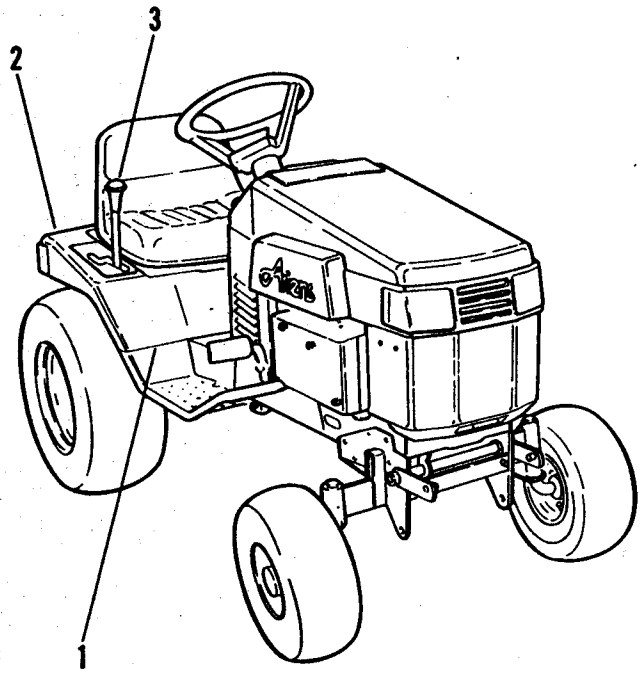
ITEM NO	DESCRIPTION	QTY
1	Fuel Tank	1
2	Fuel Gauge & Cap	1
3	Bushing	1
4	Tank Fitting	1
5	Hose Clamp	2
6	Fuel Line	1
7	Fuel Filter	1
8	Tie Down	2
9	Sponge Tubing	2
10	Hose Clamp	2
11	16 HP Kohler Engine MV16S-PS-56514	1
	18 HP Kohler Engine MV18S-PS-58532	1
12	Nipple	1
13	Elbow	1
14	Pipe Cap	1
16	Engine Baffle	1
17	Foam Tape	2
18	Lock Washer 1/4	2
19	Cap Screw 1/4-20 X 3/8	2
20	Taptite #10-24 x 3/8	4
21	Side Baffle	2
22	Nut 5/16-18	2
23	Lock Washer 5/16 ID	2
24	Washer .312/.343 x .625 x .062	2
25	Cap Screw 5/16-18 x 1-1/2	2
26	Taptite 3/8-16 x 1"	2
27	Lock Washer 3/8 ID	2

Rear Deck, Fuel and Engine

5.1 Rear Deck Removal

To remove rear deck with seat, remove Speed Selector knob from lever.

Raise Rear Deck, remove tail lights from lenses and disconnect seat switch. Remove wiring from wire clips. Remove one end of deck latch and lower deck onto tractor frame. Remove five taptites securing deck to hinge. Lift and remove deck from tractor.



1. Deck Hinge
2. Tail Lights
3. Speed Selector

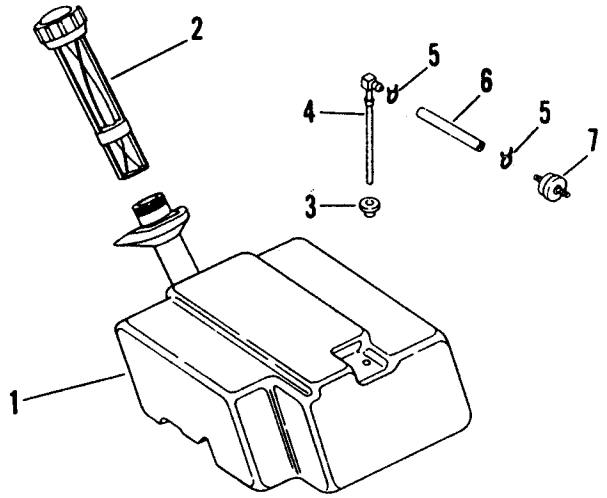
Figure 5-2: Rear Deck

5.2 Fuel Tank, Lines and Filter

WARNING: Gasoline is highly flammable and must be handled with care. Allow engine to cool several minutes before removing fuel tank cap. DO NOT allow open flame, matches or smoking in area.

IMPORTANT: When removing fuel tank, fuel tank may be moved without disconnecting fuel line but be sure not to put stress or tension on line or fitting when positioning tank.

If not removing fuel tank, slide fuel tank forward to right and down on tractor frame with gauge/cap up, rest against dash and secure in this position.



1. Fuel Tank
2. Fuel Gauge and Cap
3. Bushing
4. Tank Fitting
5. Hose Clamp
6. Fuel Line
7. Fuel Filter

Figure 5-3: Fuel Tank

To remove fuel tank, clamp fuel line with vice grips and carefully remove from fitting.

Remove fuel tank from unit.

Remove hose clamp at fuel filter and drain gas from line 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. (Fuel filter should be replaced every season.)

5.3 Engine Removal

Disconnect wiring from engine.

Remove throttle and choke cables from engine.

Remove engine baffles.

Clamp fuel line at engine and disconnect fuel line from carburetor.

Remove transaxle drive belt. (Refer to Section 6.8 Transaxle Drive Belt.)

Remove Jackshaft Belt. (Refer to Section 7.1 Jackshaft Belt.)

Remove Electric Clutch (Refer to Section 7.2 Electric Clutch).

Remove Extension Shaft from engine.

Remove hardware securing hood assembly and grill to frame.

Remove hood assembly and grill from frame.

Remove two taptites securing rear of engine to frame.

Remove two cap screws securing front of engine to frame and remove engine from unit.

Refer to engine manual for engine service.

5.4 Engine Speed

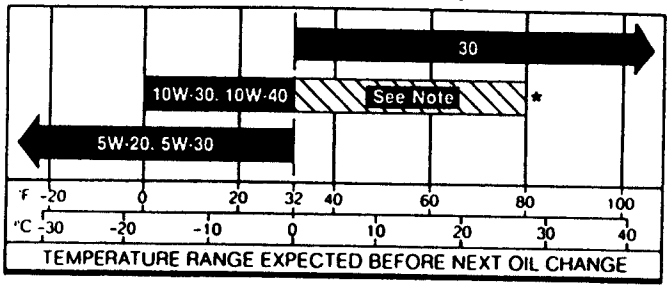
CAUTION: Idle speed of engine is 1400 RPM and top governed engine speed is 3250 RPM. DO NOT change engine governor setting or over speed engine.

5.5 Engine Oil - Kohler

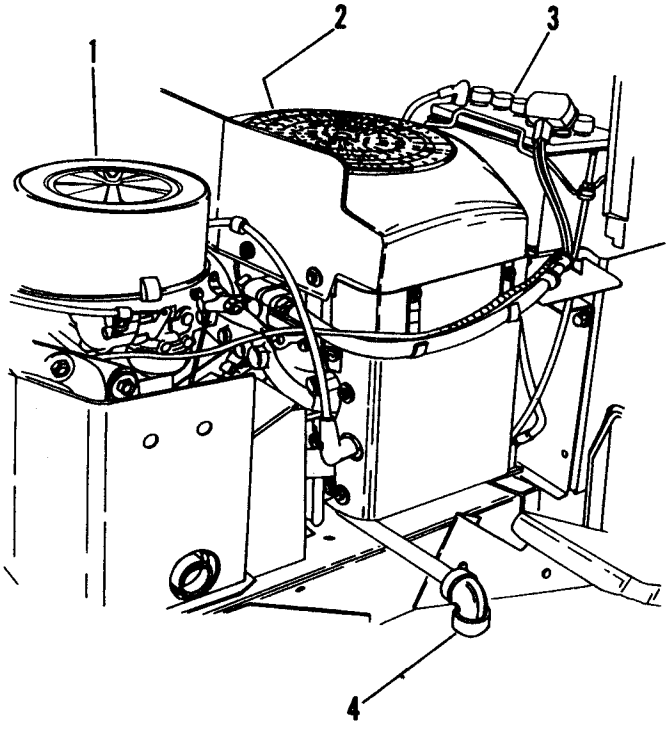
Use high quality detergent oil of API (American Petroleum Institute) service class SF. These oils keep engine cleaner and retard formation of gum and varnish deposits. DO NOT add anything to recommended oil.

Refer to chart for recommended viscosity grades to use with temperature range anticipated before next oil change.

Recommended SAE Oil Viscosity Grades



NOTE: Straight 30 weight oil is recommended. If multiviscosity oil is used in temperatures above 32 degrees, more frequent oil changes are required and there will be an increase in oil consumption with a corresponding increase in combustion deposits requiring more frequent cylinder head service.



1. Air Cleaner
2. Oil Fill/Dipstick
3. Battery
4. Oil Drain

Figure 5-4: Engine Components

5.6 Oil Filter (Kohler)

Oil filter should be changed at every other oil change. (Always use a genuine Kohler oil filter.)

To change oil filter, drain engine crankcase and then remove old filter.

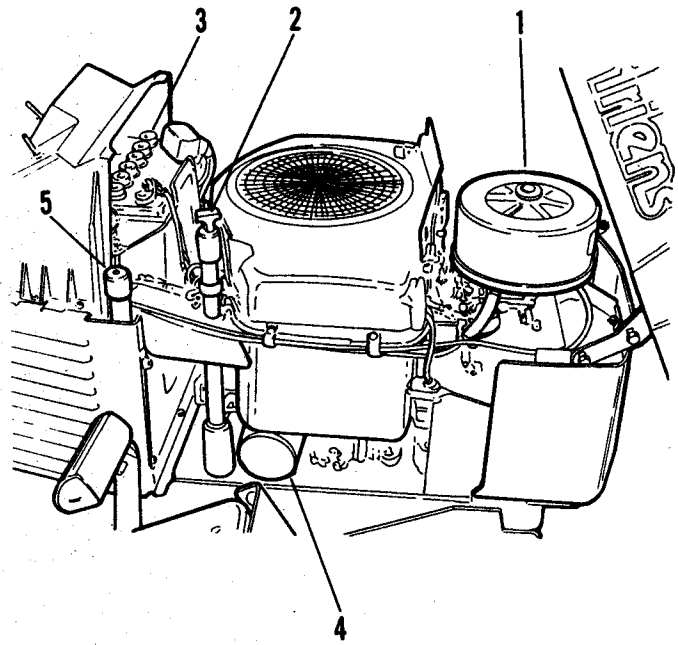
Apply a thin coating of oil on surface of rubber seal before installing new filter.

Turn filter clockwise until rubber seal contacts filter adapter, then tighten filter an additional 2/3 to 3/4 turn.

Fill engine crankcase with new oil of the proper type to "F" mark on dipstick.

NOTE: Oil filter requires an additional 1/2 pint of oil (4 pints total).

Start engine and check for oil leakage around filter and at drain plug.



1. **Air Cleaner**
2. **Oil Fill/Dipstick**
3. **Battery**
4. **Oil Filter**
5. **Transaxle Oil Fill/Dipstick**

Figure 5-5: Engine Components

5.7 Spark Plugs

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

Gap

Kohler . . . . . .025"

IMPORTANT: Before removing spark plugs, clean area around base of plugs to keep dirt and debris out of engine.

To clean, remove spark plugs from engine, scrape or wire brush and wash with a commercial solvent. DO NOT blast clean with a machine using abrasive grit. Replace plugs when dirty or if reuse is questionable. (Incorrect spark plugs, worn or fouled plugs cracked porcelain, or improper spark gaps can cause hard starting or engine misfire.

When installing plugs, torque to 10-15 ft. lbs.

NOTE: Sparking can occur if wire terminals do not fit firmly on spark plugs. Reform terminals if necessary.

5.8 Duel Element Air Cleaner

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 cartridge with compressed air, this will damage cartridge.

Precleaner should be washed every three months or 25 operating hours, whichever comes first. (More often under extremely dirty, dusty conditions.)

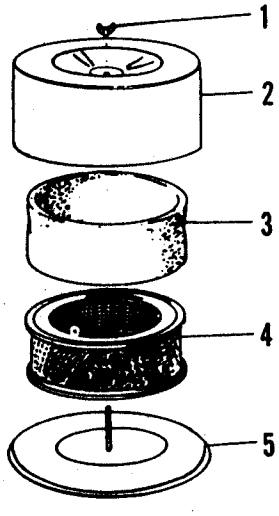
To clean precleaner remove knob and cover. Remove precleaner by sliding it off paper cartridge.

Wash precleaner in kerosene or in warm water with liquid detergent. Rinse thoroughly until all traces of detergent are eliminated, squeeze (don't wring) away excess water and air dry.

Saturate precleaner in fresh, clean engine oil and squeeze out excess oil. Install precleaner, cover and tighten wing nut 1/2 to 1 full turn after nut contacts cover. (DO NOT over-tighten.)

Yearly or every 100 hours, whichever occurs first, replace paper cartridge.

Clean inside of cover and base thoroughly. Check cover, base seals and breather tube for damage or improper fit. Replace all damaged components as they could allow unfiltered air into engine causing premature wear and engine failure.



1. Wing Nut
2. Cover
3. Precleaner
4. Paper Filter
5. Base

Figure 5-6: Air Cleaner

5.9 Engine Cooling

The engine is air cooled. Air must circulate freely around engine from air intake screen, over cooling fins on cylinder head and block to prevent overheating.

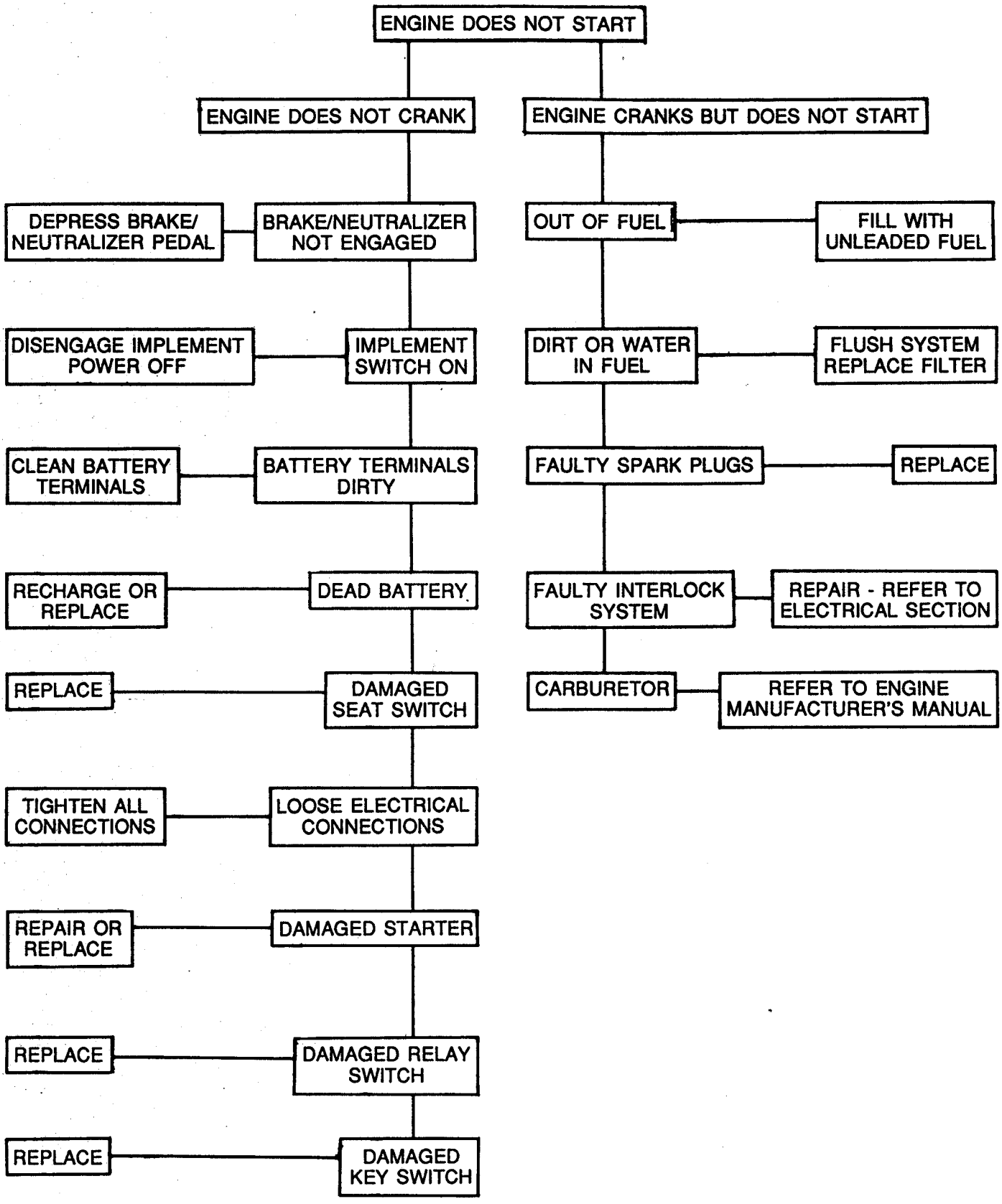
Every 100 operating hours or yearly (more often if conditions require) remove blower housing and clean cooling fins. Also clean external surfaces of your engine of dust, dirt and oil deposits which can contribute to improper cooling.

IMPORTANT: DO NOT operate engine with blower housing removed - this will cause overheating and engine damage.

5

CAUTION: Periodically clean muffler and manifold areas to remove all grass, dirt and combustible debris. If engine muffler is equipped with spark arrester screen assembly, remove every 50 hours for cleaning and inspection. Replace if damaged.

TROUBLESHOOTING
ENGINE



Transaxle

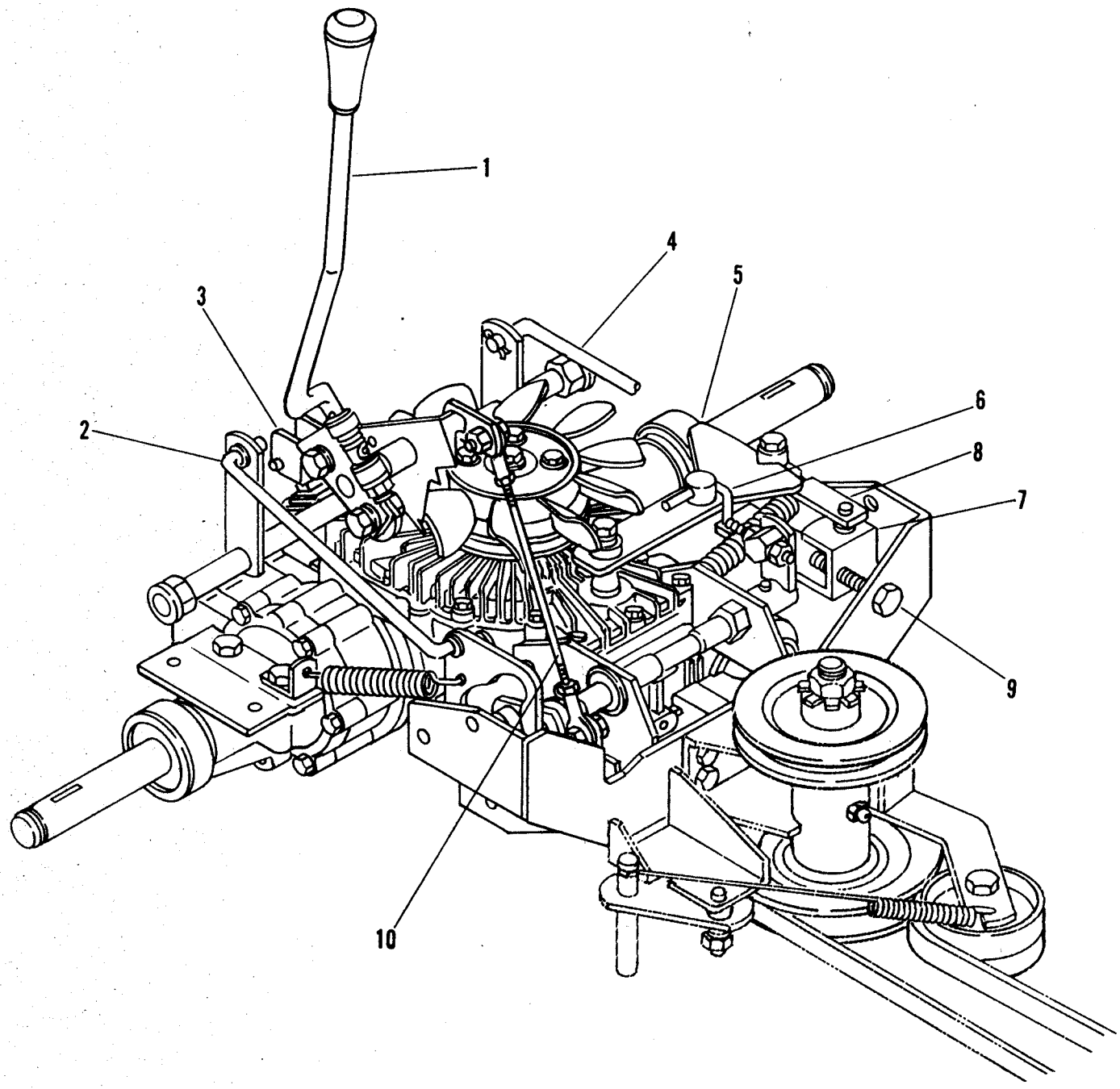
Table of Contents

6

List of Illustrations

Notes

Transaxle



1. Speed Selector
2. Neutral Rod
3. Clevis
4. Brake Rod
5. Control Arm
6. Neutral Arm
7. Pivot Bracket
8. Pivot Arm
9. Cap Screw
10. Shift Rod

Figure 6-1: Transaxle Assembly

Transaxle

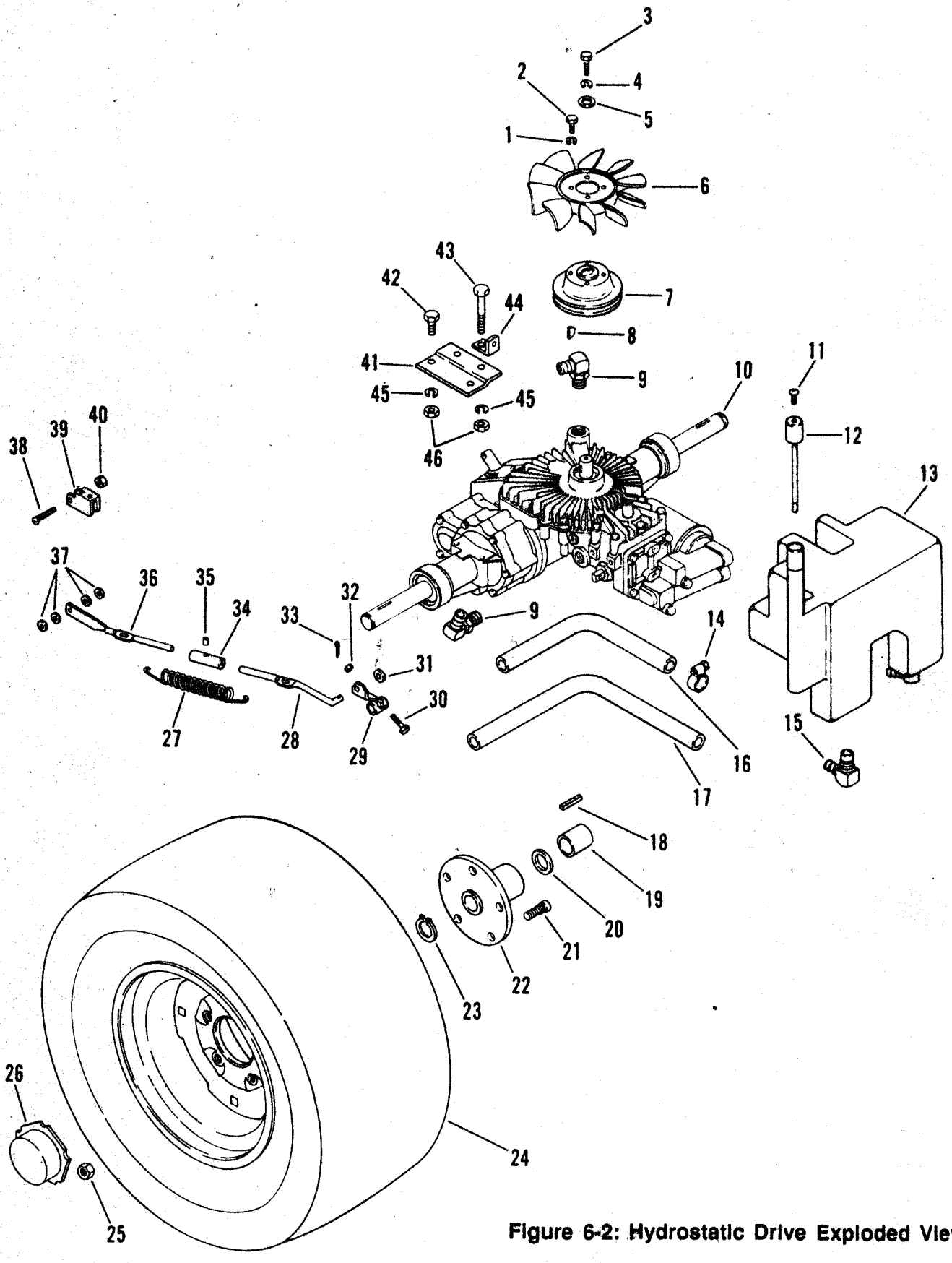


Figure 6-2: Hydrostatic Drive Exploded View

Transaxle

ITEM NO	DESCRIPTION	QTY
1	Lock Washer #10 ID	4
2	Cap Screw #10-24 x 3/8	4
3	Cap Screw 1/4-20 x 3/4	1
4	Lock Washer 1/4 ID	1
5	Washer .323/.333 x 1.000 x .094	1
6	Fan	1
7	Transaxle Pulley	1
8	Woodruff Key 3/16 x 5/8 x 1/4	1
9	Fitting	2
10	Transaxle	1
11	Vent Screw	1
12	Dip Stick	1
13	Oil Reservoir	1
14	Hose Clamp	4
15	Hose Fitting	2
16	Hose	1
17	Hose	1
18	Straight Key 1/4 x 2'' x 1/4	2
19	Spacer	2
20	Washer 1.005/1.015 x 1.505 x .062	2
21	Lug Bolt 7/16-20 x 1.188 Gr 5	10
22	Wheel Hub	2
23	Snap Ring	2
24	Rim	2
	Turf-Mate Tire	2
	Tire & Wheel Assembly	2

ITEM NO	DESCRIPTION	QTY
25	Lug Nut 7/16-20	10
26	Rear Hub Cap	2
27	Extension Spring	1
28	Front Dump Valve Rod	1
29	Dump Valve Arm	1
30	Cap Screw 1/4-20 x 1''	1
31	Washer .307/.327 x .734 x .065	1
32	Center Lock Nut 1/4-20	1
33	Cotter Pin 3/32 x 3/4	1
34	Collar	1
35	Roll Pin 1/8 x 5/8	1
36	Rear Dump Valve Rod	1
37	Washer .276/.296 x .625 x 16 Ga	4
38	Machine Screw #10-24 x 7/8	1
39	Latch	1
40	Torque Lock Nut #10-24	1
41	Transaxle Mounting Bracket	2
42	Cap Screw 3/8-16 x 1''	4
43	Cap Screw 3/8-16 x 2-3/4	4
44	Spring Anchor	1
45	Lock Washer 3/8 ID	8
46	Nut 3/8-16	8

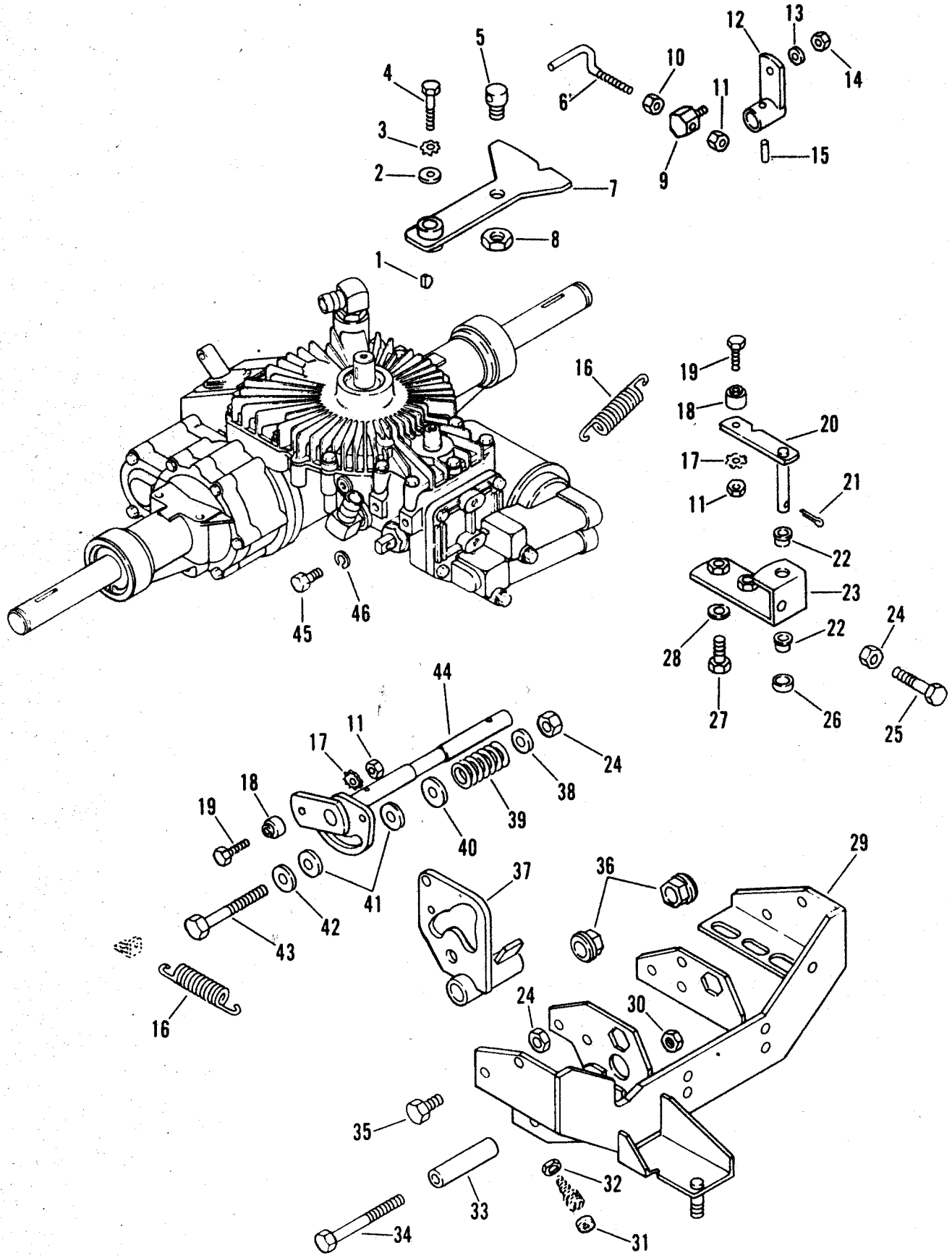


Figure 6-3: Neutralizer Exploded View

Transaxle

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Woodruff Key 1/8 x 1/2 x 13/64	1	24	Two Way Lock Nut 3/8-16	6
2	Washer .307/.327 x .734 x .065	1	25	Cap Screw 3/8-16 x 1-3/4	1
3	Lock Washer 1/4 ID	1	26	Sleeve Bushing 3/8 x 5/8 x 1/4	1
4	Cap Screw 1/4-20 x 1-1/2	1	27	Cap Screw 3/8-16 x 3/4	2
5	Adapter	1	28	Washer .380/.385 x .812 x .062	2
6	Neutral Arm	1	29	Transaxle Mount	1
7	Control Arm	1	30	Top Lock Nut 3/8-16 Gr C	1
8	Center Lock Jam Nut 1/2-13	1	31	Boot	1
9	Rod Pivot	1	32	Nut 5/8-32	2
10	Nut 1/4-20	1	33	Spacer	1
11	Center Lock Nut 1/4-20	3	34	Cap Screw 3/8-16 x 3-1/2	1
12	Neutral Arm Hub	1	35	Cap Screw 3/8-16 x 5/8	4
13	Washer .312/.343 x .625 x .062	1	36	Flange Bushing 5/8 x 7/8 x 3/4	2
14	Two Way Lock Nut 5/16-18	1	37	Cam	1
15	Roll Pin 1/8 x 7/8	2	38	Washer .401/.421 x .812 x .065	1
16	Extension Spring 3-1/16	2	39	Compression Spring	1
17	Lock Washer 1/4 ID	2	40	Washer .401/.421 x 1.125 x .125	1
18	Ball Bearing	2	41	Friction Washer	2
19	Cap Screw 1/4-20 x 1"	2	42	Washer .625/.635 x 1.005 x .062	1
20	Pivot Arm	1	43	Cap Screw 3/8-16 x 3"	1
21	Cotter Pin 1/8 x 1"	1	44	Drag	1
22	Flange Bushing 1/2 x 3/8 x 1/2	2	45	Cap Screw 5/16-18 x 5/8	4
23	Pivot Bracket	1	46	Lock Washer 5/16 I.D.	4

Transaxle

6.1 Transaxle Removal

NOTE: Remove rear deck with seat.(Refer to Section 5.1 Rear Deck Removal.)

NOTE: Remove transaxle and jackshaft belt. (Refer to Section 6.8 and 7.1.)

NOTE: For ease of access to drive components, remove front or center mounted attachment per instructions in Attachment Section.

NOTE: Disconnect brake from transaxle. (Refer to Section 4.5 Brake/Neutralizer Removal.)

Remove cap screw and center lock nut from dump valve arm. Remove arm from dump valve.

Disconnect extension spring from cam.

Remove cap screw, lock washer, washer and woodruff key securing control arm to transaxle. Carefully remove control arm from transaxle and neutral arm.

Disconnect hoses from transaxle, drain oil and cap fittings and hoses to keep dirt and foreign material from entering system.

Remove cap screw, lock washer and washer securing fan and transaxle pulley to transaxle. Remove fan and pulley from transaxle.

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

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

Raise and block rear of tractor with tires off floor.

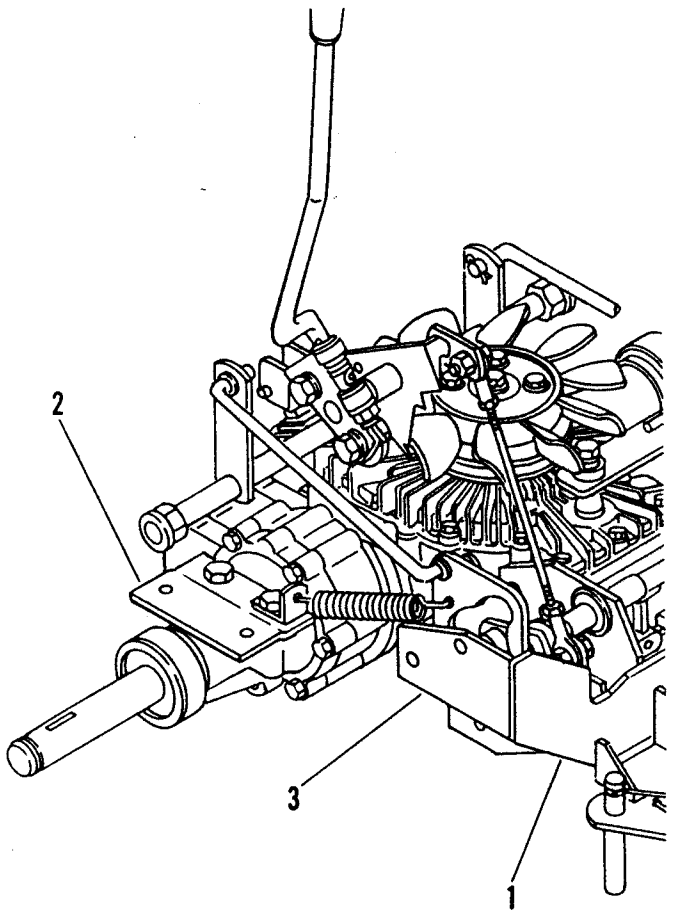
Remove hub cap, lug nuts and rear wheel. Using a snap ring pliers remove snap ring from axle. Remove wheel hub, washer, spacer and straight key from axle shaft.

Disconnect wiring from neutral switch.

To prevent damage to transaxle, support transaxle with floor jack.

Remove four cap screws and lock washers securing transaxle to transaxle mount. Remove nuts, lock washers and cap screws securing transaxle mounting bracket to tractor frame. Remove transaxle from tractor.

NOTE: Clean outside surfaces of transaxle thoroughly and place on a clean working surface before proceeding to disassemble it.



1. Transaxle Mount
2. Mounting Bracket
3. Cap Screws

Figure 6-4: Transaxle Removal

Notes

Transaxle

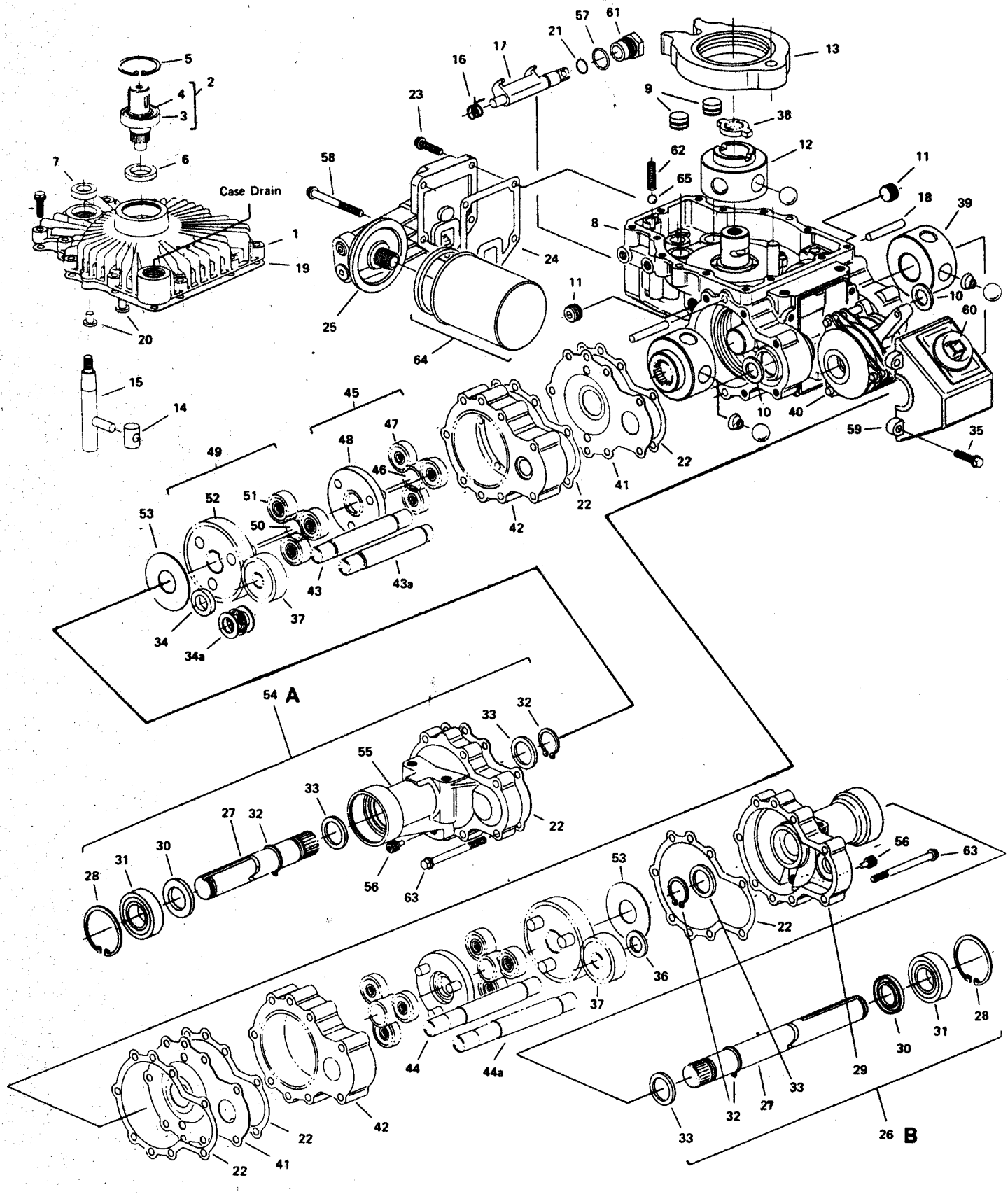


Figure 6-5: Transaxle Exploded View

Transaxle

ITEM NO	DESCRIPTION	QTY
1	Cover, Subassembly (S/A)	1
2	Shaft, Input, S/A	1
3	Bearing, Input Shaft	1
4	Ring, Retaining, External	1
5	Ring, Retaining, Internal	1
6	Seal, Input Shaft	1
7	Seal, Control Shaft	1
8	Housing, S/A	1
9	Piston, Dampening, S/A	2
10	Seal, Brake Shaft	2
11	Plug, Socket Pipe	2
12	Pump Rotor-Ball-Pin, S/A	1
13	Cam Ring, S/A	1
14	Insert	1
15	Control Shaft, S/A	1
16	Spring, Dump Valve	1
17	Bracket, Dump Valve	1
18	Dowel	4
19	Gasket, Cover	1
20	Button	2
21	O-ring	1
22	Gasket, Axle Housing	6
23	Screw, 1/4-20 Hex Flange	16
24	Gasket, Filter Base or Port Plate	1
25	Filter Base, S/A	1
26	Axle Housing, S/A - B	1
27	Shaft, Axle	1
28	Retaining Ring, Internal	1
29	Housing, Axle - B	1
30	Seal, Axle Shaft	1
31	Bearing, Axle	1
32	Retaining Ring, External	2
33	Washer, Thrust	2
34	Spacer (Thick – PB)	1
34 a	Washers, Thrust and Bearing, Thrust (DL/PB)	2&1
35	Screw, 1/4-20 Self Tap	4
36	Spacer (Thin – PB or DL/PB)	1
37	Brake Gear	2
38	Drive	1
39	Motor, Rotor-Ball, A & B S/A	2
40	Parking Brake or Option Differential Lock/Parking Brake (PB or DL/PB)	1
41	Plate, Wear	2
42	Ring Gear, A & B S/A	2
43	Brake Shaft – A (PB)	1
43 a	Brake Shaft – A (DL/PB)	1
44	Brake Shaft – B (PB)	1
44 a	Brake Shaft – B (DL/PB)	1
45	Planetary Gear, First, Subassembly	2
46	Sun Gear, First	2
47	Primary Carrier, A & B S/A	2
48	Plnt Gear, First, A & B S/A	6
49	Planetary Gear, Second, A & B S/A	2
50	Sun Gear, Second	2
51	Secondary Carrier, A & B S/A	2
52	Plnt Gear, Second, A & B S/A	6
53	Washer, Thrust	2
54	Axle Housing, S/A - A	1
27	Shaft, Axle	1
28	Retaining Ring, Internal	1
55	Housing, Axle - A	1
30	Seal, Axle Shaft	1
31	Bearing, Axle	1
32	Retaining Ring, External	2
33	Washer, Thrust	2
56	Plug, Magnetic	2
57	O-ring, Dump Valve Nut	1
58	Screw, 1/4-20 Hex Flange	2
59	Cover (PB or DL/PB)	1
60	Boot, Dust	1
61	Nut, Dump Valve	1
62	Spring, Relief Valve	1
63	Screw, 1/4-20 Hex Flange	14
64	Filter, Oil (w/seal)	1
65	Ball, Grade 200	1

Transaxle

Transaxle Series 850

The following tools are required for disassembly and reassembly of the transaxle.

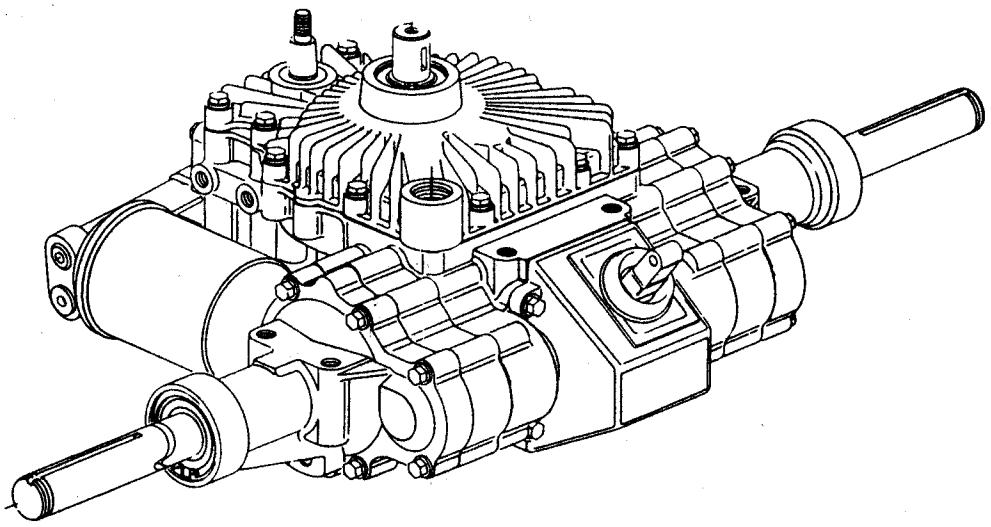
- 3/8 inch Socket or End Wrench
- 1 inch Socket or End Wrench
- Torque Wrench (300 lb-in)
- No. 5 or 7 Internal Retaining Ring Pliers
- No. 4 or 5 External Retaining Ring Pliers
- 6 or 8 inch C-clamp
- Small Screwdriver (4 to 6 inches long)
- Long Drift Punch
- Piece of Pipe or Hydraulic Tubing (1½ in. O.D. x 6 in. long)
- 3 or 4 Large Wide Rubber Bands
- Light Petroleum Jelly (such as Vaseline)

Product Identification and Ordering Information

When ordering parts for the transaxle, please include the following:

Date Code
Input Rotation
Model Number
Part Name
Part Number
Quantity of Parts

This information is located on the under side of the pump housing, opposite the input shaft.



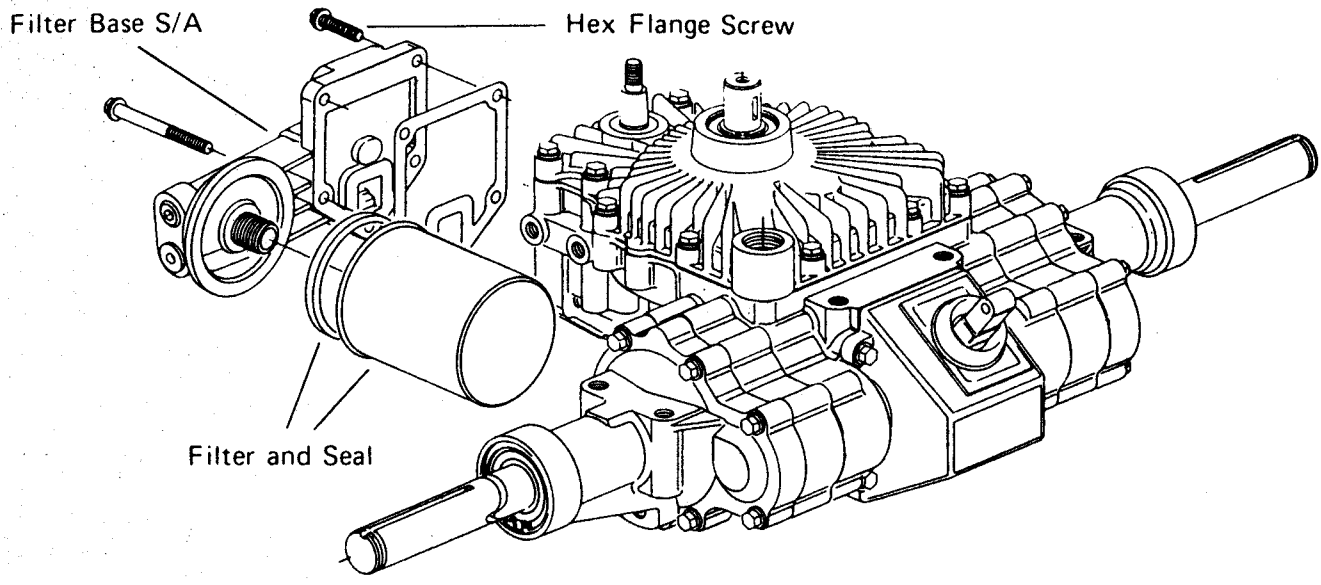
6.2 Transaxle Disassembly

The following procedures describe complete disassembly of the Transaxle Series 850. These procedures cover the basic unit only. However, procedures for units with options such as the differential lock/parking brake are still basically the same.

The level of cleanliness maintained while repairing the transaxle could affect its performance. Work in a clean area. After disassembly, wash all parts with clean solvent and blow the parts dry with air. Inspect all mating surfaces. Replace any damaged parts that could cause internal leakage. Do not use grit paper, files or grinders on finished parts.

Our service policy is to replace all seals and gaskets whenever a transaxle is disassembled. Lubricate the new seals with petroleum jelly before installation. Use only clean, recommended hydraulic fluid on the finished surfaces at reassembly.

Transaxle



1 Drain the transaxle and then remove the filter from the filter base.

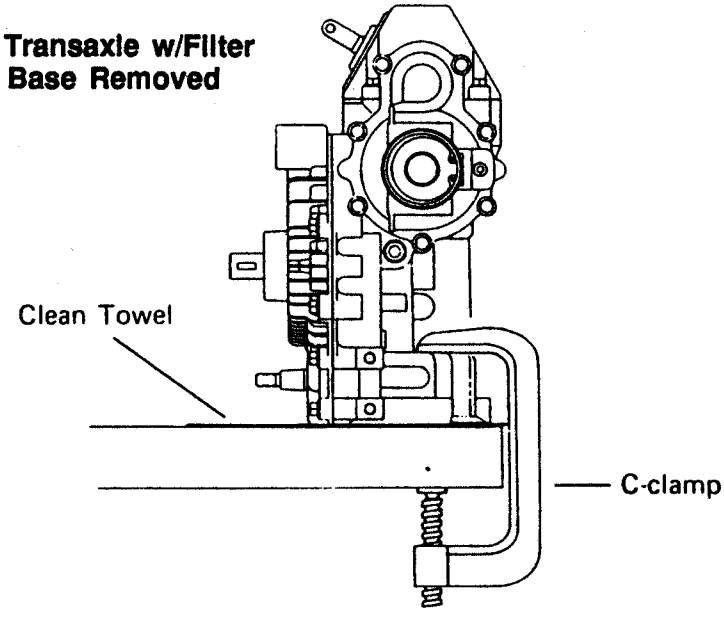
2 Remove the hex flange screws from the filter base.

3 Remove the filter base from the housing assembly.

4 Remove the filter base gasket.

Note: This gasket may have remained on the filter base when the filter base was removed from the housing assembly.

Figure 6-6: Transaxle w/Filter Base Removed



5 It is easier to disassemble the axle assemblies with the transaxle as shown. Before securing the transaxle in this position, place a clean towel between the housing's filter base surface and the work surface. This towel protects the sealing surface from possible damage during repositioning.

Secure the transaxle to a clean work surface with a 6 to 8 inch C-clamp. Do not overtighten the C-clamp when securing the transaxle.

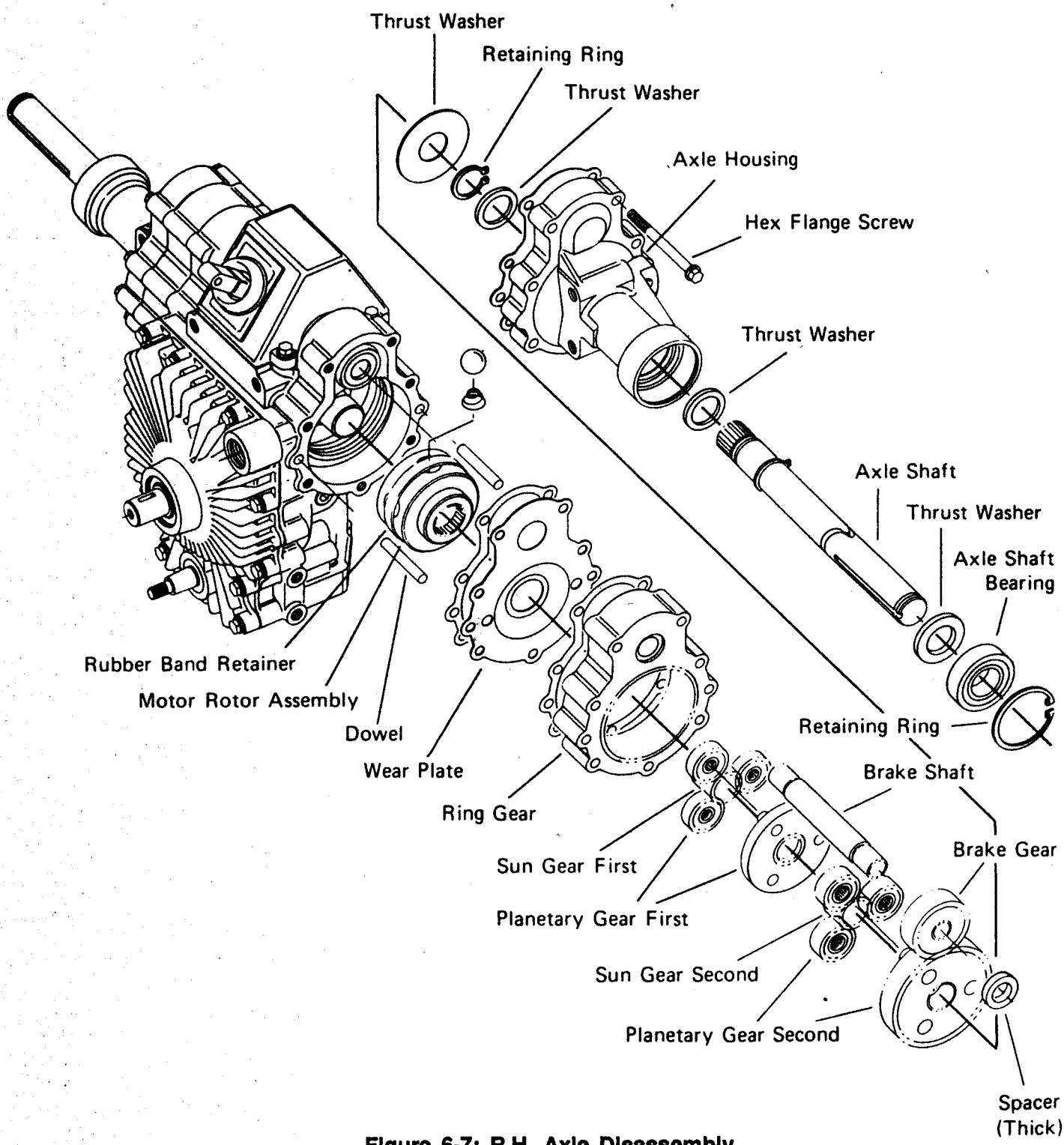


Figure 6-7: R.H. Axle Disassembly

6 Remove the hex flange screws from either axle assembly.

7 Carefully remove the axle assembly from the housing assembly.

8 In most cases the brake shaft will remain in the housing assembly when the axle assembly is removed. If this occurs, remove the brake shaft at this time.

Important: Be extremely careful when removing the motor rotor assemblies. The ball pistons are spring loaded in the bores and must remain intact because each ball piston is matched to its respective bore.

9 The best way to remove the motor rotor assemblies is to place a separate motor race on top of the existing motor race in the housing assembly. Hold the separate race securely in position. Then carefully pull the motor rotor assembly outward until the ball pistons are fully engaged in the groove located in the center of the separate race. Carefully remove the rotor assembly and race together as a set, handling the motor rotor assembly only.

Note: If a separate motor race is not available, work a wide rubber band around the outside of the motor rotor to hold the ball pistons in their bores. It is essential that the ball pistons be retained in their bores during handling. This is especially true for the motor rotors, as the motor ball pistons are spring loaded in the bores.

10 Reposition the transaxle and remove the hex flange screws from the remaining axle assembly.

11 Carefully remove the axle assembly from the housing assembly.

12 Remove the remaining brake shaft from the housing assembly.

13 Using a separate race or wide rubber band to retain the ball pistons in their bores, carefully remove the other motor rotor assembly.

6.2.1 Axle

14 The following procedures apply to both axle assemblies.

15 Remove the axle housing gasket from the wear plate.

Note: This gasket may have remained on the housing assembly when the axle assembly was removed.

16 Remove the wear plate from the axle assembly.

17 Remove the axle housing gasket from the ring gear assembly.

18 Remove the first sun gear from the primary carrier assembly.

Note: The first sun gear may have remained in the motor rotor during removal of the axle assembly.

19 Remove the primary carrier assembly from the ring gear assembly.

20 Remove the second sun gear from the secondary carrier assembly.

21 Remove the ring gear assembly from the axle housing.

22 Remove the gasket and dowel pins from the axle housing.

23 Remove the brake gear from the axle housing.

24 Remove the spacer washer from the axle housing.

Note: On transaxles with the differential lock/parking brake option, two thrust washers and a thrust bearing are used in place of the spacer in the A axle assembly.

25 Remove the secondary carrier assembly from the axle shaft.

26 Both the primary and secondary carrier assemblies may be disassembled for inspection.

27 Remove the thrust washer from the axle housing.

28 Reposition the axle housing with the splined end of the axle in the up position. Use a no. 4 or 5 external retaining ring pliers to remove the retaining ring and thrust washer from the axle shaft.

29 Reposition the axle housing assembly with the wheel end of the axle in the up position. Use a no. 5 or 7 internal retaining ring pliers to remove the bearing retaining ring from the axle housing.

30 Remove the axle from the axle housing by using a small press or by tapping the splined end of the axle with a plastic tipped hammer. This will dislodge the seal and bearing from the axle bore.

31 Press the bearing from the axle shaft. Remove the seal and thrust washer from the axle shaft. The thrust washer may have remained in the axle housing when the axle shaft was removed,

Note: The retaining ring remaining on the axle shaft need not be removed.

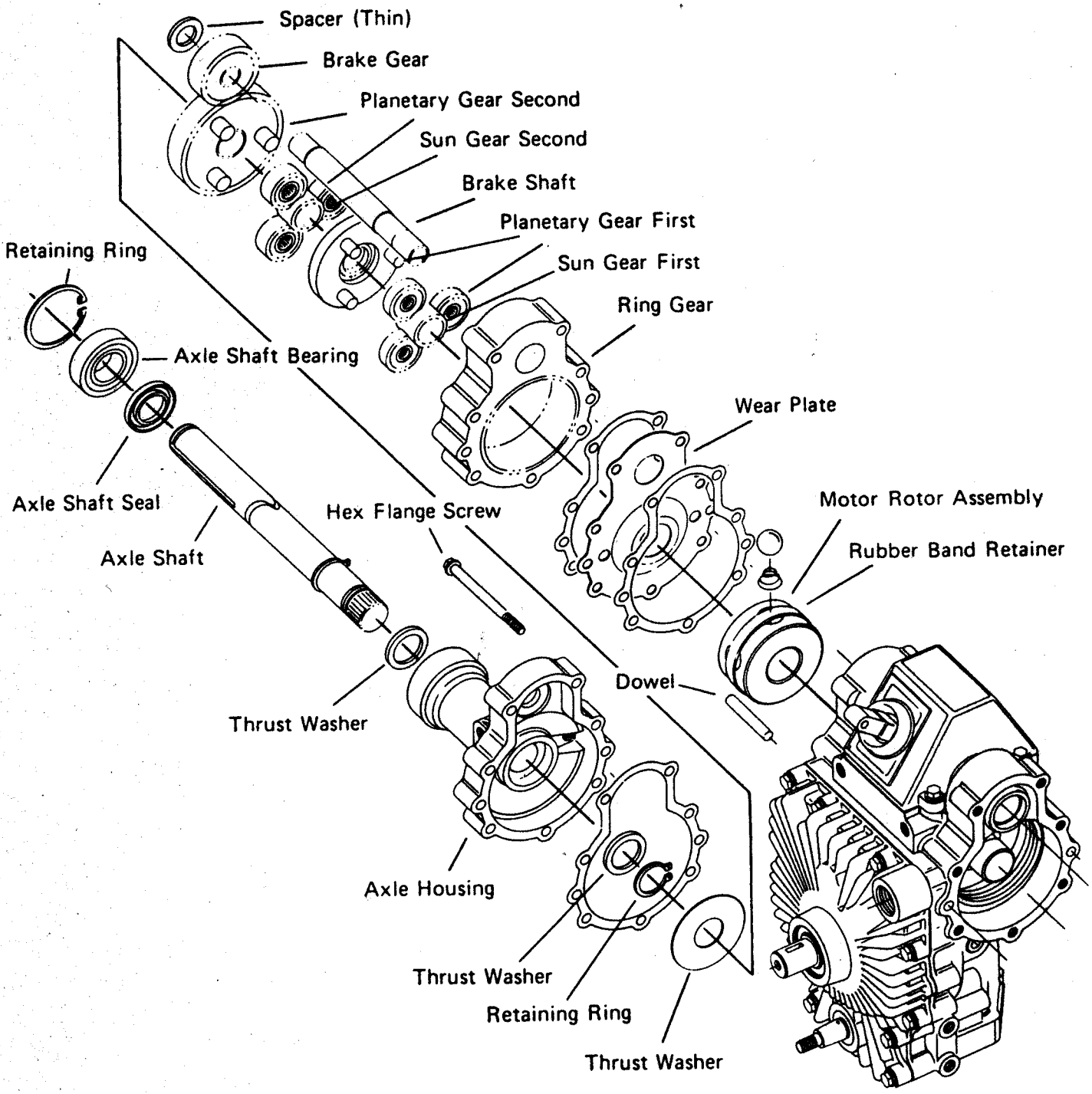


Figure 6-8: L.H. Axle Disassembly

6.2.2 Housing Disassembly

32 Remove the four self tap screws from the brake (PB or DL/PB).

33 Remove the PB or DL/PB cover from the housing assembly.

34 Remove the PB or DL/PB assembly from the housing assembly.

35 In most cases total disassembly of the PB or DL/PB is not recommended.

36 On units with the differential lock/parking brake option, the two outside disks are the only disks that can be removed easily for inspection and cleaning.

Note: On transaxles with the differential lock/parking brake option, do not move the lever unnecessarily, especially when it is out of the housing assembly. The differential lock/parking brake assembly incorporates automatic self-adjusting brakes. Activation of the lever may cause the brake to expand and make installation of the assembly very difficult.

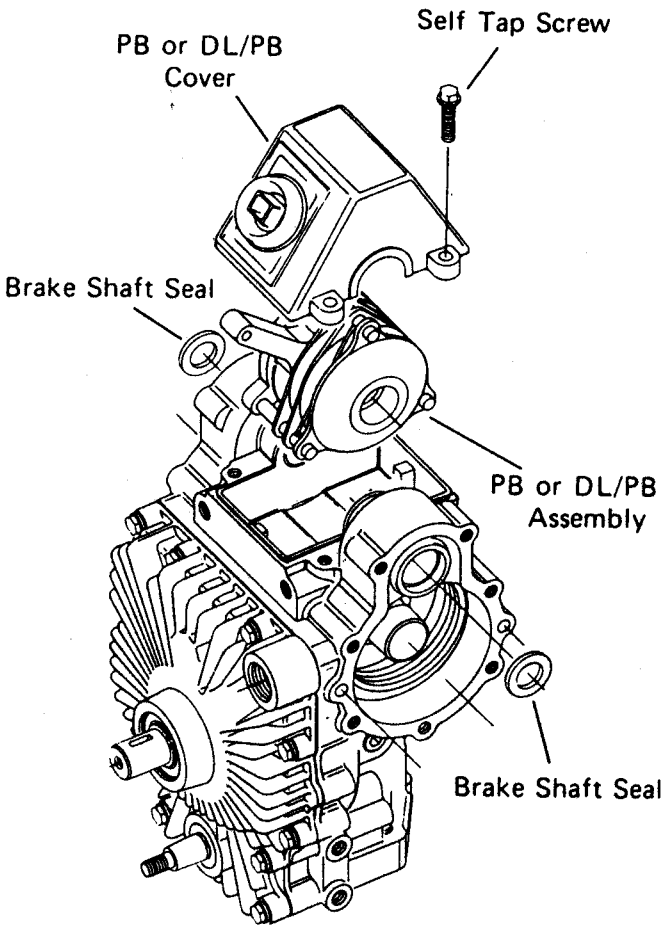


Figure 6-9: Housing Brake Cover

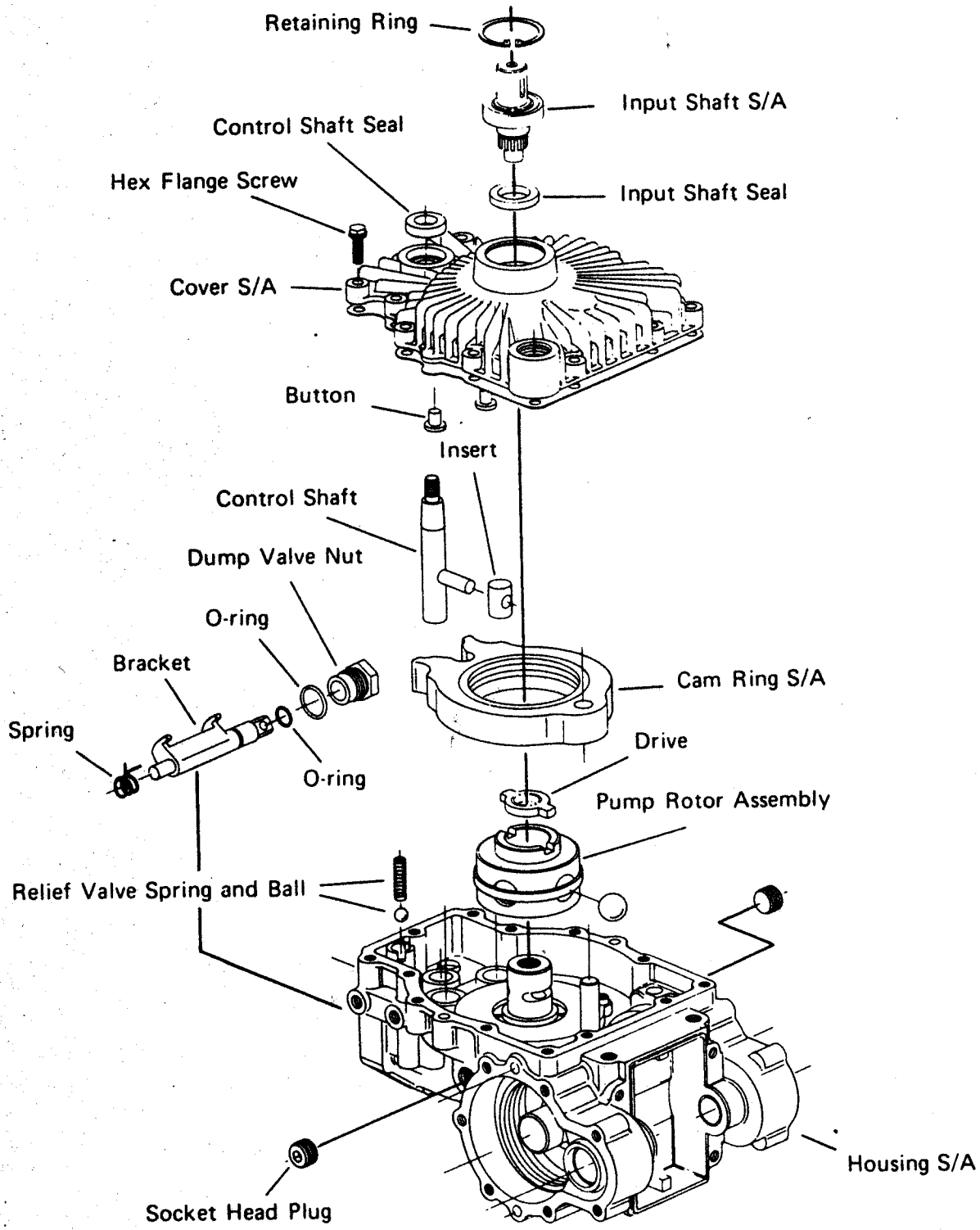


Figure 6-10: Housing Disassembly

37 Reposition the housing assembly and remove the hex flange screws from the cover assembly.

Note: One of the hex flange screws is located in the case drain port.

38 Carefully separate and remove the cover from the housing assembly.

39 Use a no. 5 or 7 internal retaining ring pliers to remove the input shaft retaining ring from the cover.

40 Reposition and support the cover with the input shaft in the down position. Use a plastic hammer or press to remove the input shaft assembly from the cover.

41 Remove the input shaft seal from the cover with a screwdriver.

42 Reposition the cover and then pry the control shaft seal from the cover assembly with a small screwdriver.

43 Remove the cover gasket from the housing.

Note: The gasket may have remained on the cover when it was removed.

44 Remove the charge pressure relief valve spring from the housing assembly.

45 Use a pencil magnet or similar tool to remove the charge pressure relief ball from its seat.

46 Remove the two buttons from the cam ring assembly.

Note: These buttons may have remained in the cover assembly.

47 Remove the drive from the pump rotor assembly.

48 Remove the control shaft and insert from the housing and cam ring assembly.

49 Remove the cam ring insert from the control shaft.

50 Remove the cam ring assembly from the housing.

51 Carefully remove the pump rotor assembly from the housing, making sure the ball pistons are not dislodged from their bores.

Important: It is essential that the pump rotor assembly remain intact during handling as each ball piston is matched to its respective bore.

52 Install a wide rubber band around the pump rotor to retain the ball pistons in their bores.

6.2.3 Rotor

53 Inspect the rotor assemblies in the following manner. Remove the piston balls from the rotor, one at a time, working clockwise from the letter stamped in the rotor face. Place the piston balls in a container such as an egg carton or ice cube tray. The balls must be replaced in the same bores from which they were removed because they are all select fit.

Check for broken or collapsed springs in the motor rotor assembly. When broken or collapsed springs are found with no other irregularities, the springs may be replaced individually without replacing the complete motor rotor assembly.

Inspect the piston balls. They must be smooth and completely free of any irregularities.

Inspect the rotor bores, rotor bushing and pintle journals for irregularities or excessive clearance. The ball piston to rotor bore clearance is select fit electronically from .0002 to .0006 inch. When irregularities are noted, replace the complete rotor assembly.

54 Install the pistons in their matching bores. Hold them in place with a rubber band or separate race.

55 Remove the socket head screws from the charge pump plate.

56 Remove the charge pump plate from the housing assembly.

57 Remove the charge pump gerotor assembly from the housing assembly.

58 The pump and motor journals and cam ring dowel cannot be removed once they have been installed in the housing assembly.

Note: Inspect the pump and motor journals for any irregularities. If any are found, the housing must be replaced as a complete assembly.

59 In most cases. removal of the dampening pistons for inspection or cleaning is not recommended. Normal flushing should be all that is required for cleaning.

60 Remove the dump valve nut from the cover assembly.

61 Remove the o-ring from the dump valve nut.

62 After removing the dump valve nut, remove the dump valve bracket and spring from the housing assembly by sliding them over and lifting upward.

63 Remove the spring from the dump valve bracket.

64 Remove the o-ring from the dump valve bracket.

65 Removal of the check valve assemblies for inspection or cleaning is not recommended. Once again, normal flushing should be all that is required to clean the check valves.

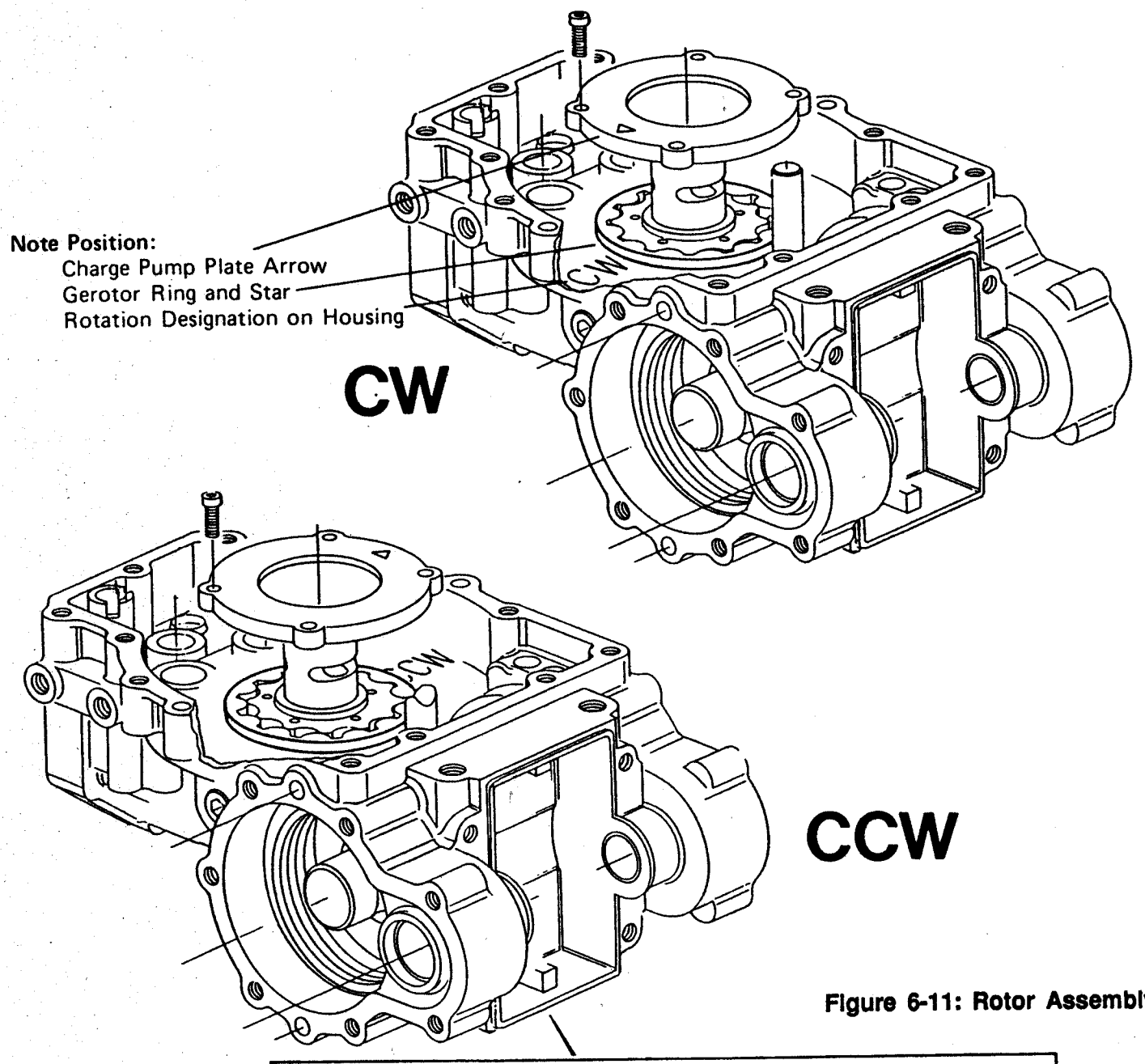
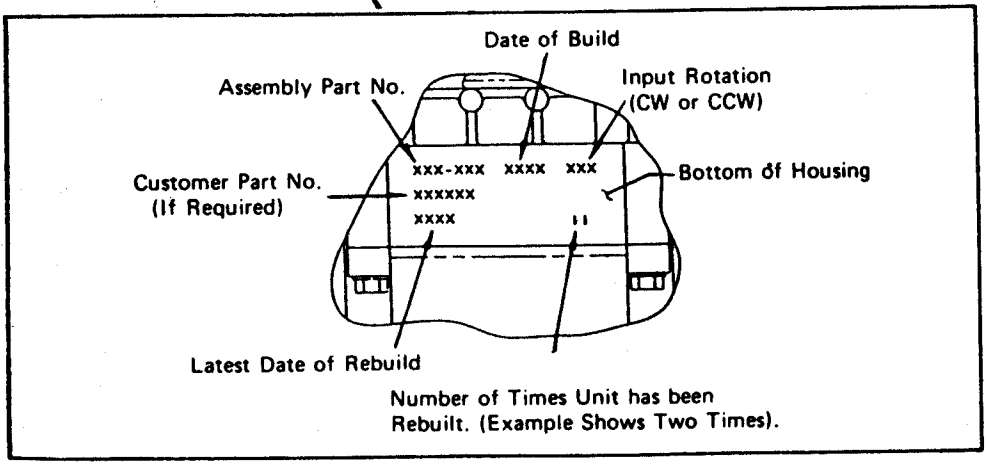


Figure 6-11: Rotor Assembly



66 Reposition the housing assembly on its side. Using a long drift punch, remove the brake shaft seal from the housing. Turn the housing assembly over and remove the other brake shaft seal.

6.3 Transaxle Reassembly

67 Before reassembling the Transaxle Series 850, clean all parts and assemblies with clean solvent and blow them dry with compressed air. Inspect and replace all scratched or damaged parts. Replace all gaskets, shaft seals and o-rings. Lubricate all seals and o-rings with petroleum jelly (Vaseline) for retention during assembly. Freely lubricate all bearings and finished part surfaces with clean hydraulic fluid to provide lubrication at start-up.

6.3.1 Housing Reassembly

68 Position the housing assembly on its side. Lubricate and install the brake shaft seal with the seal lip pointing away from the housing. Press or drive the seal into the counterbore.

69 Turn the housing assembly over and repeat the same procedure for the other brake shaft seal.

70 Lubricate and install the o-ring in the groove located in the dump valve bracket.

71 Install the spring on the dump valve bracket wtih the right angle bend of the spring pointing inward.

72 Install the spring and dump valve bracket in the housing assembly. The spring is properly assembled when the longest leg points toward the check valve assembly.

73 Lubricate and install the o-ring around the dump valve nut.

74 Install the nut over the dump valve bracket, into the housing assembly, making sure you do not damage the dump valve o-ring during installation.

Torque the dump valve nut to 150 lb-in.

75 Install the gerotor assembly on the housing assembly.

76 For easier assembly, rotate the gerotor's outer ring to fully engage with the inner star's teeth. The fully engaged side of the gerotor assembly should point towards the designed input rotation (CW or CCW as noted on the housing assembly).

Note: The designed input rotation is stamped on the under side of the housing assembly.

Freely lubricate the gerotor assembly with clean hydraulic fluid to provide lubrication at start-up.

77 All charge pump plates have a small arrow cast into the outer face of the pump plate. At assembly, this arrow must face the input rotation designated in the housing assembly.

78 Align the rotation arrow with the input rotation and then install the pump plate over the gerotor assembly. Install the four socket head screws in the pump plate and finger tighten them only at this time.

79 The bottom side of the pump rotor assembly incorporates five drive pins. At assembly, these pins must be engaged with the inner star of the charge pump gerotor.

80 Lubricate and install the pump rotor assembly on the pump journal, engaging the drive pins with the gerotor inner star.

After installation, rotate the pump rotor assembly several times to center the pump plate on the gerotor assembly.

81 Alternately tighten the socket head screws and torque them to 44 lb-in.

82 Remove the rubber band from the pump rotor assembly. Install the cam ring assembly in the housing assembly with the flush side of the cam ring facing outward.

83 Install the cam ring insert on the control shaft pivot dowel.

84 Install the control shaft assembly, first aligning the cam ring insert with the cam ring assembly and then with the housing assembly.

85 Drop the charge pressure relief valve ball in its bore.

86 Install the charge pressure relief valve spring in its bore.

87 Install the drive in the pump rotor assembly.

88 Install the cover gasket on the housing assembly.

6.3.2 Cover Reassembly

89 Lubricate and install the control shaft seal with the seal lip facing inward. Press or drive the seal into the counterbore.

90 Lubricate and install the input shaft seal with the seal lip pointing inward. Press or drive the seal into the counterbore.

91 Press or drive the input shaft assembly into the cover.

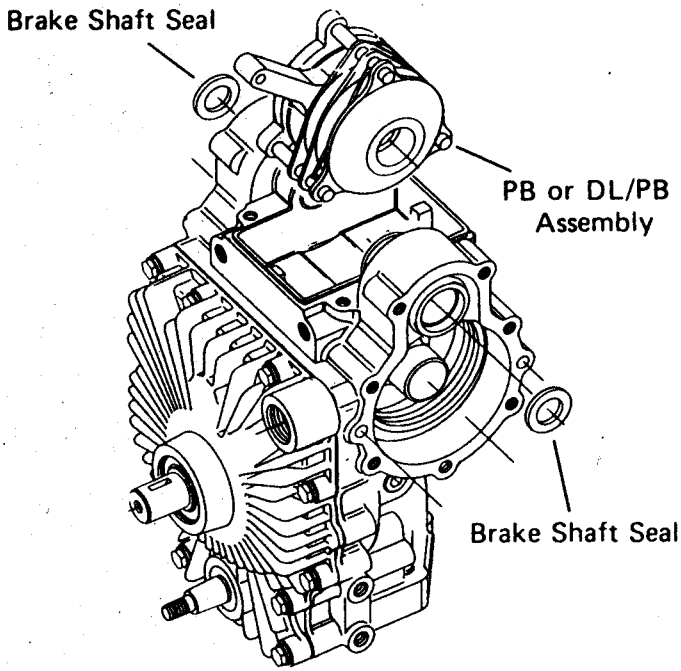
92 Install the input shaft assembly retaining ring, making sure it is firmly seated in the retaining ring groove.

93 Apply a small amount of petroleum jelly to the buttons for retention during assembly. Install the buttons in the cover assembly.

94 Install the cover assembly, carefully aligning it with the control shaft, cam ring pivot dowel and pump rotor drive. Be careful not to dislodge the charge pressure relief valve from its bore.

95 After engaging the control shaft and pivot dowel in the cover assembly, carefully rotate the input shaft to engage the pump rotor drive. When all mating parts are aligned and engaged, the cover assembly should fall into position on the housing assembly.

96 Install the hex flange screws in the cover assembly and torque them to 125 lb-in.



97 Before installing the PB or DL/PB assembly, make sure the brake is in the unlocked position.

Note: On transaxles with the differential lock/parking brake option, make sure you do not move the lever unnecessarily, especially when it is out of the housing assembly. The differential lock/parking brake assembly incorporates automatic self-adjusting brakes. Activation of the lever may cause the brake to expand and make installation of the assembly very difficult.

98 Install the PB or DL/PB assembly into the housing assembly. Align it with the four notches cast in the housing assembly.

Note: Make sure the PB or DL/PB lever is pointing or leaning towards the cover side of the housing assembly.

99 To ensure correct installation of the axle housings in the housing assembly, the housing and axle assemblies are marked with an A and B.

The B side of the transaxle must be assembled first.

100 Two different brake shaft lengths are used in the axle housing assemblies. The shorter shaft is always used in the A axle housing, regardless of whether the PB or DL/PB is used. The longer shaft is always used in the B axle housing assembly.

101 Apply a small amount of petroleum jelly to the brake shaft seal. Carefully install the longer of the two brake shafts in the B side of the housing assembly.

Note: Make sure the lip of the brake shaft seal is not damaged during installation.

102 The next step is to engage the brake shaft with PB or DL/PB . To engage the splines, align and hold the inner disk and thrust bearing with one hand and rotate the brake shaft slightly with the other hand.

103 Reposition the housing assembly and carefully install the motor rotor assembly on the motor journal, into the housing assembly.

Note: If a rubber band was used to retain the ball pistons, remove it now.

104 The first sun gear is longer than the second sun gear. Install the first sun gear into the motor rotor assembly.

105 Install the two dowel pins and the first of three identical gaskets on the B side of the housing assembly.

106 Install the wear plate, bowed side toward the motor rotor assembly, aligning it with the two dowels.

107 Install the second of three gaskets on the wear plate, aligning it with the dowels.

108 Install the ring gear assembly on the housing assembly, aligning it with the brake shaft and dowels.

Caution: The two ring gear assemblies are identical and can be installed on either side of the housing assembly. However, when installing the ring gear assembly, the side with the bearing must face the axle housing assembly.

109 Lubricate and assemble the three planetary gears on the primary carrier assembly.

110 Install the primary carrier assembly into the ring gear assembly, aligning and engaging it with the previously installed sun gear.

111 Install the second sun gear in the primary carrier assembly.

Note: The pointed end of the second sun gear must point toward the first sun gear.

112 Lubricate and assemble the three planetary gears on the secondary carrier assembly.

113 Install the secondary carrier, aligning and engaging the three planetary gears wtih the ring gear assembly and second sun gear.

114 Install the brake gear on the brake shaft.

115 Two different spacer thicknesses are used in the axle housing assemblies. On transaxles with the standard parking brake, the thicker spacer is used in the A axle assembly and the thinner spacer is used in the B axle assembly.

On transaxles with the differential lock/parking brake option, the A axle housing assembly uses two thin thrust washers and a thrust bearing to replace the thick spacer. The B axle housing assembly always uses the thinner spacer, regardless of whether the PB or DL/PB is used.

116 For retention during assembly, apply a small amount of petroleum jelly to the thin spacer. Install the spacer on the brake shaft and brake gear.

117 Install the third and final gasket on the ring gear assembly.

6.3.3 Axle Reassembly

118 Lubricate and install the axle shaft and thrust washer in the axle housing.

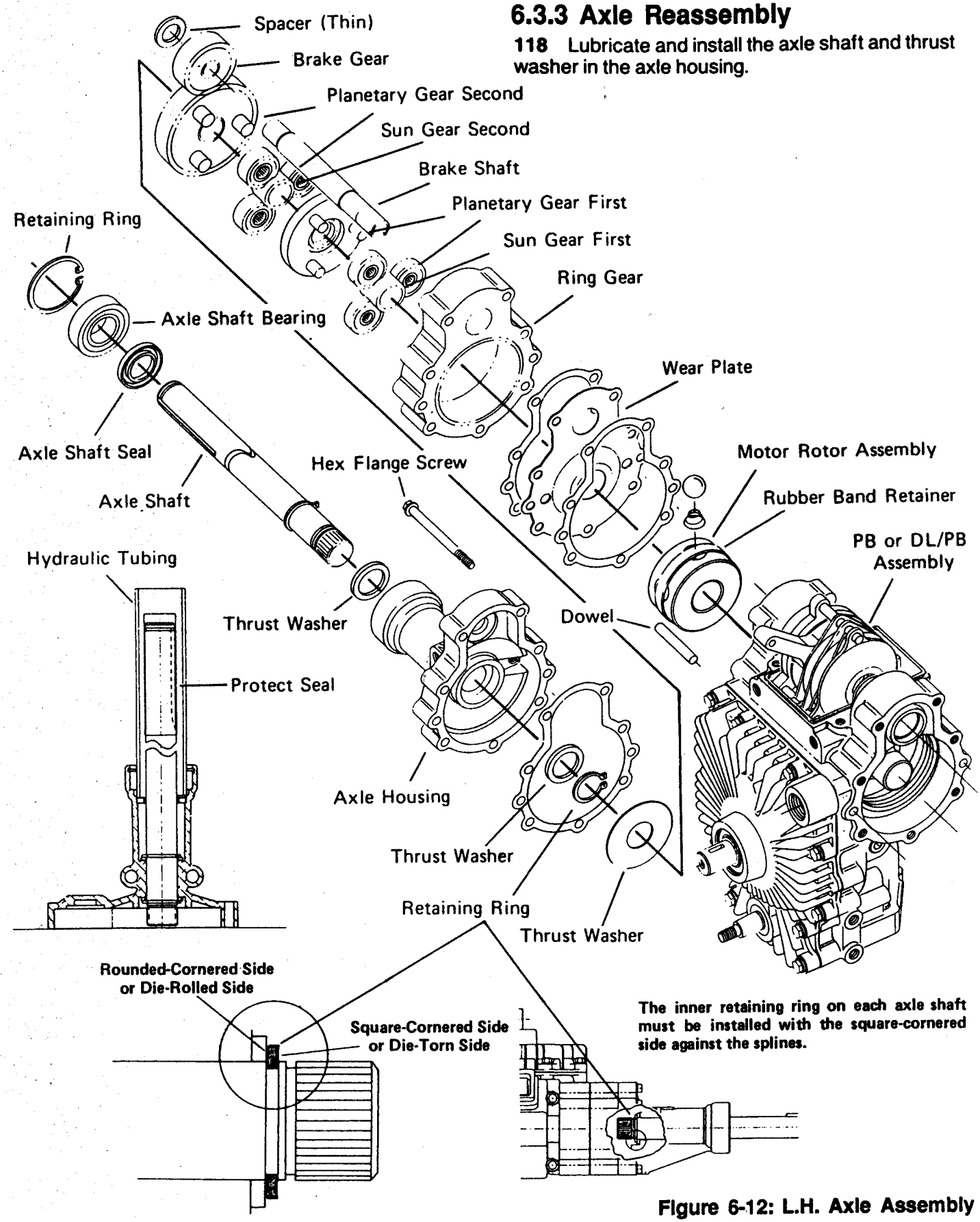


Figure 6-12: L.H. Axle Assembly

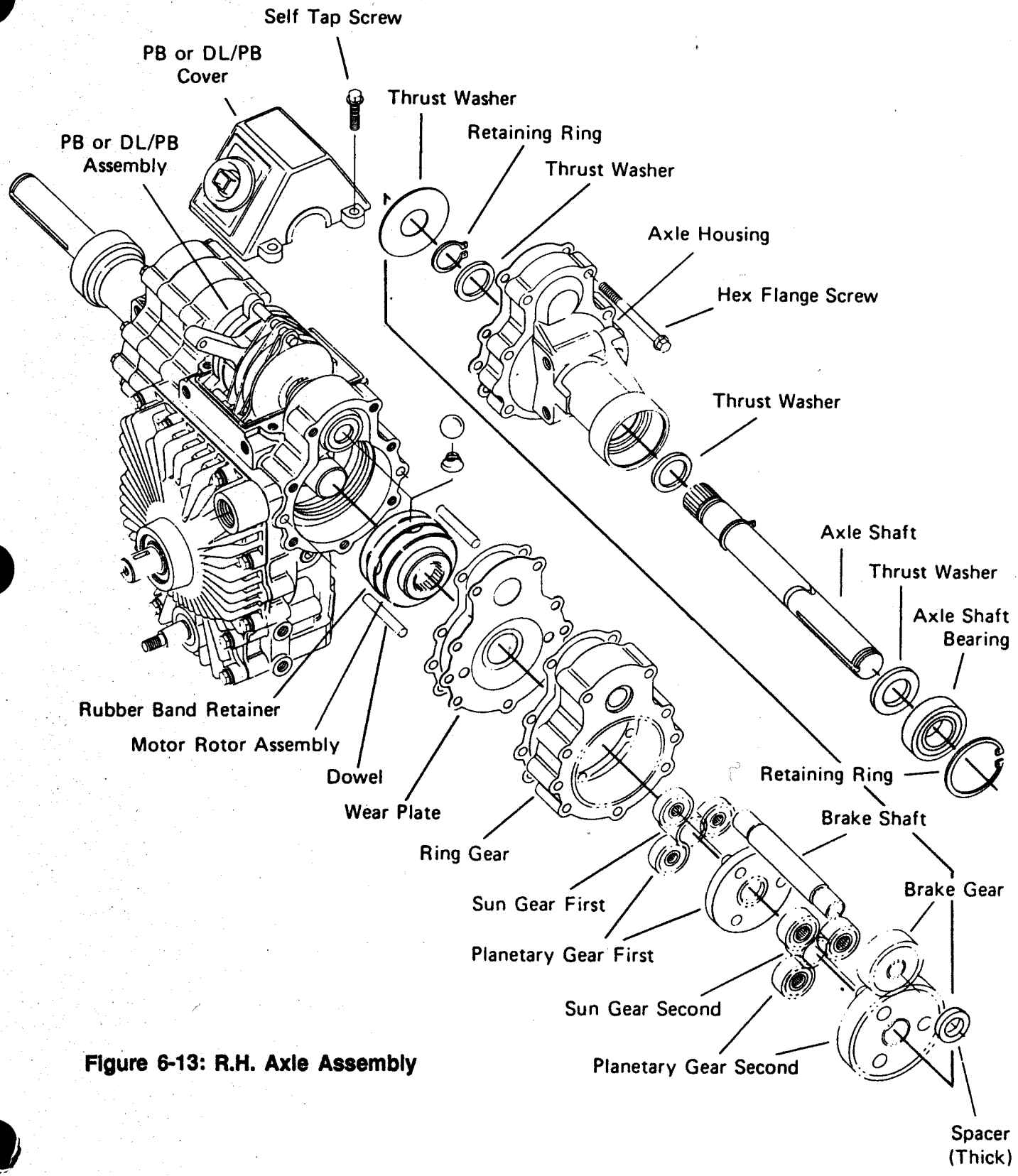


Figure 6-13: R.H. Axle Assembly

119 Position the axle housing assembly with the axle end pointing downward. Install the inner thrust washer and axle shaft retaining ring.

120 Reposition the axle assembly with the output end pointing upward. Protecting the lip of the axle seal from the retaining ring groove and keyway, lubricate and install the seal with the lip pointing inward toward the axle housing.

121 Use a piece of hydraulic tubing (1½ in. O.D. x 6 in. long), to press the seal into the counterbore.

122 Press the sealed bearing over the axle shaft, and into the counterbore. Use a no. 5 or 7 internal retaining ring pliers to install the bearing retaining ring in the axle housing.

123 Reposition the axle housing assembly and install the large thrust washer on the axle shaft.

124 Install the B axle housing assembly, aligning and engaging the axle shaft with the secondary carrier assembly.

Note: To ensure correct installation, the axle housings are marked with the letters A and B. Each side of the housing assembly is also marked with an A or B. Make sure the axle housings are correctly assembled with the corresponding letters on the housing assembly.

125 After installing the axle housing, install the hex flange screws in the housing and torque them to 125 lb-in.

126 Reposition the housing assembly. Apply a small amount of petroleum jelly to the brake shaft seal. Carefully install the remaining brake shaft in the A side of the housing assembly.

127 To align and engage the brake shaft splines, hold the disk with one hand and rotate the brake shaft slightly with the other hand.

128 Reposition the housing assembly and install the remaining motor rotor assembly.

129 Install the first sun gear into the motor rotor assembly.

130 Install the two dowel pins and the first of three identical gaskets on the A side of the housing assembly.

131 Install the wear plate with the bowed side facing the motor rotor assembly, aligning it with the two dowels.

132 Install the second of three gaskets on the wear plate, aligning it with the two dowels.

133 Install the ring gear assembly on the housing assembly, aligning it with the brake shaft and dowels.

Caution: When the ring gear assembly is installed, the side with the bearing must face the axle housing.

134 Install the primary carrier assembly in the ring gear by aligning and engaging it with the previously installed sun gear.

135 Install the second sun gear in the primary carrier assembly.

Note: The pointed end of the second sun gear must point toward the first sun gear.

136 Install the secondary carrier, aligning and engaging the three planetary gears with the ring gear assembly and second sun gear.

137 Install the brake gear on the brake shaft.

138 For retention during assembly, apply a small amount of petroleum jelly to the thin spacer. Install the spacer on the brake shaft.

Differential lock/parking brake option only, apply a small amount of petroleum jelly to the thrust washers and bearing for retention during assembly. Install the thrust washers and bearing on the brake shaft.

Note: At assembly, the thrust bearing must be positioned between the two thrust washers.

139 Install the third and final gasket on the ring gear assembly.

140 Install the large thrust washer on the axle shaft.

141 Install the A axle housing assembly, aligning and engaging the axle shaft with the secondary carrier assembly.

142 Install the hex flange screws in the housing and torque them to 125 lb-in.

143 Reposition the transaxle assembly and install the brake cover by inserting the lever through the dust boot.

144 Install the self tap screws in the brake cover and torque them to 105 lb-in.

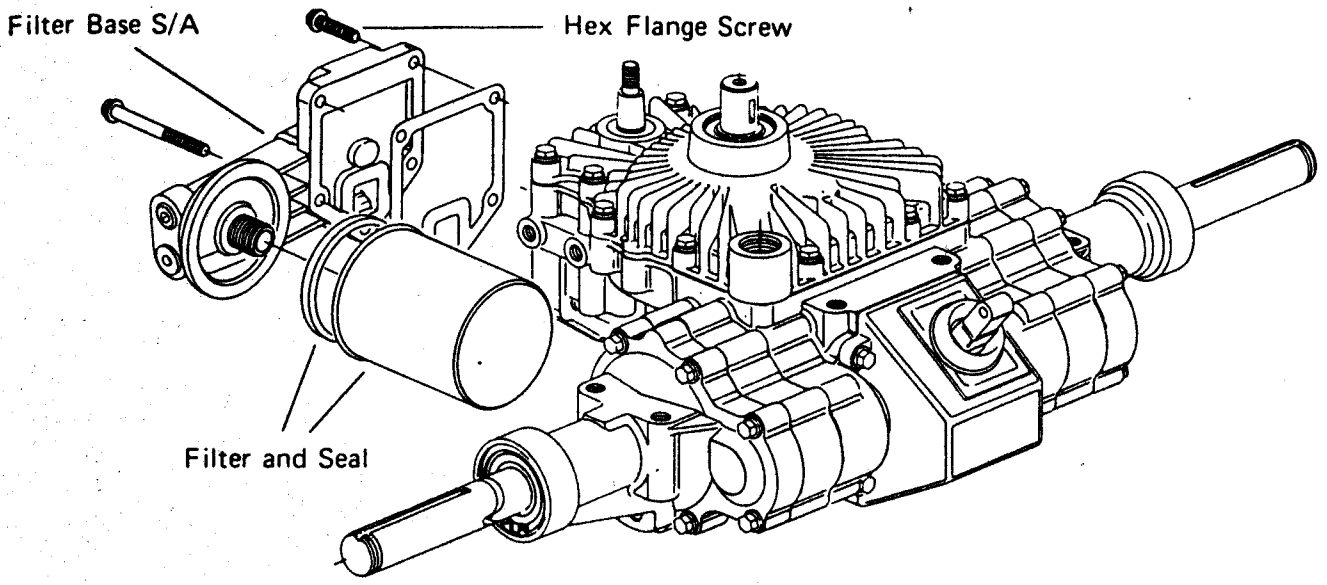


Figure 6-14: Transaxle w/Filter Base

145 Reposition the transaxle assembly and install the filter base gasket.

146 Aligning the screw holes, install the filter base on the housing assembly.

147 Install the hex flange screws in the filter base and torque them to 125 lb-in.

148 Apply light film of oil to sealing edge of new filter seal. Hand tighten filter; do not use filter wrench.

NOTE: Tighten filter 3/4 to 1 full turn after filter gasket contacts base.

6.4 Fluid Recommendations

A reputable supplier can help you make the best selection of hydraulic fluid for use in Eaton hydrostatic products.

For satisfactory operation, the following recommendations apply:

1. The filter system used in the hydraulic circuit should be capable of cleaning and maintaining the hydraulic fluid to meet ISO Cleanliness Code 18/13 per SAE J1165. This code allows a maximum of 2500 particles per milliliter greater than 5μm and a maximum of 80 particles per milliliter greater than 15μm.
2. At normal operating temperatures, optimum viscosity ranges are from 80-180 SUS (16-39 cSt). Viscosity should never fall below 60 SUS (10 cSt) and, at the lowest expected start-up temperature, should not exceed 10,000 SUS (2158 cSt).
3. The fluid should be chemically stable, incorporating rust and oxidation inhibitors.

   Specific types of fluid meeting these requirements are:

   - Premium hydraulic oil; such as Mobil DTE-26
   - Engine crankcase oil–SAE 20w-20, SAE 30 or SAE 40

Note: If the natural color of the fluid has become milky, it is possible that a water contaminant problem exists.

For accurate level readings, take readings when the fluid is cold.

6.5 Neutralizer Removal

NOTE: Remove jackshaft (PTO) assembly (refer to Implement (PTO) Section).

Remove center lock nut and cap screw securing shift rod to drag. Disconnect shift rod from drag.

To prevent damage to neutralizer, support with floor jack.

Remove four two-way lock nuts and cap screws securing transaxle mount to tractor frame.

Remove neutralizer assembly from tractor.

Inspect mounting hardware for wear or damage and replace if necessary. Assemble in reverse order.

6.6 Neutralizer Disassembly

NOTE: Place neutralizer on clean working surface, being sure to lay out parts in order for ease of reassembly.

Remove nut securing neutral switch to transaxle mount and remove switch.

Remove two-way lock nut and washer securing rod pivot to neutral arm hub. Remove neutral arm and pivot from hub.

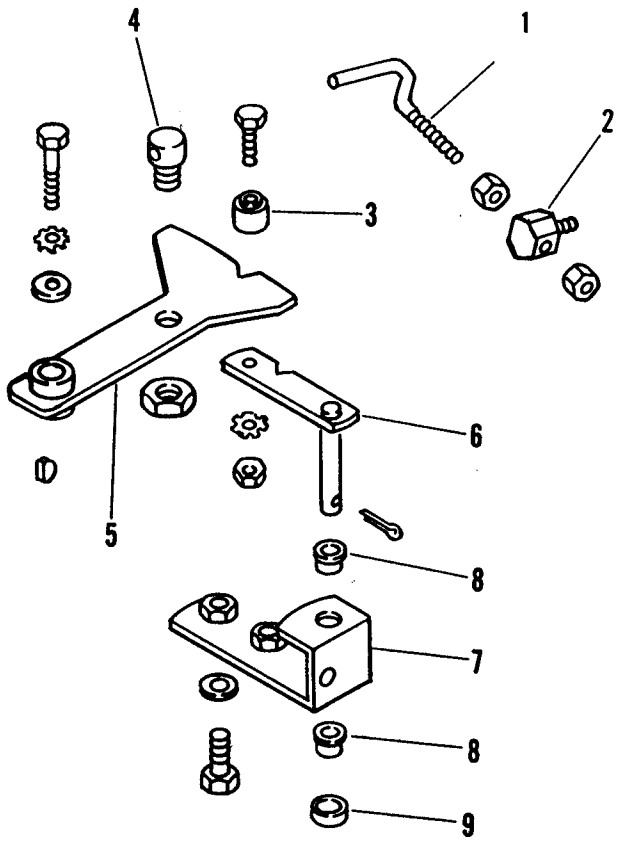
Remove center lock nut, lock washer and cap screw securing bearing to pivot arm.

Remove cotter pin securing pivot arm in pivot bracket. Remove pivot arm, flange bushings and sleeve bushing from pivot bracket.

Remove cap screws and washers securing pivot bracket to transaxle mount. Remove pivot bracket from mount.

Remove roll pins from drag. Remove neutral arm hub from drag. Remove cap screw, lock nut and lock washer securing bearing to drag. Remove bearing from drag.

Remove top lock nut, cap screw and spacer securing cam in transaxle mount. Remove cam from transaxle mount.



1. **Neutral Arm**
2. **Rod Pivot**
3. **Ball Bearing**
4. **Adapter**
5. **Control Arm**
6. **Pivot Arm**
7. **Pivot Bracket**
8. **Flange Bushing**
9. **Sleeve Bushing**

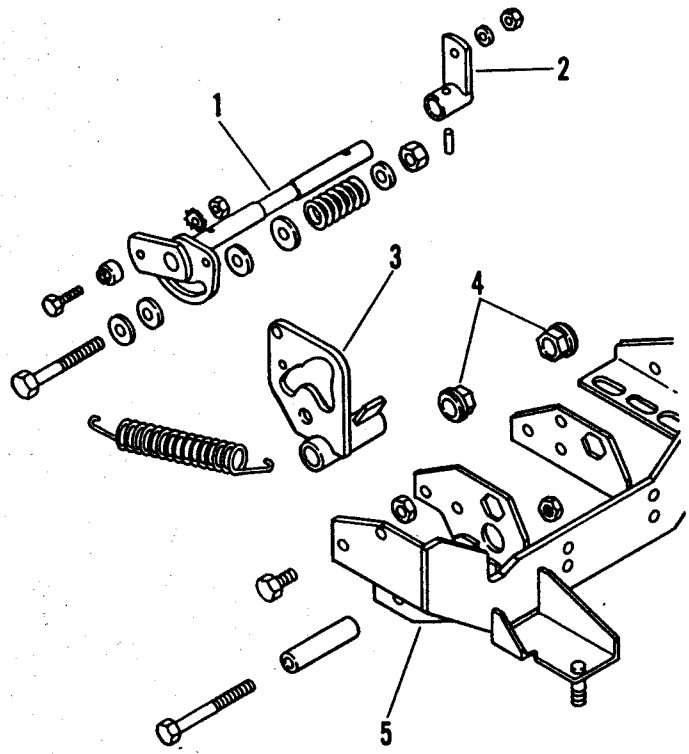
Figure 6-15: Neutral and Control Arm

Remove two-way lock nut, washers, compression spring, friction washers and cap screw.

Remove one flange bushing from end of drag, and remove other bushing from transaxle mount. Carefully guide drag out of transaxle mount.

Inspect parts for wear or damage and replace if necessary. Assemble in reverse order.

Lubricate all pivot points after assembly.



1. Drag
2. Neutral Arm Hub
3. Cam
4. Flange Bushing
5. Transaxle Mount

Figure 6-16: Neutralizer Drag and Cam

6.7 Neutral Adjustment

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

NOTE: Carefully place jumper in seat switch wire for the following adjustment. Be sure to remove jumper after adjustment is completed.

Raise and block rear of tractor with both wheels off the floor.

Remove rear deck and fuel tank. (Refer to Section 5.1 Rear Deck, Fuel and Engine.)

With transmission linkage exposed, check for a distance of 10-3/4" from center to center of ball joints on shift rod. If adjustment is needed, loosen lock nuts at ball joints and turn rod to obtain proper distance. Retighten lock nuts when adjustment is completed.

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

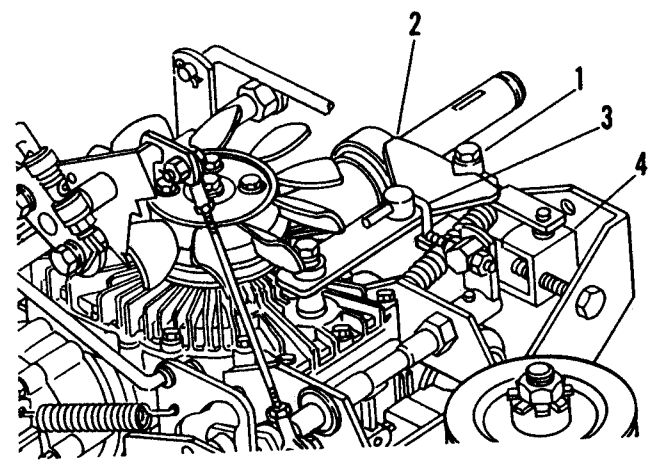
Check to see that bearing of pivot arm is in the detent of control arm when Parking Brake is set. If not, loosen lock nuts on neutral arm. Start tractor and release Parking Brake. Loosen two cap screws securing pivot bracket to transaxle mount. Move pivot bracket to the point of where there is no movement (creeping) of rear tires. Retighten cap screws.

When neutral is obtained, retighten lock nuts on neutral arm.

IMPORTANT: Be sure that neutral arm is centered in adapter on control arm and is free from binding.

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

With fuel tank and rear deck back in place, check to be sure that Speed Selector returns to neutral slot in rear deck when Brake/Neutralizer is depressed. If adjustment is required, refer to (Section 4.3 Speed Selector) to complete adjustment.



1. Bearing
2. Control Arm
3. Neutral Arm
4. Pivot Bracket

Figure 6-17: Neutral Adjustment

6.8 Transmission Drive Belt

Remove jackshaft belt. (Refer to Section 9.1 Jackshaft Belt)

Disconnect idler arm spring and move idler to remove tension on belt.

Remove belt from engine pulley and then from transmission pulley.

6.9 Transaxle Oil Reservoir Removal

Remove battery (refer to Electrical Section).

Loosen hose clamps securing lines to oil reservoir. Disconnect lines from oil reservoir and drain oil from lines and reservoir into appropriate container.

Remove roll pin securing steering wheel to steering column. Remove steering wheel from steering column.

Remove battery tray from battery support. Remove hardware securing battery support and bulkhead to dash tower.

Remove both battery support and bulkhead from dash tower.

Remove nuts and lock washers securing PTO and lift switches to dash. With wiring intact, remove both switches from dash.

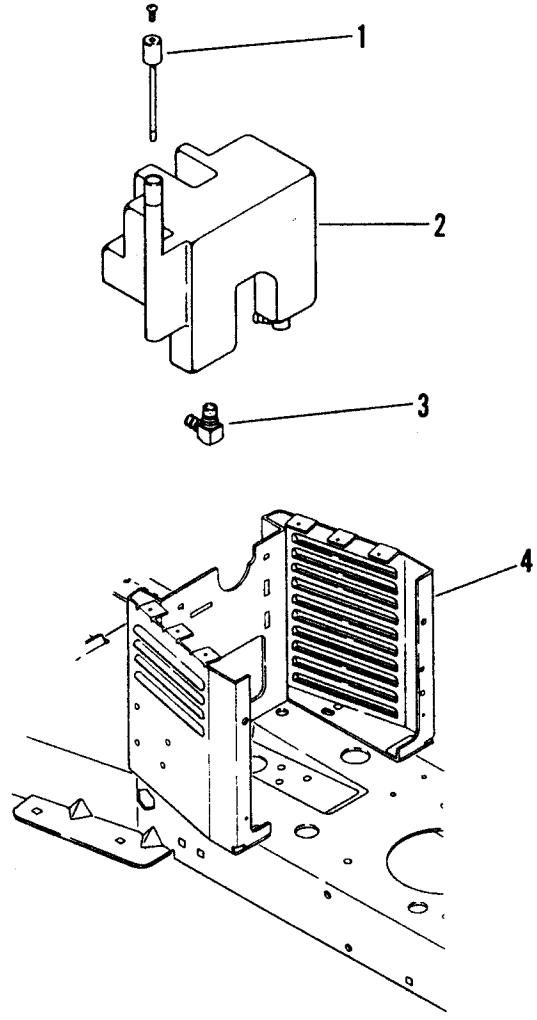
Label wires for identification and disconnect ignition switch, time delay module, voltmeter and PTO indicator light.

Remove knob from throttle control.

Remove tapping screws securing dash assembly to dash tower. Remove dash from dash tower.

Remove oil reservoir from dash tower.

Inspect parts for wear or damage and replace as necessary. Assemble in reverse order.



1. Dipstick
2. Oil Reservoir
3. Hose Fitting
4. Dash Tower

Figure 6-18: Oil Reservoir Removal

Notes

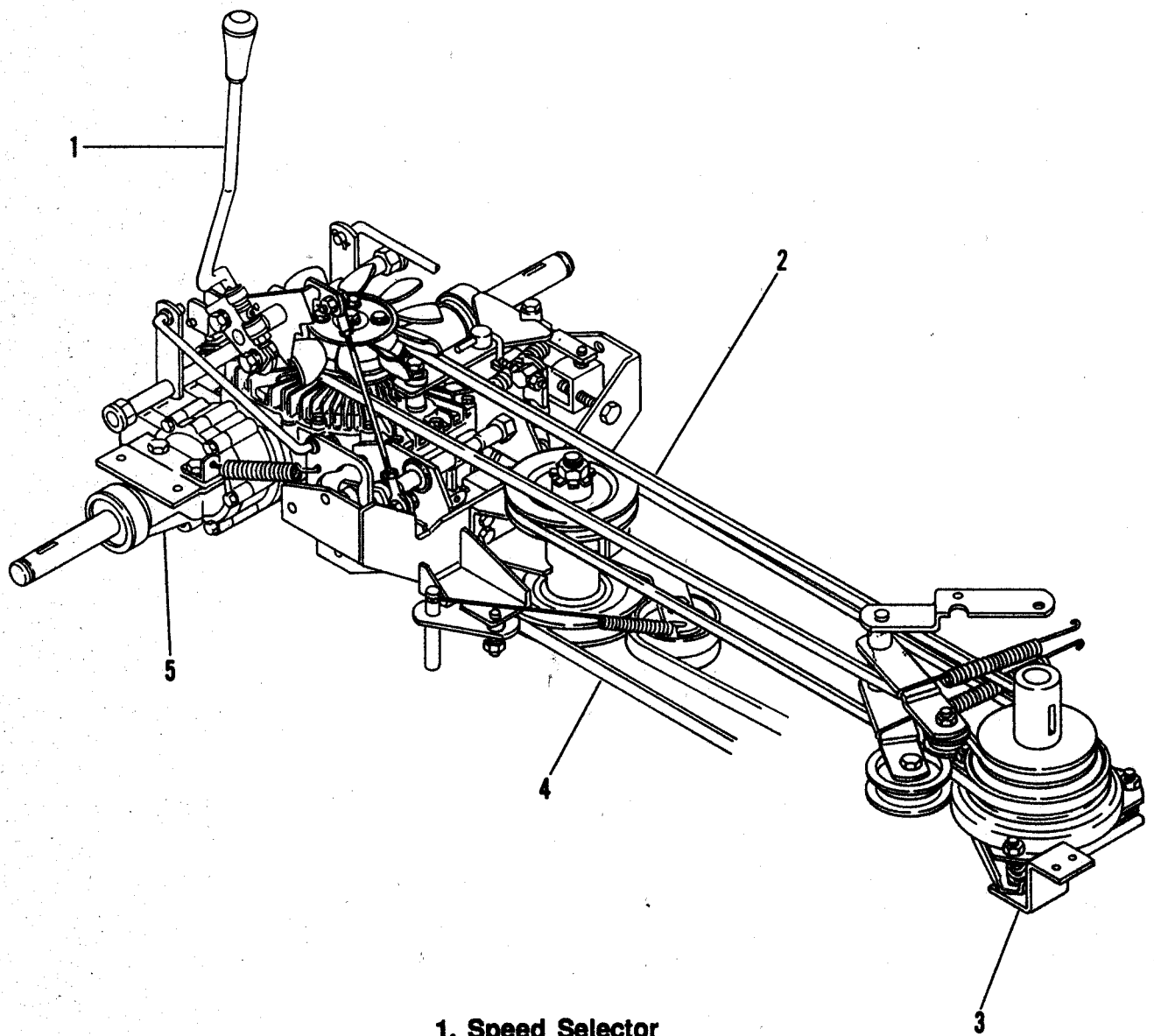
Implement (PTO)

Table of Contents

List of Illustrations

Notes

Implement (PTO)



1. Speed Selector
2. Transaxle Drive Belt
3. Torque Bracket
4. PTO Belt
5. Transaxle

Figure 7-1: Implement (PTO) Assembled View

Implement (PTO)

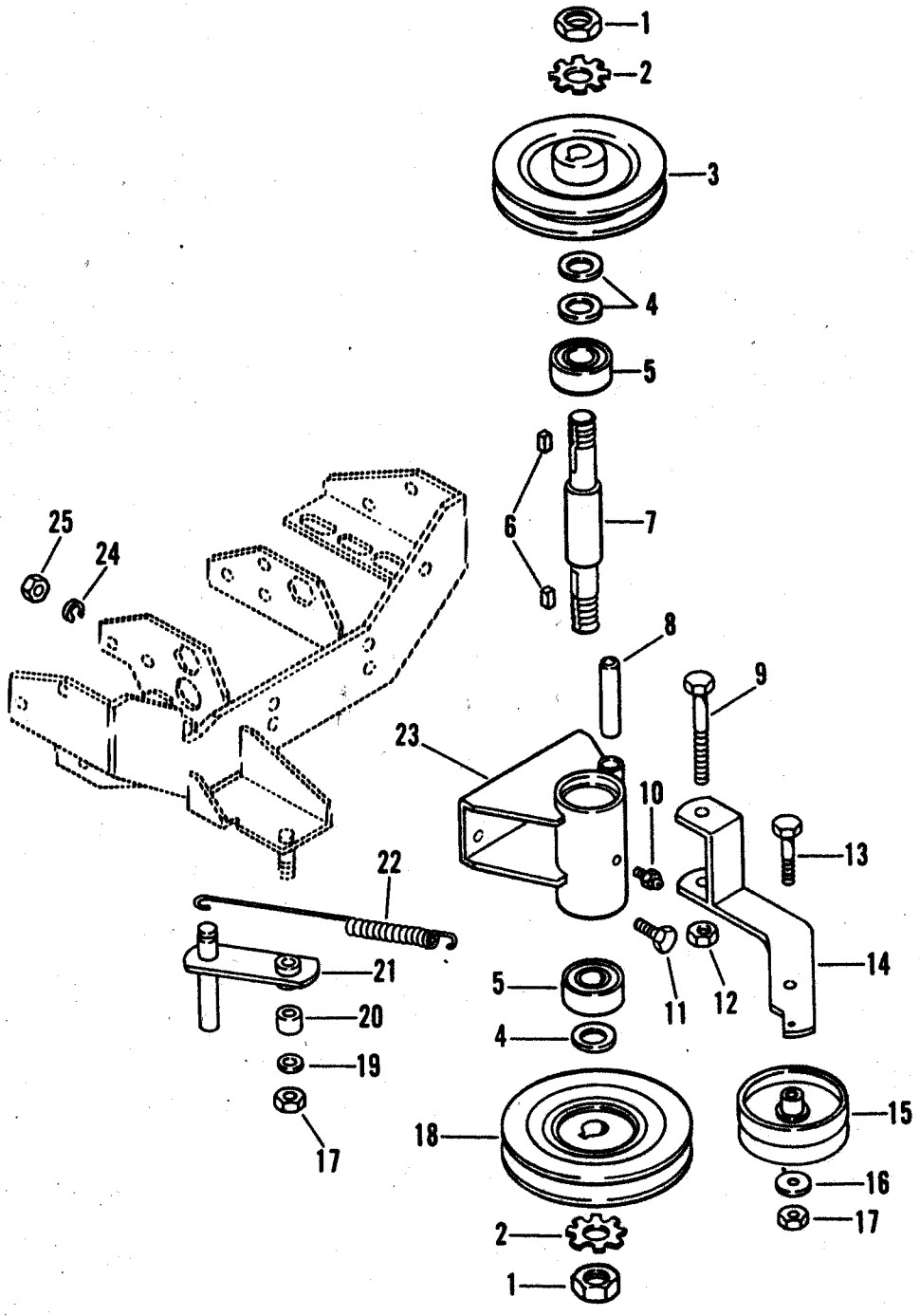


Figure 7-2: Implement (PTO) Exploded View

Implement (PTO)

ITEM NO	DESCRIPTION	QTY	ITEM NO	DESCRIPTION	QTY
1	Jam Nut 3/4-10	2	14	P.T.O Idler Arm	1
2	Star Washer	2	15	P.T.O. Idler	1
3	Jackshaft Pulley	1	16	Washer .401/.421 x 1.000 x .188	1
4	Washer .750/.758 x 1.250 x .125	3	17	Two Way Lock Nut 3/8-16	2
5	Radial Bearing 3/4 ID x 1-25/32 OD	2	18	P.T.O. Pulley	1
6	Straight Key .1875 x .75 x .1875	2	19	Washer .380/.390 x .750 x .125	1
7	Jackshaft	1	20	Tube	1
8	Tube	1	21	P.T.O. Acutator	1
9	Cap Screw 3/8-16 x 2-3/4 Gr 5	1	22	Spring	1
10	Zerk Fitting	1	23	Jackshaft Housing	1
11	Cap Screw 5/16-18 x 1"	4	24	Lock Washer 5/16 ID	4
12	Center Jam Lock Nut 3/8-16	1	25	Nut 5/16-18	4
13	Cap Screw 3/8-16 x 1-3/4 Gr.5	1			

Implement (PTO)

7.1 Jackshaft Belt

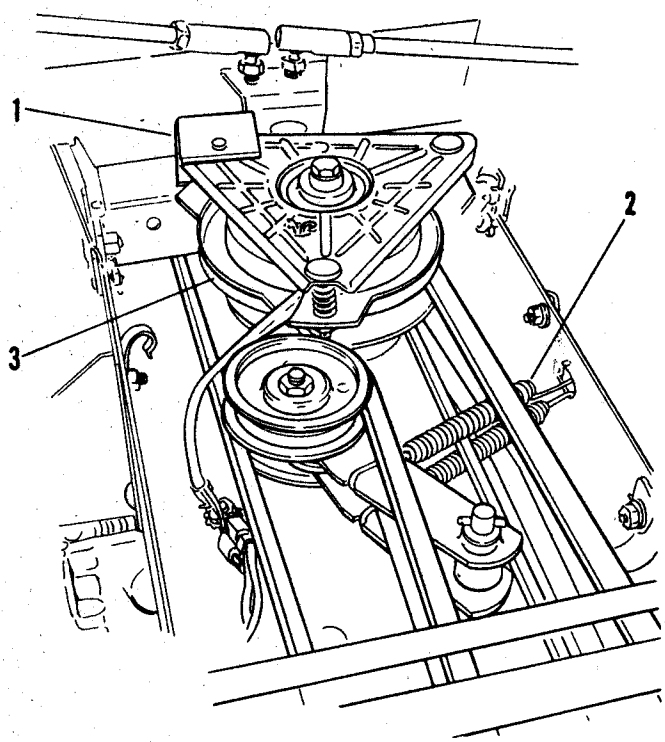
NOTE: Front or center mounted attachment should be removed from tractor for the following procedures.

Disconnect idler arm spring and move idler to remove tension from belt.

Disconnect electric clutch lead and remove hardware securing torque bracket to frame and torque bracket from electric clutch.

Remove belt from jackshaft pulley and then from electric clutch pulley.

Install Jackshaft drive belt in reverse order



1. Torque Bracket
2. Idler Arm Spring
3. Electric Clutch

Figure 7-3: Electric Clutch

7.2 Electric Clutch

Remove torque bracket as per above instructions.

Remove cap screw, lock washer, and flat washer securing Electric Clutch to extention shaft.

Remove electric clutch from extension shaft.

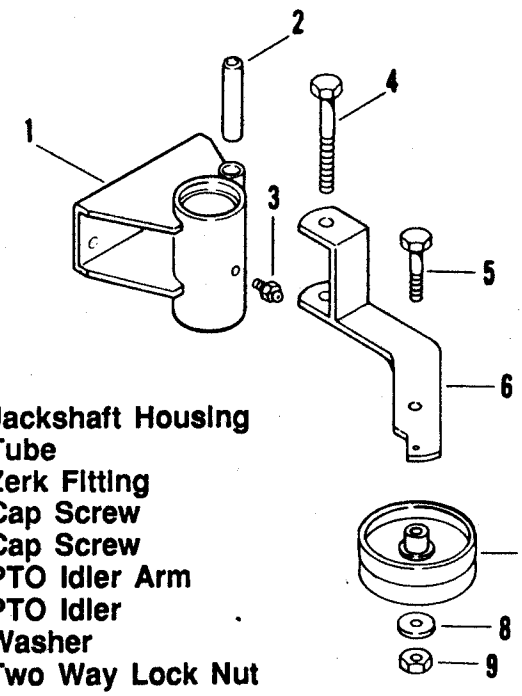
Check parts for wear or damage and replace as necessary. Assemble in reverse order.

7.3 PTO Idler

Remove nut, capscrew and tube securing idle arm to jackshaft housing.

Remove nut and washer from capscrew securing idler to idler arm.

Inspect parts for wear or damage, replace i necessary and assemble in reverse order.



1. Jackshaft Housing
2. Tube
3. Zerk Fitting
4. Cap Screw
5. Cap Screw
6. PTO Idler Arm
7. PTO Idler
8. Washer
9. Two Way Lock Nut

Figure 7-4: PTO Idler

7.4 Jackshaft Disassembly

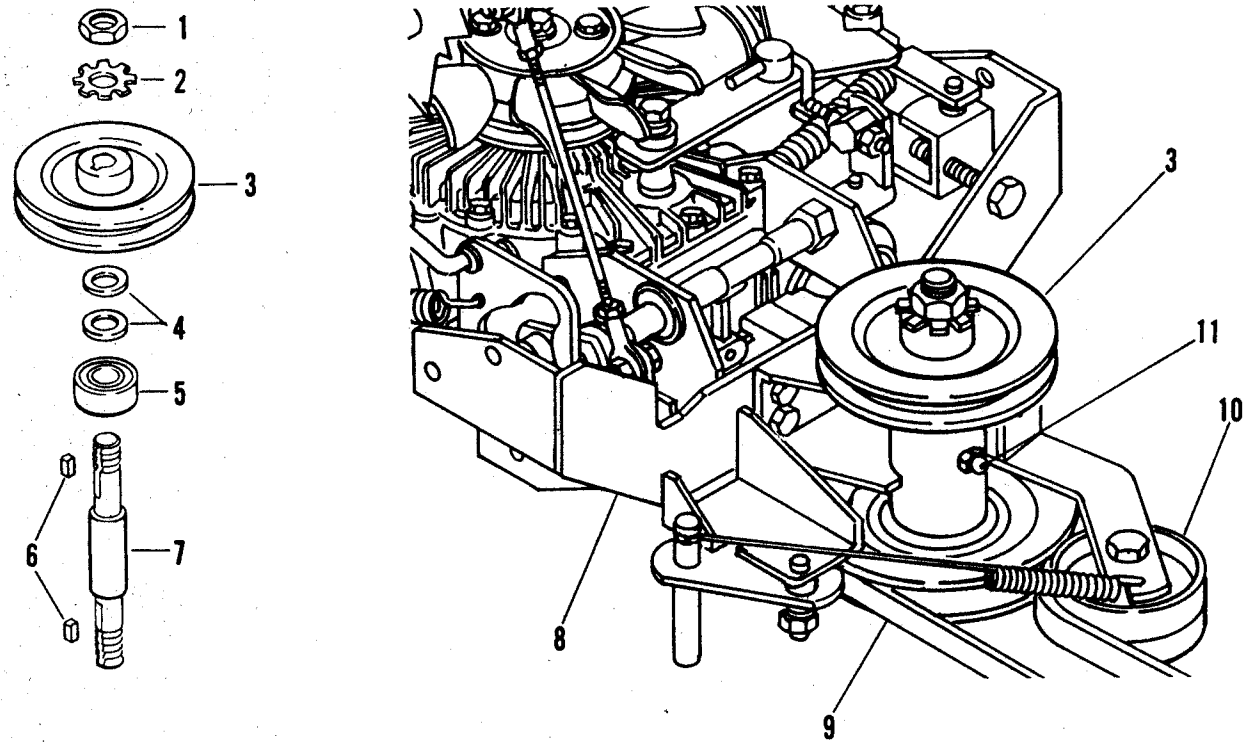
With belt removed from jackshaft pulley, remove hardware securing jackshaft housing to transaxle mount and remove jackshaft assembly.

Remove jam nut and star washer from top end of jackshaft.

Remove jackshaft pulley, straight key,and washers from jackshaft.

Remove PTO pulley, jackshaft and bearings from jackshaft housing.

Inspect parts for wear or damage, replace if necessary and assemble in reverse order. After assembly is completed, add grease at zerk fitting.



1. Jam Nut
2. Star Washer
3. Jackshaft Pulley
4. Washer
5. Radial Bearing
6. Straight Key
7. Jackshaft
8. Transaxle Mount
9. PTO Pulley
10. PTO Idler
11. Zerk Fitting

Figure 7-5: Jackshaft Disassembly

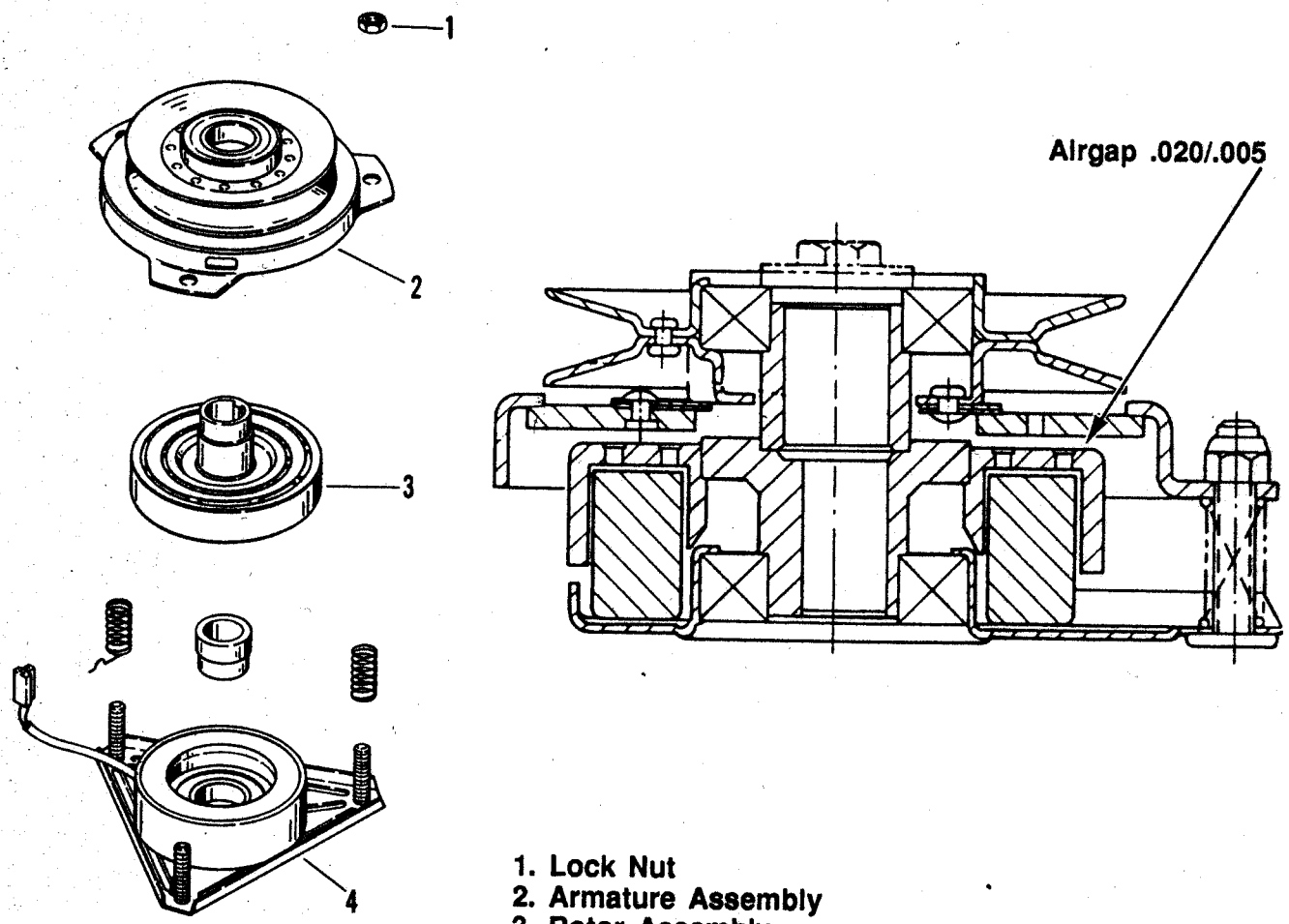
7.5 Electric Clutch Disassembly

Remove three lock nuts securing armature and rotor assembly to field assembly.

Remove rotor from armature assembly.

Inspect parts for wear or damage and replace as necessary. Assemble in reverse order.

NOTE: After reassembly airgap should be set to a running clearance of .020/.005 and reinstalled with .438-20 x 5.50 cap screw torqued to 50 ft-lbs.



1. Lock Nut
2. Armature Assembly
3. Rotor Assembly
4. Field Assembly

Figure 7-6: Electric Clutch

Implement Lift System

Table of Contents

List of Illustrations

Implement Lift System

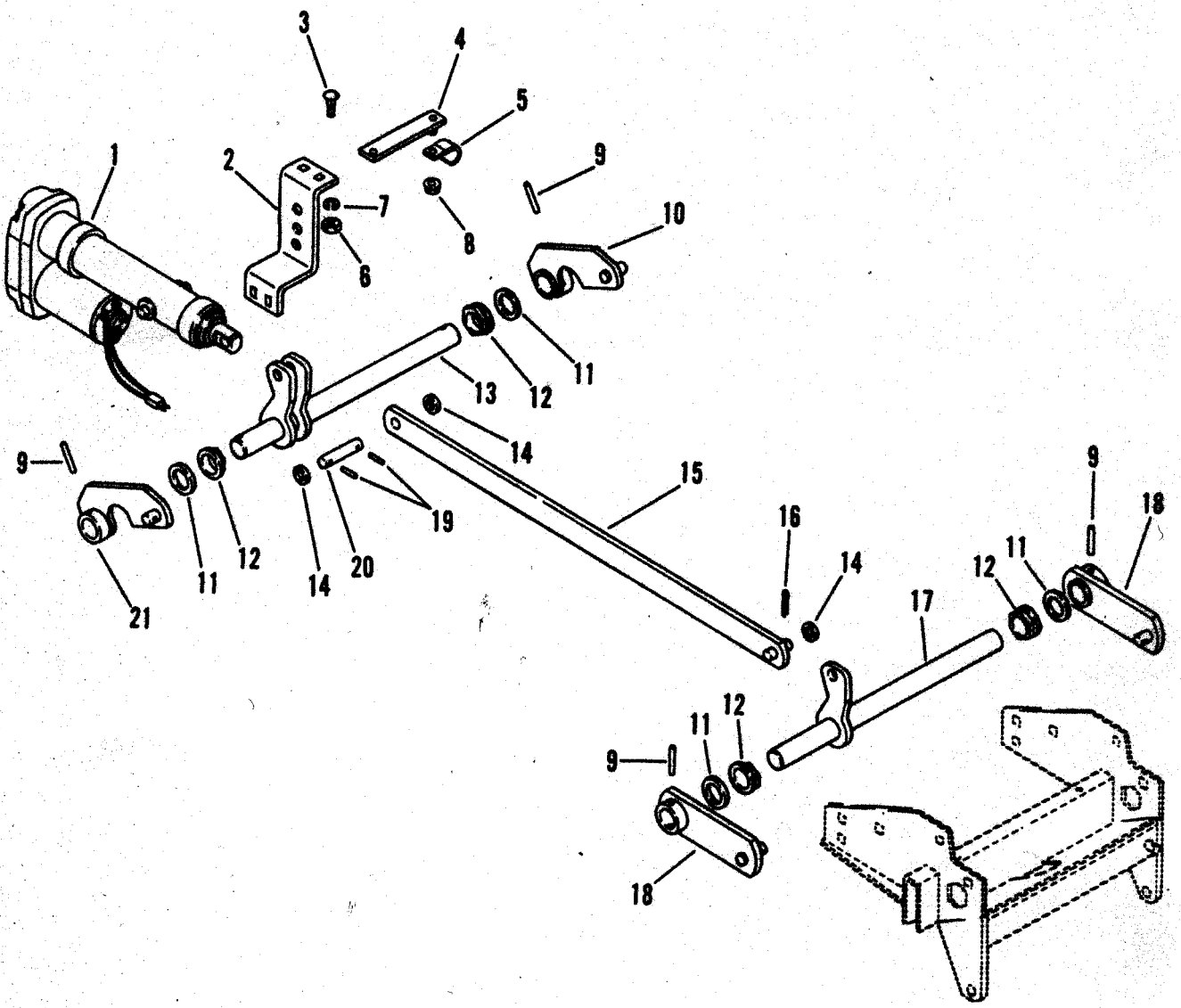


Figure 8-1: Implement Lift System Exploded View

Implement Lift System

ITEM NO	DESCRIPTION	QTY
1	Actuator	1
2	Actuator Bracket	1
3	Carriage Bolt 5/16-18 x 1"	4
4	Clip Bracket	1
5	Clip	1
6	Nut 5/16-18	4
7	Lock Washer 5/16 ID	4
8	Flange Whiz Lock Nut 5/16-18	1
9	Groove Pin 1/4 x 1-1/2	2
10	L.H. Lift Arm	1
11	Washer 1.000/1.031 x 1.500 x .125	4
12	Flange Bushing 1" x 1-1/4 x 3/8	4
13	Lift Pivot	1
14	Washer .515/.547 x .827 x .062	3
15	Lift Link	1
16	Cotter Pin 3/16 x 1"	1
17	Front Pivot	1
18	Front Lift Arm	2
19	Roll Pin 3/16 x 1"	2
20	Pin	1
21	R.H. Lift Arm	1

Implement Lift System

8.1 Front Pivot

To remove front lift pivot, drive out groove pins from lift arms. Remove lift arms, washers, and flange bushings. Remove cotter pin and washer from center lift link. Remove front pivot from frame.

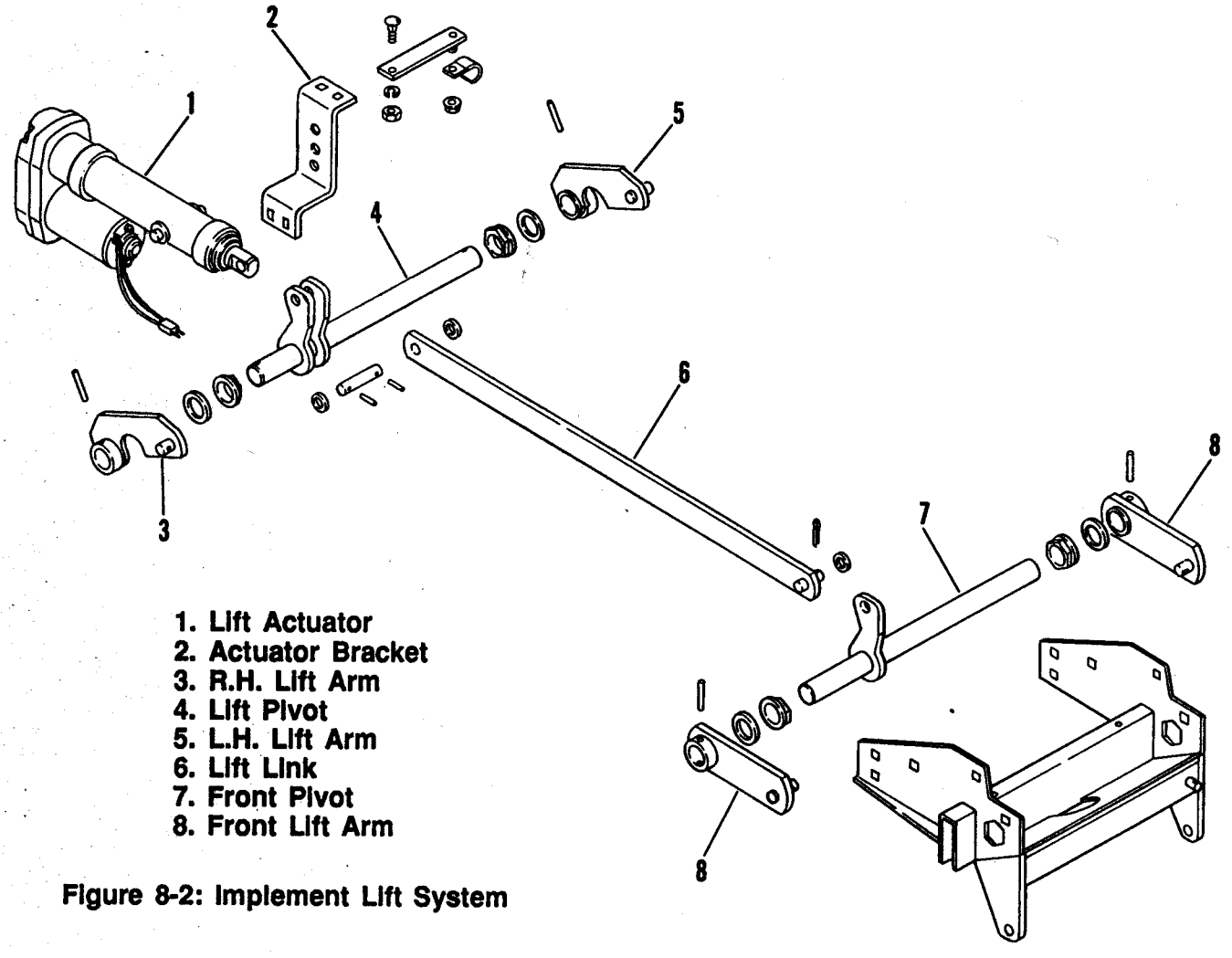
8.2 Lift Pivot

To remove lift pivot, drive out groove pins from both right and left lift arms. Remove lift arms, washers, and flange bushings. Drive out one roll pin from pin securing lift link to lift pivot. Remove washers and pin from lift pivot. Remove lift link from lift pivot.

8.3 Lift Actuator

Unplug electrical connection. Remove hardware securing actuator bracket to frame. Remove lift actuator.

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



1. Lift Actuator
2. Actuator Bracket
3. R.H. Lift Arm
4. Lift Pivot
5. L.H. Lift Arm
6. Lift Link
7. Front Pivot
8. Front Lift Arm

Figure 8-2: Implement Lift System

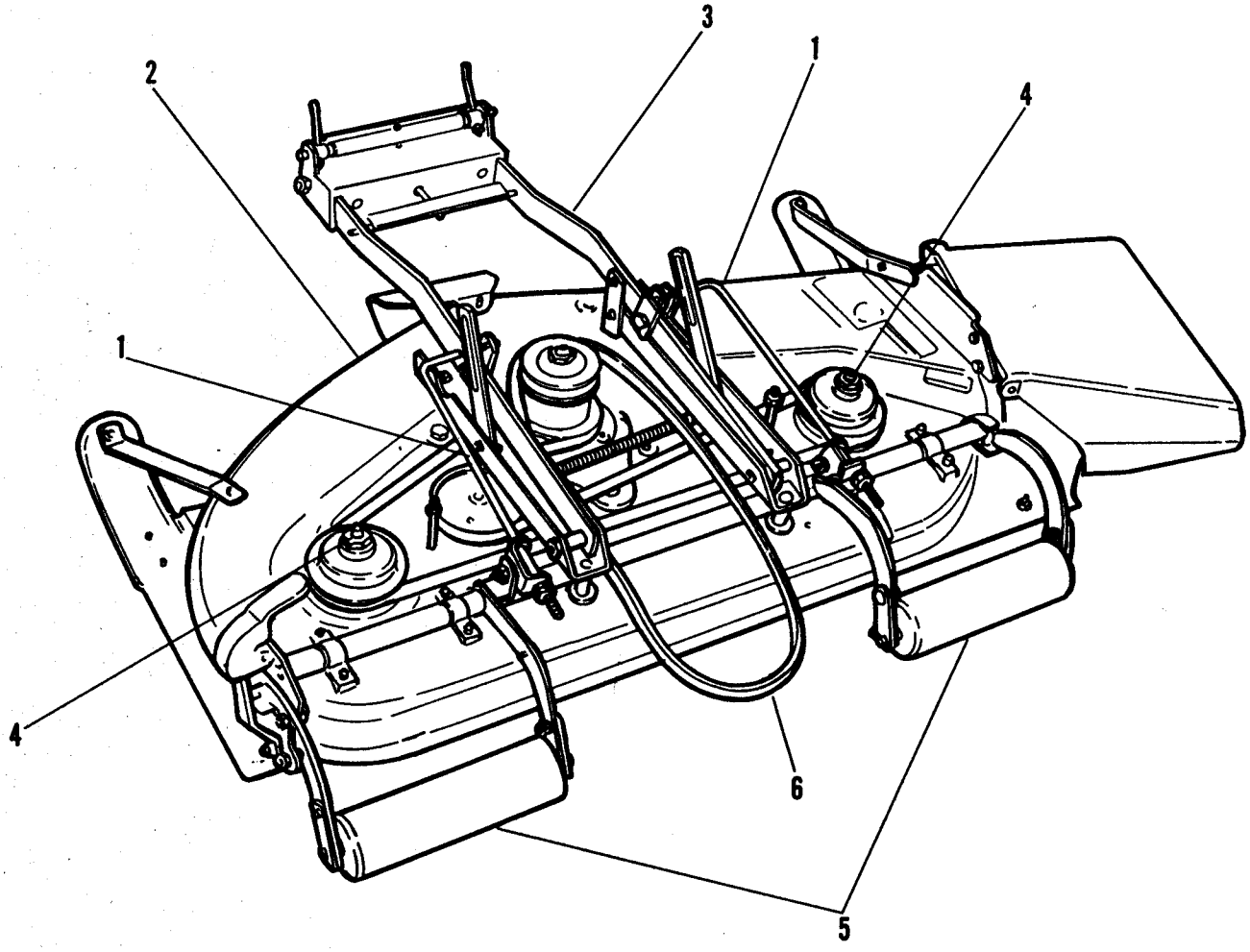
Rotary Mower

Table of Contents

List of Illustrations

Notes

Rotary Mower



1. Adjustment Rod
2. Mower Pan
3. Mower Hanger
4. Mower Spindle
5. Mower Rollers
6. PTO Belt

Figure 9-1: Mower Pan Assembled View

9

Rotary Mower

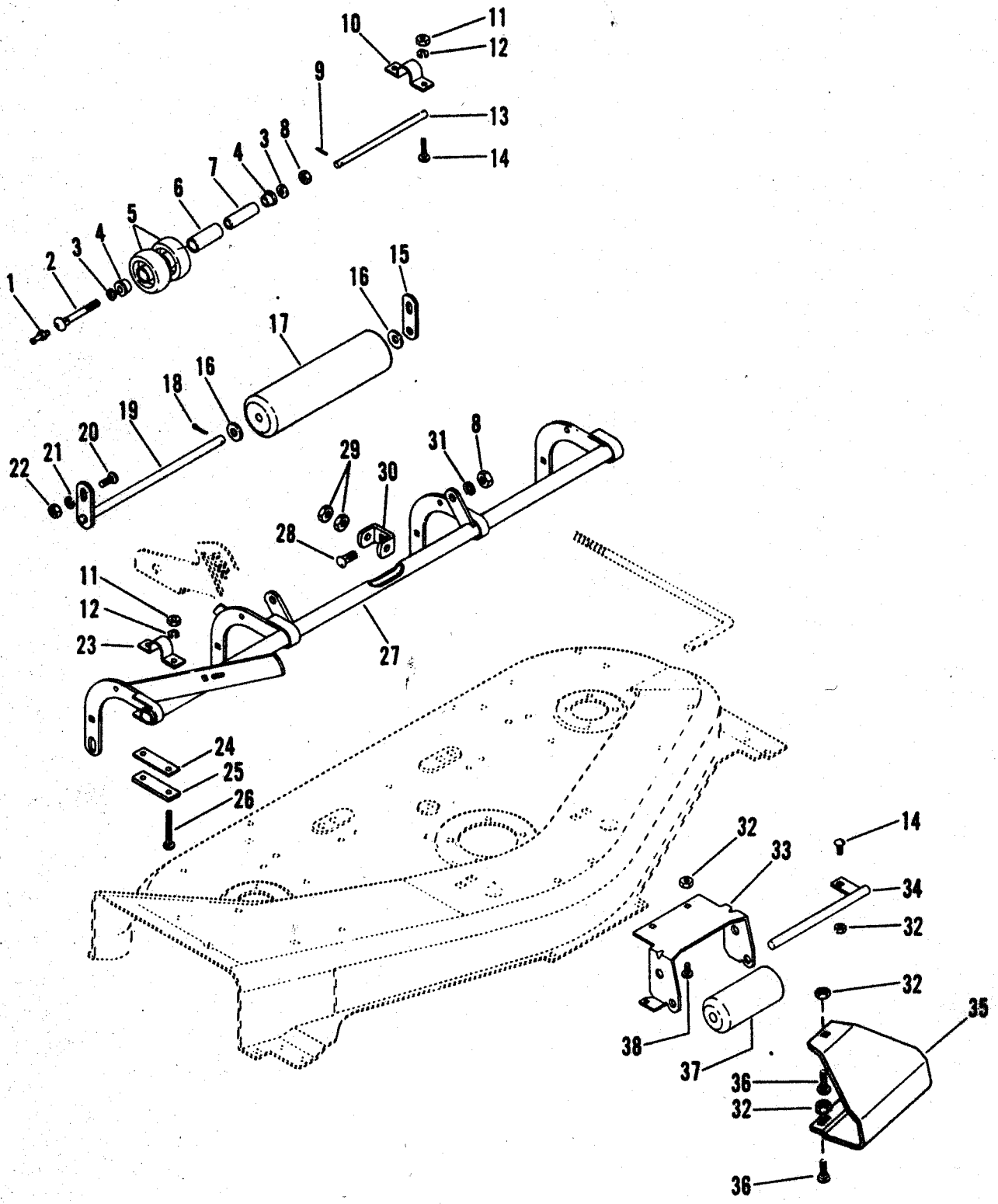


Figure 9-2: Mower Rollers Exploded View

Rotary Mower

ITEM NO	PART NO	DESCRIPTION	QTY
1	22093	Zerk Fitting	2
2	531150	Wheel Bolt w/Zerk	2
3	64047	Washer .506/.516 x 1.441 x .125	4
4	54143	Flange Ball Bearing 1/2 x 1-1/8	4
5	71133	Wheel	4
6	30339	Wheel Hub	2
7	30340	Spacer Tube	2
8	65046	Center Lock Nut 1/2-13	6
9	58006	Roll Pin 1/4 x 1''	1
10	30327	Roller Clamp (17)	2
11	65015	Hex Nut 5/16-18	8
12	63003	Lock Washer 5/16 ID	8
13	30326	Shaft	1
14	62011	Carriage Bolt 5/16-18 x 3/4	4
15	31156	Link (15,16)	2
16	64004	Washer .649/.686 x 1.312 x .095	4
17	34022	Roller	2
18	67026	Cotter Pin 3/16 x 1''	2
19	34014	Roller Shaft	2
20	62013	Carriage Bolt 3/8-16 x 1''	4
21	64008	Washer .433/.453 x 1.000 x .083	4
22	65039	Two Way Lock Nut 3/8-16	4
23	34023	Clamp	4
24	34341	Spacer	8
25	34024	Spacer	4
26	62031	Carriage Bolt 5/16-18 x 1''	8
27	34569	42'' Roller Frame	1
28	62014	Carriage Bolt 1/2-13 x 1-1/4	2
29	65021	Hex Nut 1/2-13	4
30	34004	Yoke	2
31	64056	Washer .500/.510 x .880 x 072	2
32	65042	Two Way Lock Nut 5/16-18	4
33	34351	Roller Bracket	1
34	34352	Roller Shaft	1
35	34051	Mower Skid	1
36	62009	Carriage Bolt 5/16-18 x 1/2	3
37	31141	Roller	1
38	62026	Carriage Bolt 5/16-18 x 5/8	3

Rotary Mower

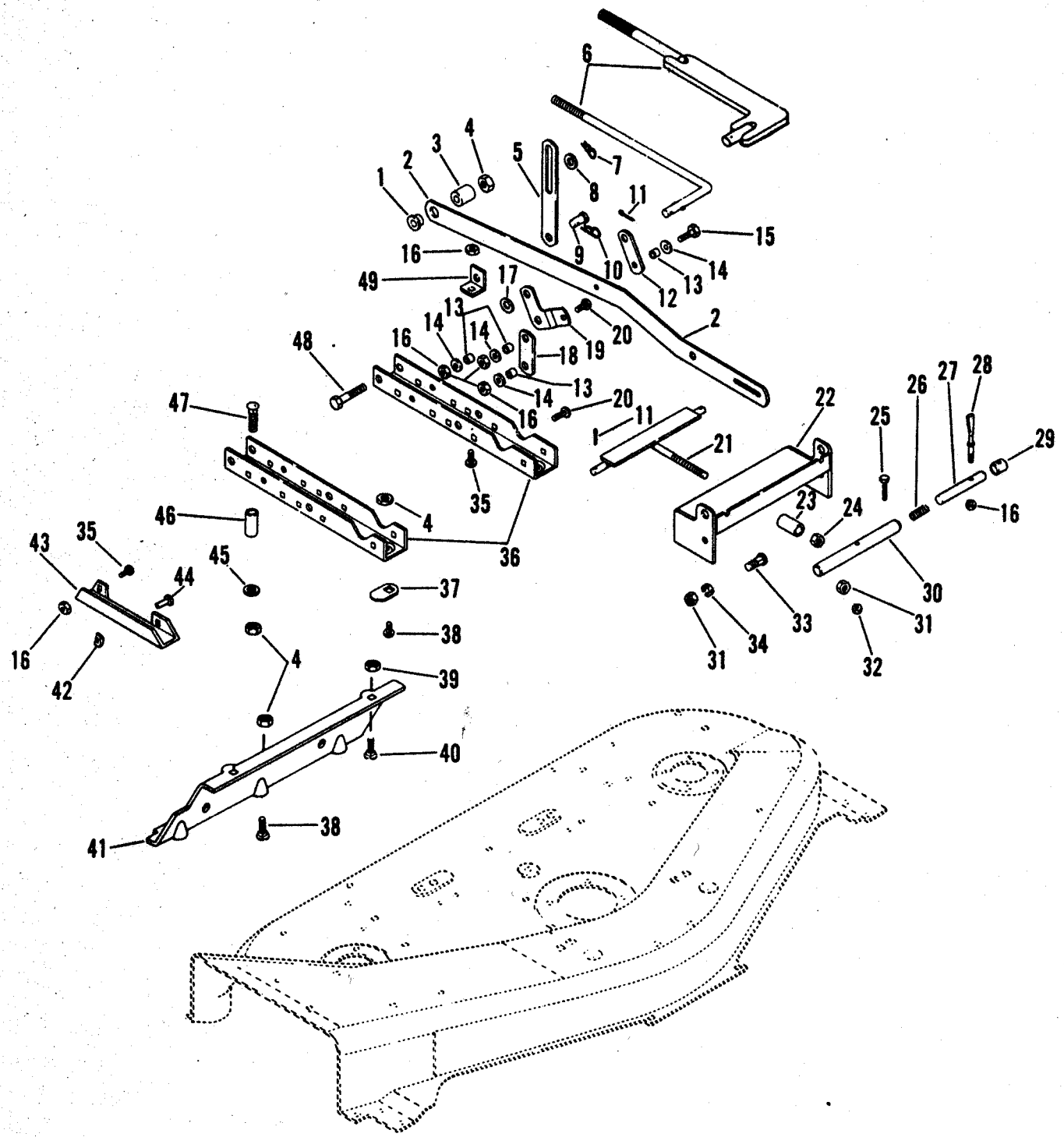


Figure 9-3: Mower Hanger Exploded View

Rotary Mower

ITEM NO	PART NO	DESCRIPTION	QTY
1	55137	Flange Bushing 17/32 x 3/4 x 9/16	2
2	34412	Hanger Bar	2
3	34195	Spacer	2
4	65046	Center Lock Nut 1/2-13	6
5	34567	Lift Link	2
6	34037	Adjustment Rod	2
7	67029	Internal Hair Pin 3/32 x 1-7/8	2
8	64003	Washer .526/.546 x 1.062 x .095	2
9	34194	Pin	2
10	67010	Internal Hair Pin 3/32 x 1-27/64	2
11	67004	Cotter Pin 1/8 x 1''	4
12	34046	Strap	2
13	6071	Spacer Bushing	8
14	64090	Washer .312/.343 x .875 x .062	8
15	59069	Cap Screw 5/16-18 x 1-1/4	2
16	65042	Two Way Lock Nut 5/16-18	10
17	64121	Washer .463/.483 x .937 x .065	2
18	34028	Adjustment Link	2
19	34029	Adjustment Lever	1
20	62034	Carriage Bolt 5/16-18 x 3/4	4
21	34562	Adjuster	1
22	34587	Pivot Bracket	1
23	34561	Spacer	1
24	65017	Hex Jam Nut 1/2-13	1
25	59050	Cap Screw 1/4-20 x 1-1/2	1
26	83104	Compression Spring 2-1/16	2
27	34565	Pin	2
28	34566	Handle	2
29	34563	Sleeve	2
30	34564	Tube	1
31	65021	Hex Nut 1/2-13	3
32	65040	Center Lock Nut 1/4-20	1
33	62014	Carriage Bolt 1/2-13 x 1-1/4	2
34	63006	Lock Washer 1/2 ID	2
35	62026	Carriage Bolt 5/16-18 x 5/8	6
36	34190	Channel	2
37	34347	Cover	2
38	62083	Carriage Bolt 1/2-13 x 3/4	2
39	65039	Two Way Lock Nut 3/8-16	2
40	62035	Carriage Bolt 3/8-16 x 3/4	2
41	34588	Rear Mounting Plate	1
42	65149	Push Nut 5/16	4
43	34394	Bracket	2
44	68050	Rivet Button	4
45	64215	Washer .375/.406 x 1.5 x .125	4
46	30723	Spacer	2
47	62089	Carriage Bolt 3/8-16 x 2-3/4 Gr 5	2
48	59144	Cap Screw 1/2-13 x 2-1/2	2
49	34193	Bracket	2

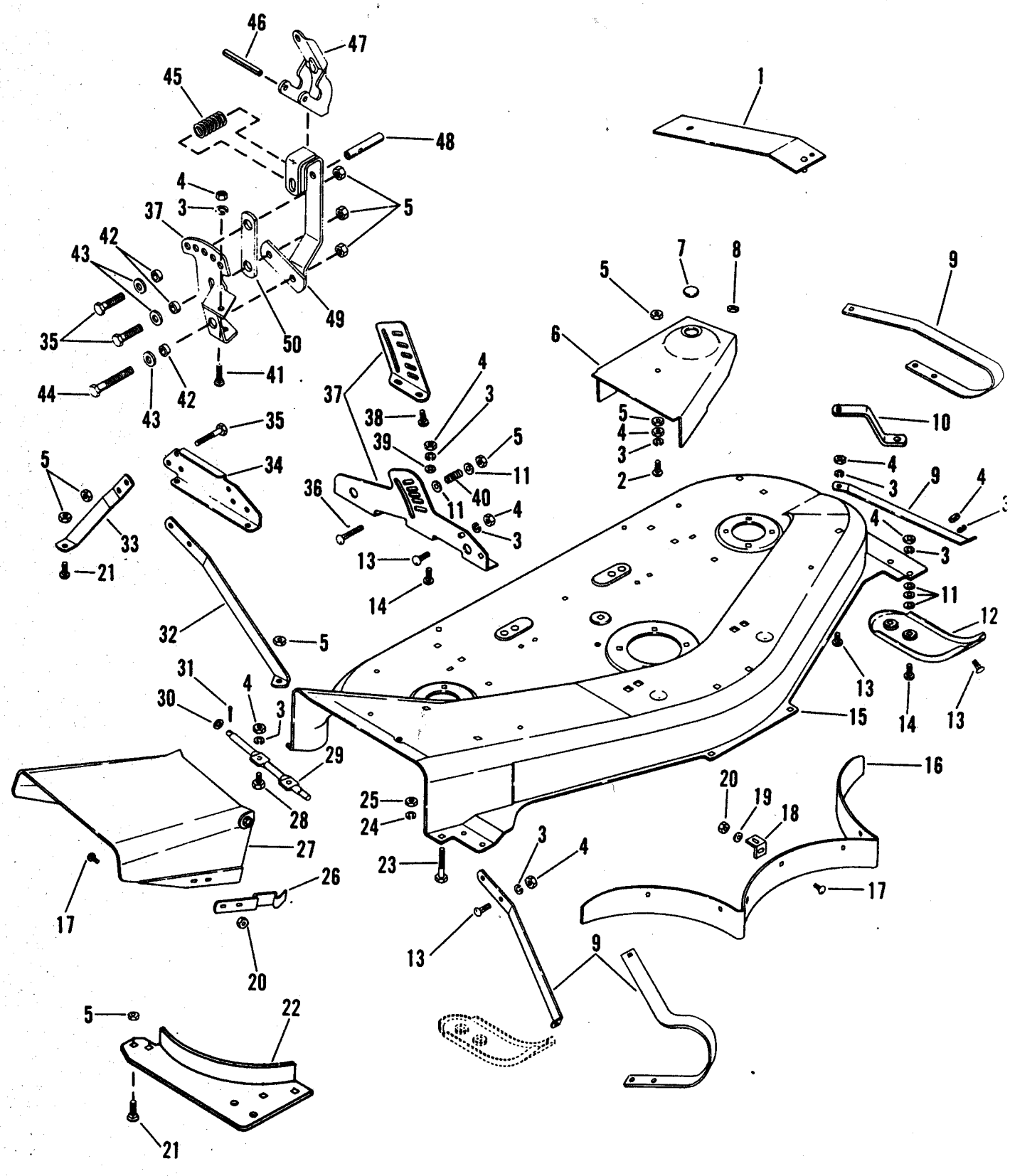


Figure 9-4: Mower Pan and Height Quadrant Exploded View

Rotary Mower

ITEM NO	PART NO	DESCRIPTION	QTY
1	30380	Ramp	2
2	62087	Carriage Bolt 5/16-18 x 3-1/4	2
3	63003	Lock Washer 5/16 ID	17
4	65015	Hex Nut 5/16-18	17
5	65042	Two Way Lock Nut 5/16-18	14
6	30420	Belt Cover	1
7	75040	Button Plug	2
8	65062	Nylon Lock Nut 5/16-18	2
9	34345	Skid Brace	1
10	30348	Skid Brace	1
11	64002	Washer .370/.390 x .875 x .083	14
12	30345	Skid	2
13	62011	Carriage Bolt 5/16-18 x 3/4	7
14	62015	Carriage Bolt 5/16-18 x 1"	6
15	534032	Mower Pan	1
16	30722	Pan Baffle	1
17	62053	Carriage Bolt 1/4-20 x 1/2	16
18	34343	Baffle Tab	7
19	64127	Washer .276/.296 x .625 x 16 Ga	7
20	65040	Center Lock Nut 1/4-20	16
21	62026	Carriage Bolt 5/16-18 x 5/8	2
22	30416	Deflector	1
23	59216	Cap Screw 3/8-16 x 2-1/2	1
24	63004	Lock Washer 3/8 ID	1
25	65018	Hex Nut 3/8-16	1
26	3185	Flat Spring	1
27	30349	Chute Extension	1
28	59135	Cap Screw 5/16-18 x 3/4 Gr 5	2
29	34058	Hinge Pin	1
30	64043	Washer .401/.421 x .812 x .065	1
31	67001	Cotter Pin 3/32 x 3/4	1
32	30720	Right Front Brace	1
33	30719	Right Rear Brace	1
34	30718	Bracket Brace	1
35	59022	Cap Screw 5/16-18 x 3/4	8
36	62036	Carriage Bolt 5/16-18 x 1-3/4	1
37	34050	Quadrant	1
38	62041	Carriage Bolt 5/16-18 x 3/4	2
39	64057	Washer .312/.343 x .625 x .062	6
40	83131	Compression Spring 1-3/16	1
41	70053	Rib Neck Bolt 5/16-18 x 3/4	2
42	6071	Spacer Bushing	3
43	64090	Washer .312/.343 x .875 x .062	4
44	59134	Cap Screw 5/16-18 x 1-1/4	1
45	83006	Compression Spring 1-3/16	1
46	58056	Roll Pin 3/16 x 1-3/4	1
47	34054	Lever	1
48	34049	Pin	1
49	34048	Height Adjustment Handle	1
50	34012	Link	1

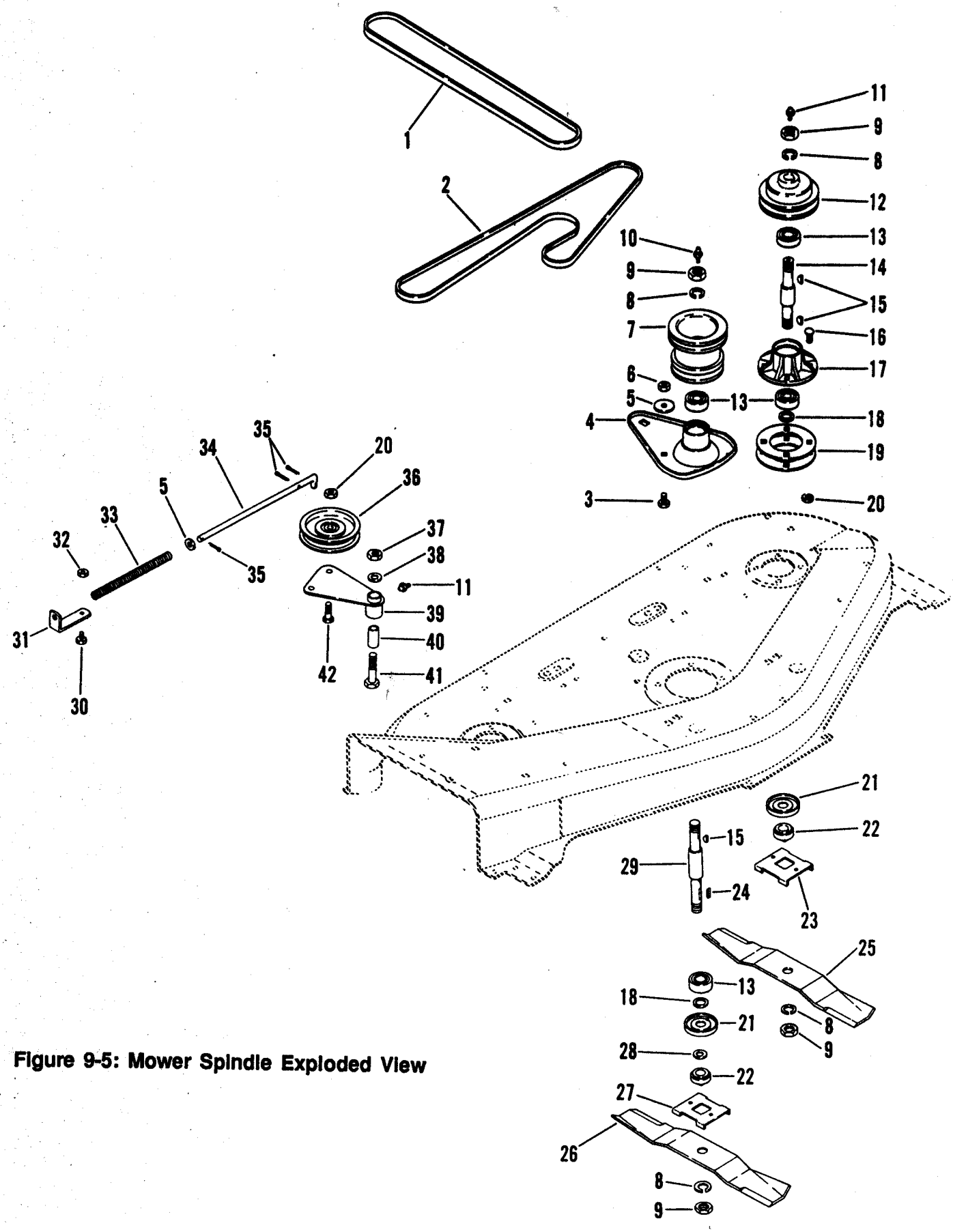


Figure 9-5: Mower Spindle Exploded View

Rotary Mower

ITEM NO	PART NO	DESCRIPTION	QTY
1	72096	V-Belt 4L-RMA 50-3/8 x 35/64	1
2	72139	V-Belt 4L-RMA 96-1/2 x 17/32	1
3	62019	Carriage Bolt 3/8-16 x 5/8	5
4	34189	Spindle Housing	1
5	64043	Washer .401/.421 x .812 x .065	2
6	65039	Two Way Lock Nut 3/8-16	5
7	34467	Pulley	1
8	63008	Lock Washer 3/4 ID	6
9	65025	Hex Jam Nut 3/4-10	6
10	34044	Grease Zerk	1
11	22093	Zerk Fitting	3
12	34018	Pulley 4.559 O.D.	2
13	54120	Radial Bearing 3/4 ID x 1-25/32 OD	6
14	531151	Spindle Shaft	2
15	66014	Woodruff Key 3/16 x 5/8 x 1/4	5
16	62035	Carriage Bolt 3/8-16 x 3/4	8
17	34335	Spindle Housing	2
18	64041	Washer .749/.759 x 1.000 x .032	5
19	34336	Spindle Spacer	4
20	65060	Center Lock Jam Nut 3/8-16	9
21	3419	Bearing Slinger	3
22	30375	Retainer Hub	3
23	31944	Blade Tray	3
24	66017	Straight Key 3/16 x 5/8 x 3/16	1
25	31213	Blade	3
26	30278	Blade	1
27	31945	Blade Tray	1
28	64088	Washer .750/.758 x 1.250 x .125	1
29	534024	Spindle Shaft w/Zerk	1
30	59168	Cap Screw 5/16-18 x 1/2	1
31	34188	Bracket	1
32	65042	Two Way Lock Nut 5/16-18	1
33	83018	Compression Spring	1
34	34339	Idler Spring Rod	1
35	67001	Cotter Pin 3/32 x 3/4	4
36	73125	Idler 3/8 x 4"	1
37	65046	Center Lock Nut 1/2-13	1
38	64056	Washer .500/.510 x .880 x 072	1
39	534003	Idler Arm w/Zerk	1
40	34038	Spacer	1
41	59010	Cap Screw 1/2-13 x 1-1/2	1
42	70063	Cap Screw 3/8-16 x 1-1/4	1

Rotary Mower

9.1 Installation and Removal

To install rotary mower on tractor, position it in a suitable location that will allow you to drive tractor up ramps and over pan.

CAUTION: When driving tractor slowly up ramps and over rotary mower, exercise caution and be prepared to stop as soon as tractor front wheels come down past front of rotary mower.

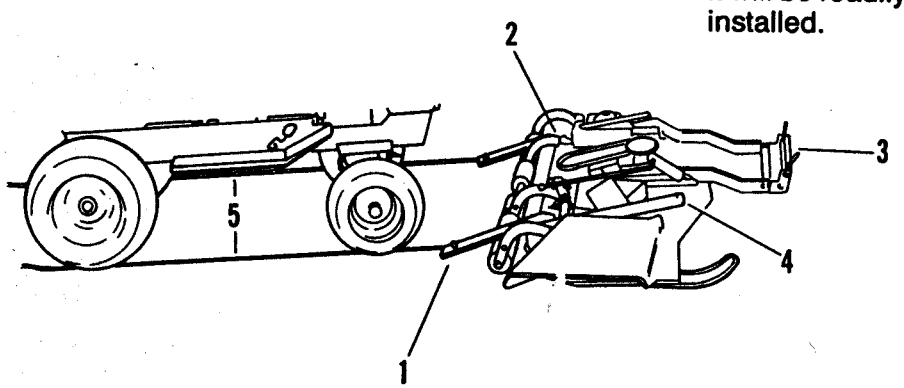
With rotary mower lift links rotated to front and rotary mower lowered (height control lever set in lowest cutting position so that ramp touches ground and pin engages hole in deck) align front tractor wheels with ramps and drive tractor up and over deck.

NOTE: Mower deck will slide (skid) on a smooth, hard surface when driving tractor up ramps. To prevent this from happening, either position rotary mower on lawn or so that it can be blocked with a rigid board (about eight feet in length) against a solid object.

It can also be kept from sliding (skidding) by the use of a rope about 6' long (with a knot in end) threaded through large hole in ramp from bottom up, and driving tractor over rope and then up and over rotary mower. For removal, use boards with ropes (refer to installation and removal illustration).

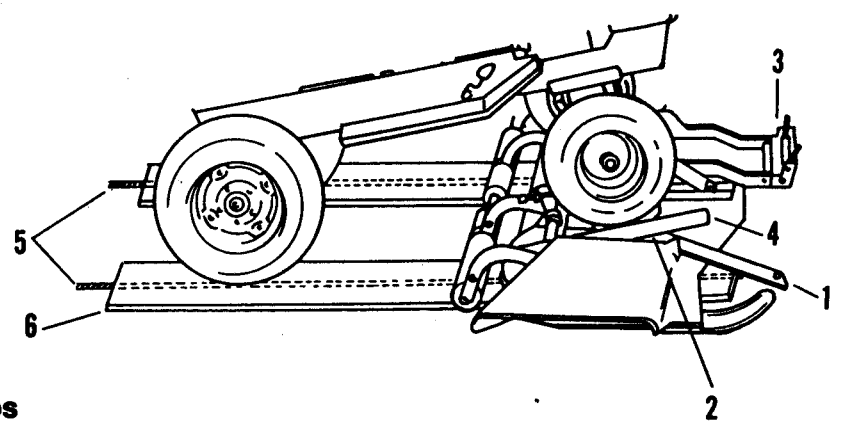
NOTE: Position ramps on front of mower pan with pins on ramps engaged in holes in mower deck and back tractor up and over mower per instructions in installation of rotary mower.

Place all hardware in its respective positions, so that it will be readily available when attachment is to be installed.



(Installation)

(Removal)



1. Ramps
2. Ramp Pins (into holes in mower deck)
3. Mower Hanger
4. Height Control Lever
5. Rope
6. Boards

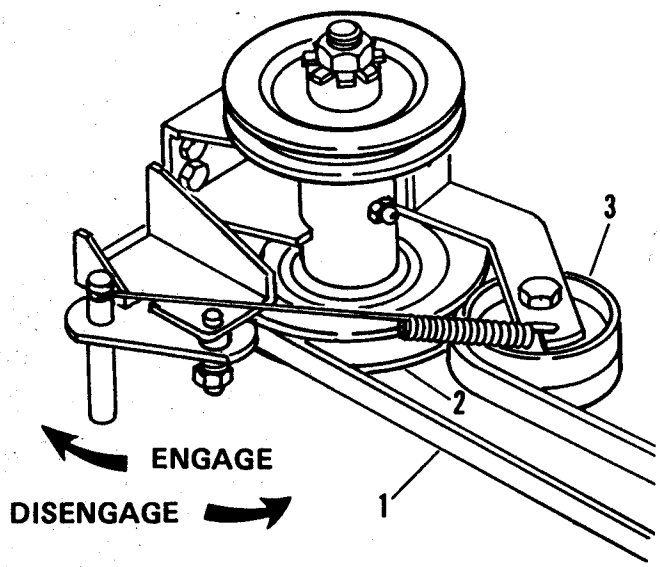
Figure 9-6: Rotary Mower Installation and Removal

Rotary Mower

WARNING: With Implement Power OFF, stop engine, remove key, wait for moving parts to stop before attempting to install or make adjustments to rotary mower.

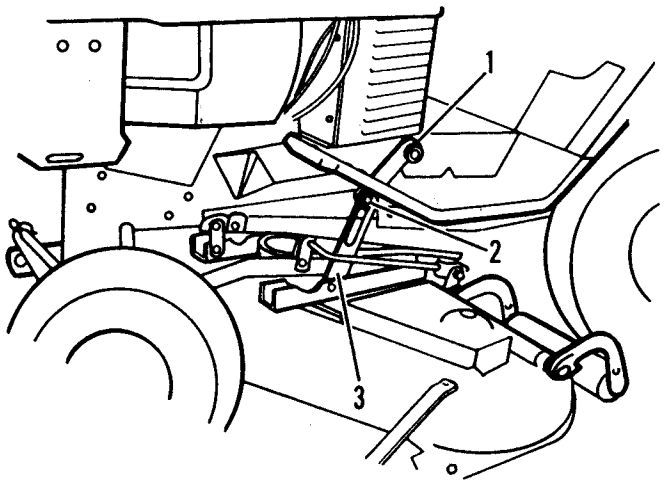
Position PTO belt on rotary mower and jackshaft pulleys (do not engage idler).

With tractor Implement Lift (Down) in lowest position, place right hand lift link and washer on tractor lift arm and secure with hair pin. Lift rotary mower slightly with Implement Lift and position left hand lift link and washer on tractor lift arm. Secure with hair pin.



1. PTO Belt
2. Jackshaft Pulley
3. Idler

Figure 9-7: PTO Belt



1. Lift Arm
2. Washer and Hair Pin
3. Mower Lift Link

Figure 9-8: Mower Lift Link

Raise rotary mower to about mid height.

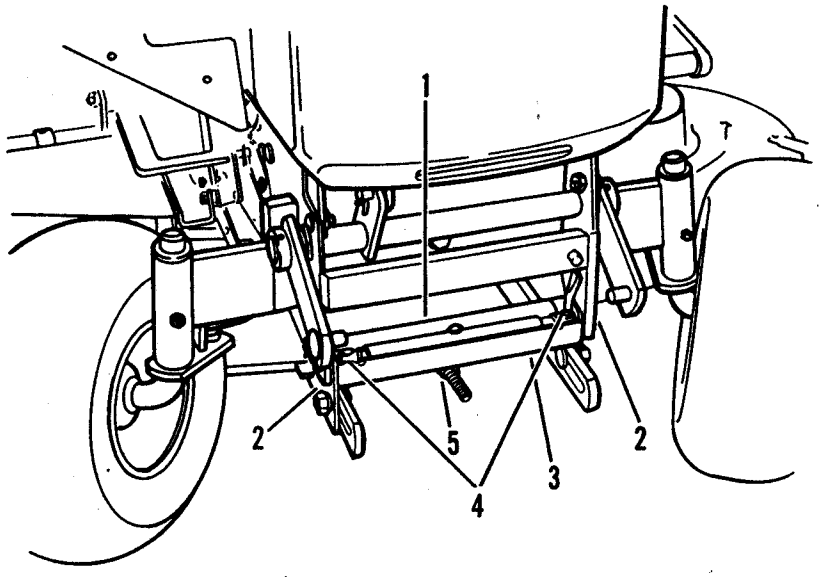
IMPORTANT: DO NOT raise mower all the way without idler engaged as bending will result.

With Latch Pin Handles in notches (retracted), position mower pivot bracket between mounting ears on tractor front axle support and release pins into holes.

Engage idler.

NOTE: Be sure rotary mower has correct pitch and is leveled properly or uneven cutting will result. Adjust per Instructions in Level and Pitch Sections.

IMPORTANT: Adjust PTO belt according to instructions in PTO Belt Section of this manual.



1. Latch Pin
2. Tractor Mounting Ears
3. Mower Mounting Bracket
4. Latch Pin Handles
5. Belt Adjustment Nuts

Figure 9-9: Latch Pin

9.2 PTO Belt

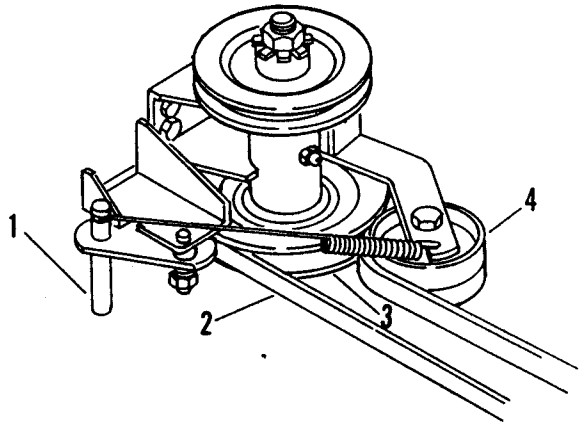
To service PTO Idler refer to Section 7.4 Implement (PTO).

WARNING: Disengage and lower attachment, stop engine, remove key, wait for moving parts to stop before leaving operator's position and attempting to make adjustments.

To remove PTO belt, disengage idler by moving actuator handle forward and remove belt from pulleys.

Install new Ariens belt in reverse order.

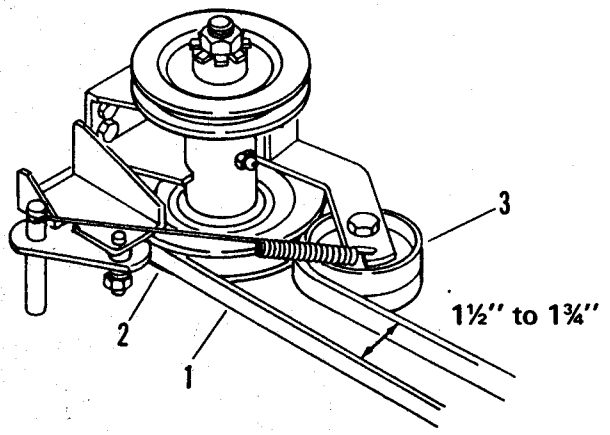
NOTE: After installation of new belt, run belt in for about 15 minutes and check belt adjustment per following instructions.



1. Idler Actuator Handle
2. PTO Belt
3. Jackshaft Pulley
4. Idler

Figure 9-10: PTO Belt Replacement

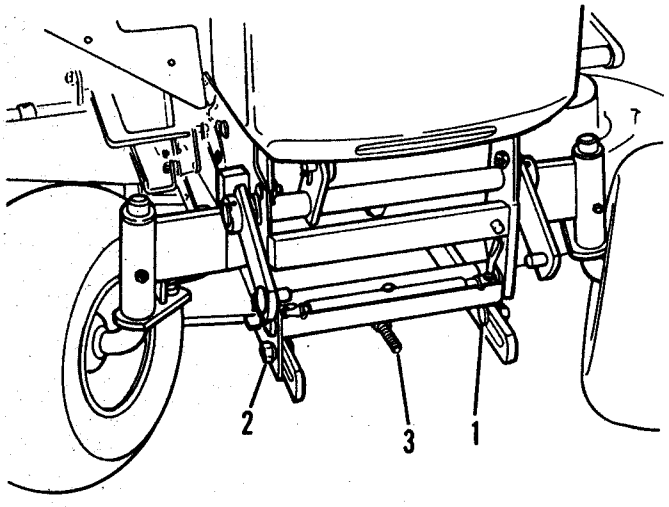
For proper PTO belt adjustment, there must be 1-1/2" to 1-3/4" between inside faces of PTO belt at idler. Check measurement with rotary mower lowered at its lowest cutting height.



1. PTO Belt 2. PTO Pulley 3. Idler

Figure 9-11: PTO Belt

To adjust, loosen nuts on carriage bolts that secure hanger bar to pivot bracket. Turn nut on belt adjustment rod clockwise to tighten belt (if measurement is less than 1-1/2") or counterclockwise to loosen belt (if measurement is more than 1-3/4").



1. **Carriage Bolts**
2. **Nuts**
3. **Belt Adjustment Nut**

Figure 9-12: PTO Belt Adjustment

After correct belt clearance is obtained tighten nuts on carriage bolts that secure hanger bar to pivot bracket.

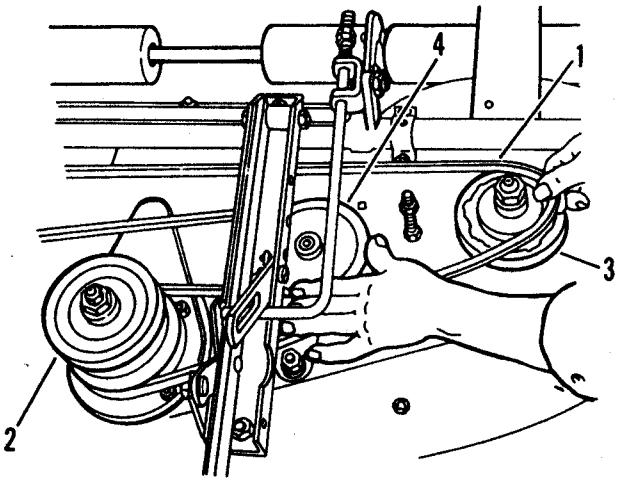
9.3 Mower Drive Belt

To replace mower drive belt, remove rotary mower from tractor according to instructions in Installation Section and PTO belt per above instructions.

Remove belt cover hardware and belt covers.

Grasp belt on both sides of right hand pulley, pull horizontally on belt and lift belt off pulley. Remove belt from left hand, idler and center pulleys.

Install new Ariens belt in reverse order and adjust PTO belt per above instructions.



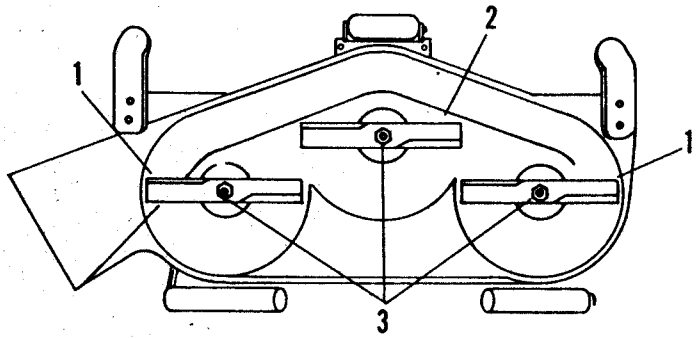
1. **Mower Belt**
2. **Center Spindle Pulley**
3. **Outer Spindle Pulley**
4. **Idler**

Figure 9-13: Mower Drive Belt Replacement

9.4 Blades

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

Regularly check mower blades for wear and that lock washers are fully compressed by nuts (50-60 ft. lbs. of torque on nuts).



1. **Outer Blades**
2. **Center Blade**
3. **Mounting Lock Washers & Nuts**

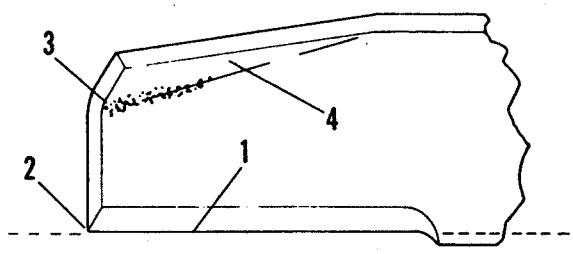
Figure 9-14: Blade Replacement

When blades need sharpening, block blade to prevent rotation, 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 inch ounces at factory. DO NOT grind around corner at tip of blade. If cutting edge of blade cannot be sharpened in straight line to within 1/8 of an inch of its end, replace complete set of blades with Ariens replacement blades only. They are available through your Ariens Dealer.

Install blades, lock washers and tighten nuts until lock washers are fully compressed (50-60 ft. lbs. of torque on nuts).

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

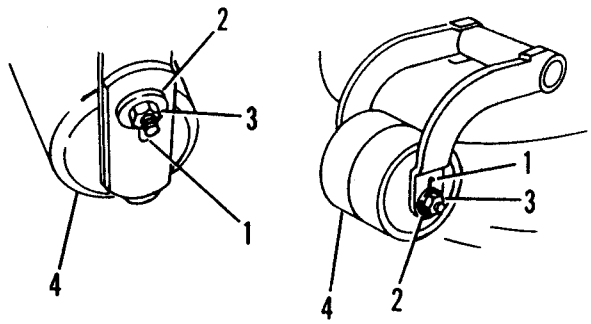


1. **Straight Cutting Edge**
2. **Square Corner**
3. **Air Lift Erosion**
4. **Air Lift**

Figure 9-15: Mower Blade

9.5 Level

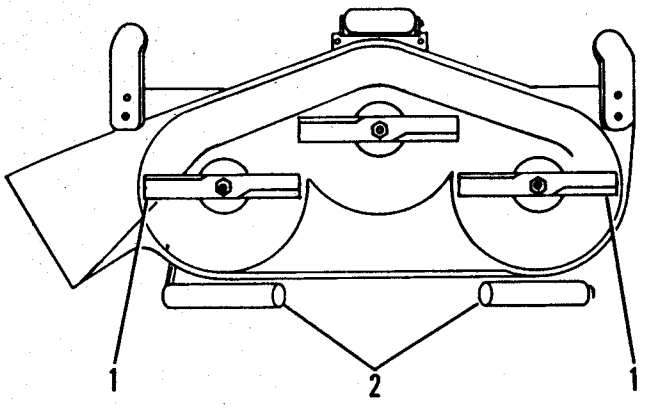
NOTE: A wood block (about 1" square by 5" long) may be used under pan for blade measurement. Wrap block with masking tape, mark tape with cutting edge of blades and measure distance from end of block to mark(s). (This method avoids errors by having to read any measurement under pan.)



1. **Slot**
2. **Washer**
3. **Nut**
4. **Roller**

Figure 9-16: Roller Adjustment

Adjust rollers, by loosening nuts, so that rollers are down then tighten nuts. This positions mower pan (when lowered) at its greatest clearance at various cutting height settings.



1. Outer Blade Tips
2. Roller

Figure 9-17: Mower Leveling

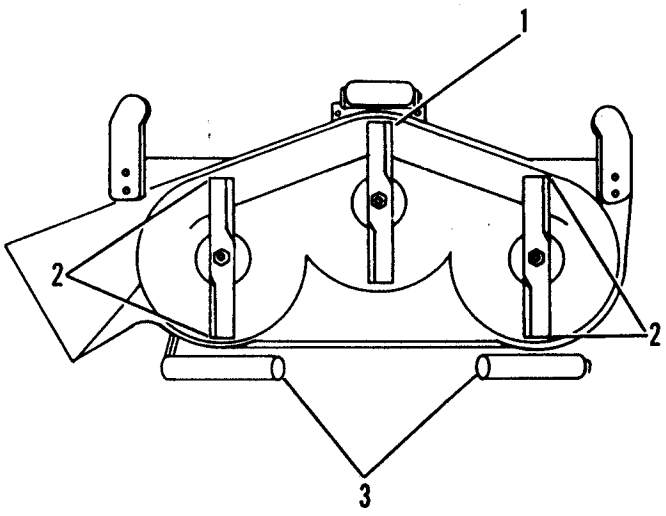
With rotary mower lowered, rollers on floor, and blades parallel to rollers, measure distance of blade tips to floor at right and left side of mower pan. Rotate blades 180 degrees and check again. The measurements should be equal within 1/8 of an inch.

To correct for difference in height of blade tips, loosen nuts on roller that is on side of mower pan where highest blade tip measurement was taken, raise roller (this lowers blade), to compensate for difference in height and tighten nuts.

9.6 Pitch

With rotary mower blades perpendicular to rollers, front tip of center blade must be 1/8 to 1/4 inch lower than rear outside blade tips.

Lower rotary mower with rollers on floor and blades perpendicular to rollers. Measure distance of center blade front tip, right and left blade rear tips to floor. Rotate blades 180 degrees and check again.. Measurement difference (front to rear) should remain at 1/8 to 1/4 inch.

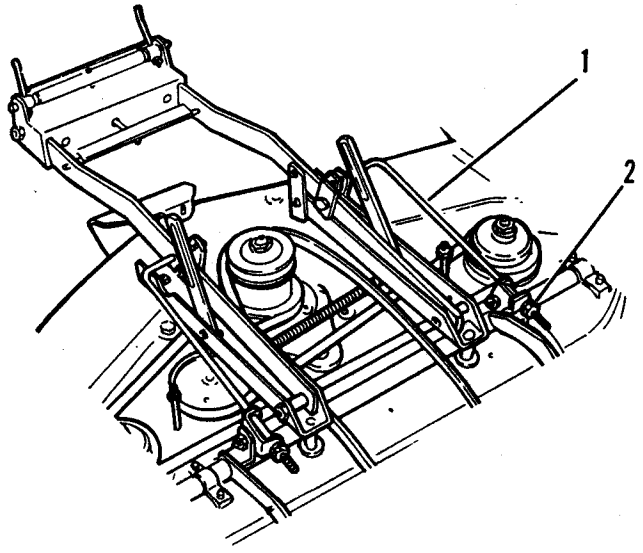


1. Front Blade Tip
2. Outside Blade Tips
3. Rollers

Figure 9-18: Mower Pitch

NOTE: Turn nuts on pitch adjustment rods equally (to share load) toward front to increase and rear to decrease height of blade tips at front of rotary mower.

To correct for difference in height (front to rear) of blade tips, loosen nuts on pitch adjustment rods, raise or lower front of rotary mower pan as required and tighten nuts.



1. Adjustment Rods
2. Adjustment Nuts

Figure 9-19: Pitch Adjustment

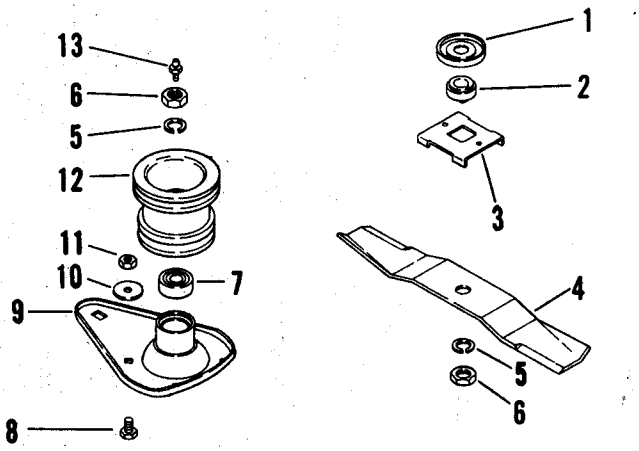
9.7 Spindle Removal

Remove belts per instructions.

Remove blade (refer to Mower Blade), blade tray, retainer hub, bearing slinger, washer, and woodruff (straight on center spindle) key from spindle shaft.

Remove carriage bolts, washers and lock nuts that secure spindle housing.

Remove zerk fitting, jam nut and lock washer that secures pulley to spindle shaft, then remove pulley and woodruff key from shaft.

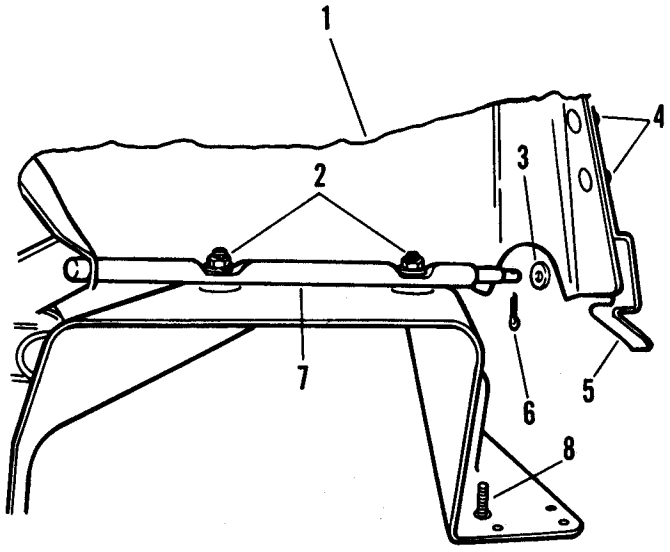


1. Bearing Slinger
2. Retainer Hub
3. Blade Tray
4. Blade
5. Lock Washer
6. Hex Jam Nut
7. Radial Bearing
8. Carriage Bolt
9. Spindle Housing
10. Washer
11. Two Way Lock Nut
12. Pulley
13. Grease Zerk

Figure 9-20: Spindle Removal

9.8 Deflector

WARNING: DO NOT operate rotary mower without deflector properly installed and secured on mower pan.



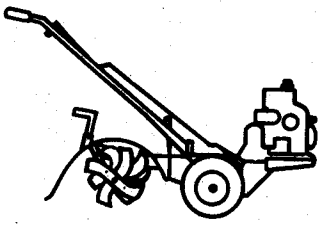
1. Deflector
2. Lock Washers and Nuts
3. Washer
4. Latch Spring Nuts
5. Latch Spring
6. Cotter Pin
7. Hinge Pin
8. Latch Spring Bolt

Figure 9-21: Deflector

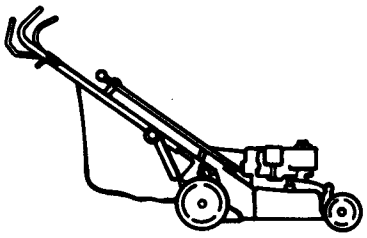
Loosen nuts that secure hinge pin to mower pan. Install deflector, washer, cotter pin and tighten nuts on hinge pin.

Deflector should rest firmly on mower pan with spring latch over latch bolt. If it does not, loosen nuts holding spring latch on front of deflector, position spring latch against bolt and tighten nuts.

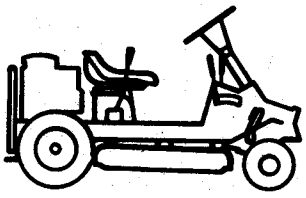
Ask your dealer for information about these other fine Ariens products:



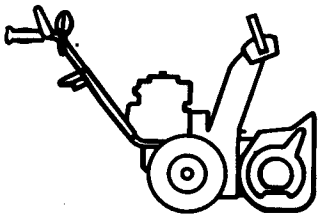
Garden Tillers



Walk Behind Mowers



Riding Mowers



Sno-Thros

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