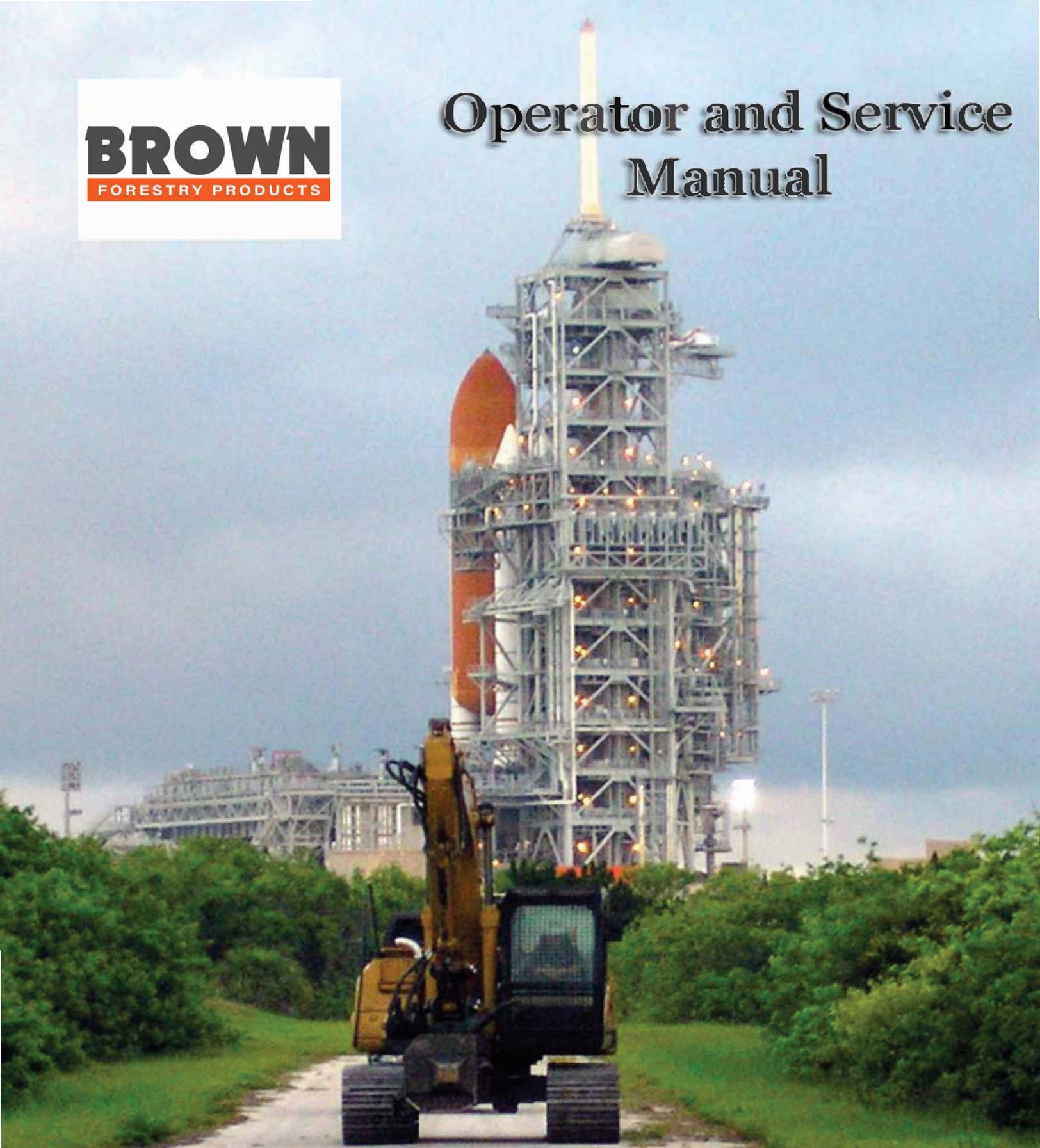


**BROWN**  
FORESTRY PRODUCTS

# Operator and Service Manual



# BROWN FORESTRY PRODUCTS BRUSH MOWER

Enter your Brown Brontosaurus Serial Number here for future reference  
when calling

Serial Number



Brown Forestry Products  
40 B&B Lane, Weare, NH 03281

888-718-4199 - Office

603-529-7976 - Fax

[brownforestryproducts.com](http://brownforestryproducts.com)

# CONGRATULATIONS!

You have purchased the best mower for clearing brush and trees that is being made today. We appreciate your purchase of our Brown Brontosaurus Brush Mower and have prepared this manual as an aid for maintaining it.

All personnel who will be working with the equipment should be fully trained with it and have read and understand the SAFETY information, and procedures in this manual as well as the other manuals listed below.

We, the manufacturer, have no direct control over how you the owner/user will operate, inspect, lubricate, or maintain the equipment. Therefore, it is your responsibility to maintain the equipment properly and to use good safety practices in these areas.

Other manuals that should be read and understood prior to using the equipment are:

The hydraulic excavator manufacturer's manual(s).

The SAFETY MANUAL for Users, Operators, and Maintenance Personnel for hydraulic excavators by the Construction Industry Manufacturers Association (CIMA).

The Manufacturer's diesel engine manual supplied with the equipment

No modification to this equipment should be made without the advice and express written consent of the J.C.B. Leasing Corporation

J.C.B. Leasing Corporation reserves the right to make changes in design or to make additions to or improvements in its products without imposing any obligations upon itself to install them on its products previously manufactured.

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# SAFETY

Safety can never be overemphasized. Good safety practices along with familiarization of the locations of controls and indicators, and a thorough understanding of operating and maintenance procedures of the equipment are the best means of preventing personal injury and/or damage to the equipment.

## **SAFETY RECOMMENDATIONS (GENERAL)**

Wear proper work clothes and safety shoes. If the nature of the work requires safety, wear goggles or mask and/or other protection.

The operator should be alert at all times. Accidents occur through carelessness or slack work habits.

Do not operate equipment when tired or after drinking.

Learn the prohibitions, cautions, and rules about work procedures in the work site.

Learn about the safety devices on the equipment.

Read and understand all manuals associated with the equipment.

Never allow another person to ride on the machine or in the cab during operation.

Examine the lay of the land at the site to determine any dangerous points. Proceed with the work only after making safety arrangements about the dangerous points.

When getting on and off the machine, use the handrail provided. Do not jump up or down from the machine.

Follow proper inspection, maintenance, and service instructions to insure the machine is ready to operate at all times.

## SAFETY PRECAUTIONS (SPECIAL)

No person(s) should be within a 200ft radius (considered danger zone) of the equipment during operation. The operator should shut the unit down immediately upon detecting anyone in the danger zone.

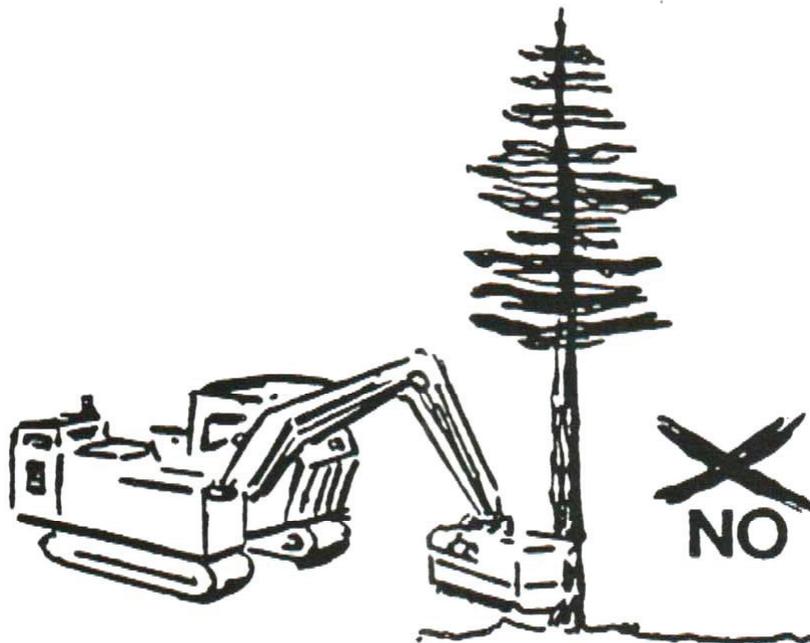


The equipment should be shut down each time the operator is about to leave the excavator cab.

Two-way FM transceivers or Cellular phones should be used by ground crew and the operator to eliminate the possibility of a worker entering the danger zone to contact the operator.

The operator should be alert at all times to the area being mowed in the event cable or other debris is lying in the path of the mower.

Do not attempt to cut into the sides of trees as there is no control over which direction the may fall.



# SAFETY

Before extending the mower to full reach over the side of tracks, test for stability. Avoid reaching down hill on side slopes if there is any feeling that the machine might tip. If the machine begins to tip, carefully lower the mower to the ground and pull it in.

Pressurized hydraulic fluid can penetrate the skin and cause serious injury or death. Therefore make certain fittings, pipes, and hoses are in good condition.

Use a piece of cardboard or wood, instead of your hands, to check for leaks. If struck by a leak under pressure, seek medical treatment immediately to prevent any serious reactions.

If an overheated engine occurs, shut down and wait for the radiator to cool. The hot pressurized coolant may cause burns. Do not add coolant to the engine if overheated.

Batteries produce flammable gases and can explode possibly causing blindness or severe injury. Always shield eyes. Keep sparks, flames, and cigarettes away. Keep battery area ventilated. Use a flashlight to check electrolyte level. Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Batteries contain sulphuric acid which can cause severe burns. Avoid contact with eyes, skin, or clothing. In the event of contact, flush with water and call a physician immediately.

## **NOTE**

The trouble causing the overheated engine should be corrected before placing the engine back in use.

Raise and lower the mower unit slowly, and swing the excavator boom slowly to prevent unnecessary damage to the mower unit.

Only trained and qualified personnel should operate equipment.

# SAFETY DECALS

Read and follow the instructions on the safety labels. The labels should be kept in good condition. Replace any labels that are damaged or missing.

**DANGER**  
**KEEP BACK 200 FT.**

LOCATED ON MOWER HEAD AND ON BACK OF POWER PLANT COMPARTMENT

**CAUTION**

LOCATED ON SIDE OF SEAT  
IN CAB

**OPERATION BY CERTIFIED  
OPERATORS ONLY**

**DANGER**

LOCATED ON EACH END OF  
MOWER UNIT AND ON BACK  
GUARD

**KEEP AWAY**

LOCATED ON FRONT OF  
GUARD

 **WARNING**

**WATCH YOUR  
HANDS  
AND  
FINGERS**



LOCATED ON DOORS  
OF POWER PLANT  
COMPARTMENT

**CAUTION**

**KEEP  
CLOSED**

LOCATED ON AND UNDER  
GUARD ON MOWER UNIT

**CAUTION**

**DO NOT OPERATE UNLESS  
SAFETY GUARDS OR DEVICES  
ARE IN PLACE AND  
PROPERLY ADJUSTED**

# SECTION 1

## PRE-START CHECKS AND START UP

### INTRODUCTION

This manual is an essential part of your machine. It should be stored in a waterproof place and be readily available to all personnel working with the equipment.

Throughout this manual special



and



symbols are used to point out

areas of particular concern. The **WARNING** is used where injury to personnel, as well as damage to the equipment, could result from failure to perform proper procedures. The **CAUTION** is used to emphasize areas where improper procedures may cause damage to the equipment.

### DESCRIPTION

The Brown Brontosaurus Brush Mower is designed to mow brush by a rotating drum action which cuts the brush into chip form with the finish cut to the ground or desired height. The system mounts on an excavator or skid steer (excavator mount shown in Figure 1-1). Controls and indicators for the system (if auxiliary engine is mounted on excavator) are located in the excavator cab. The excavator controls are used to position the mower unit.

# PRE-START CHECKS

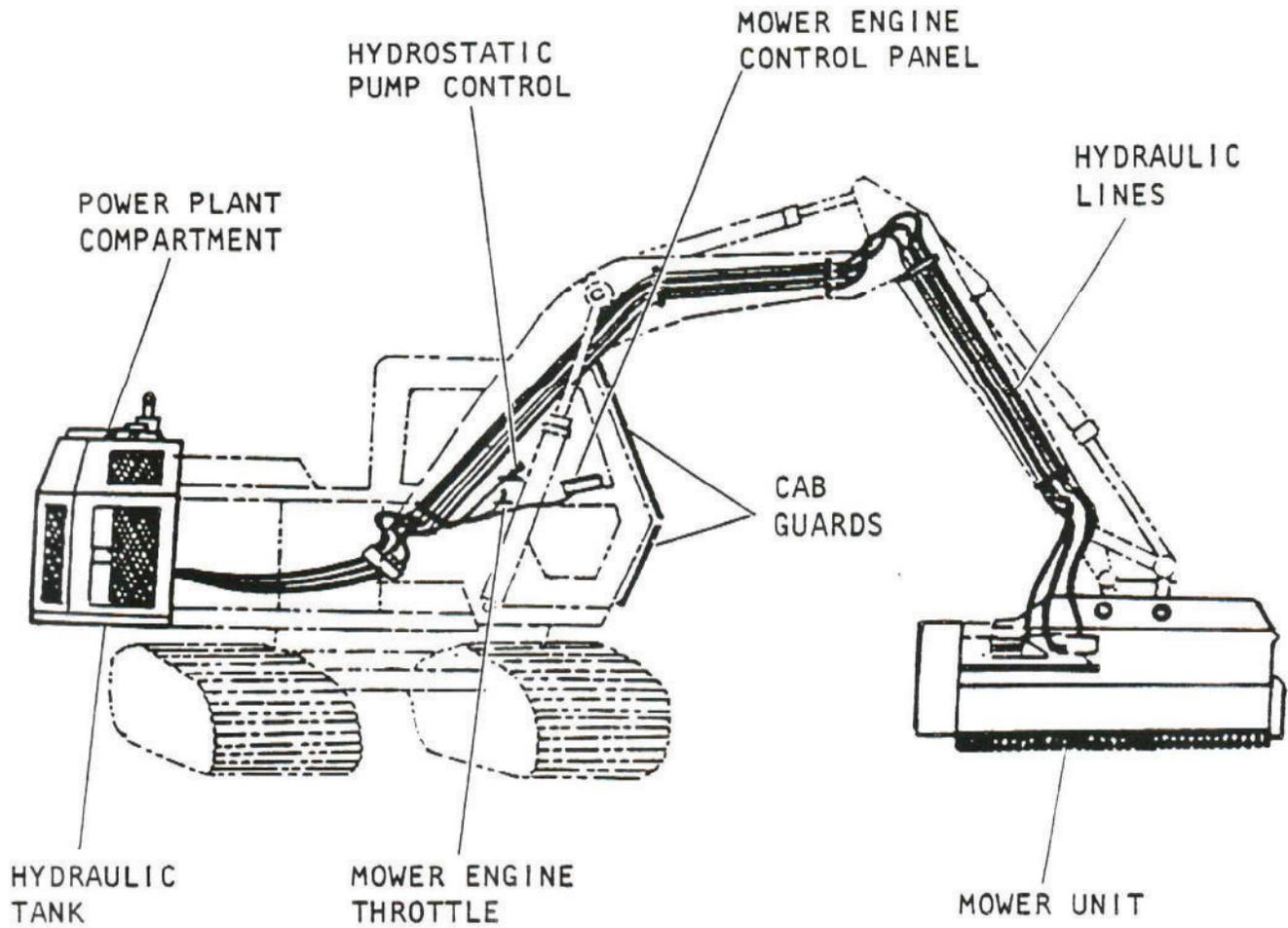


Figure 1-1. Brown Brush Mower Location of Components

# MOWER UNIT

The mower head/unit (Figure 1-2) attaches to the arm of the excavator boom using the same pins as the excavator bucket. This allows the mower to be pivoted to follow the ground contour. The mower drum rotates about 1500 RPM. The Flail-style mower head - Centrifugal force keeps the knives extended behind the drum surface and has four rows of off-set knives. The Fixed style tooth drum is made up of holders welded onto the drum in a spiral pattern the completely wraps around the drum from one end to the other.



Fixed Tooth Mower Head

Flail Tooth Mower Head



Figure 1-2. Mower Unit

# POWER COMPARTMENT

The power compartment (Figure 1-3) houses the diesel engine and hydrostatic pump. Part of the base of the compartment contains the hydraulic reservoir. The compartment attaches to the excavator at the counterweight bracket and replaces the weight as the counterbalance. Hydraulic lines, attached to the excavator boom and stick, connect to the hydrostatic (piston) pump at the compartment with the hydraulic motor located on the power unit.

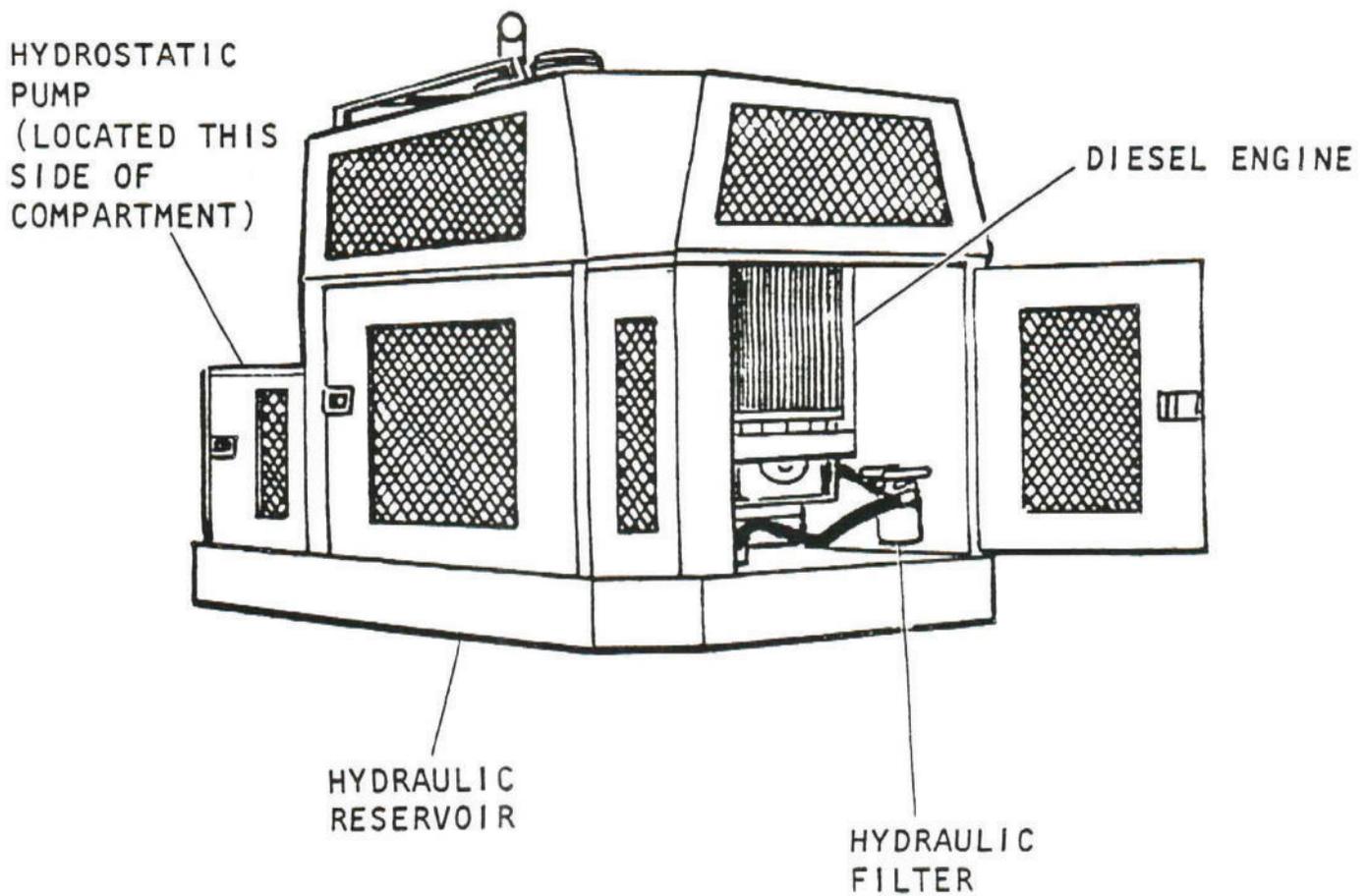
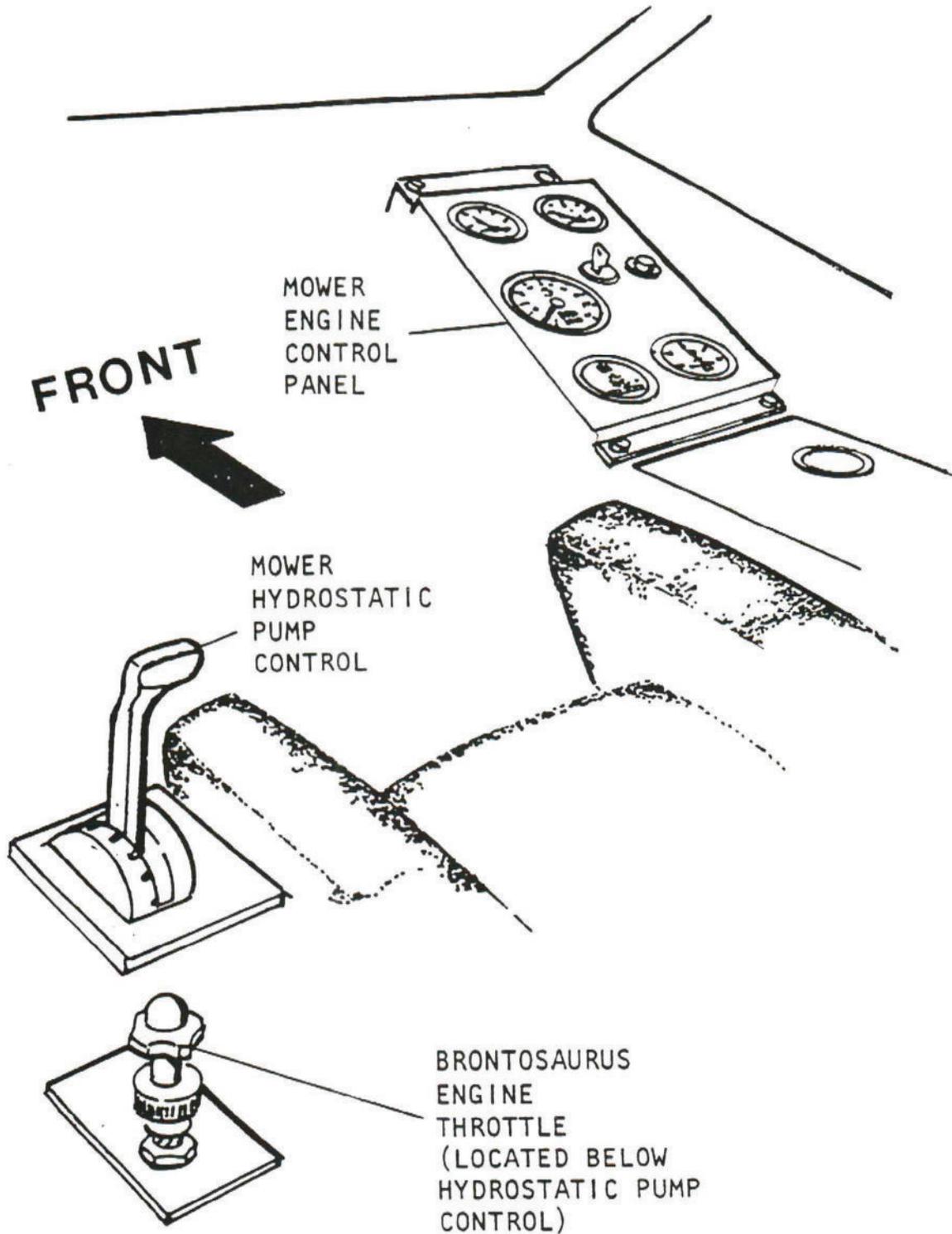


Figure 1-3. Power Compartment

# MOWER CONTROLS

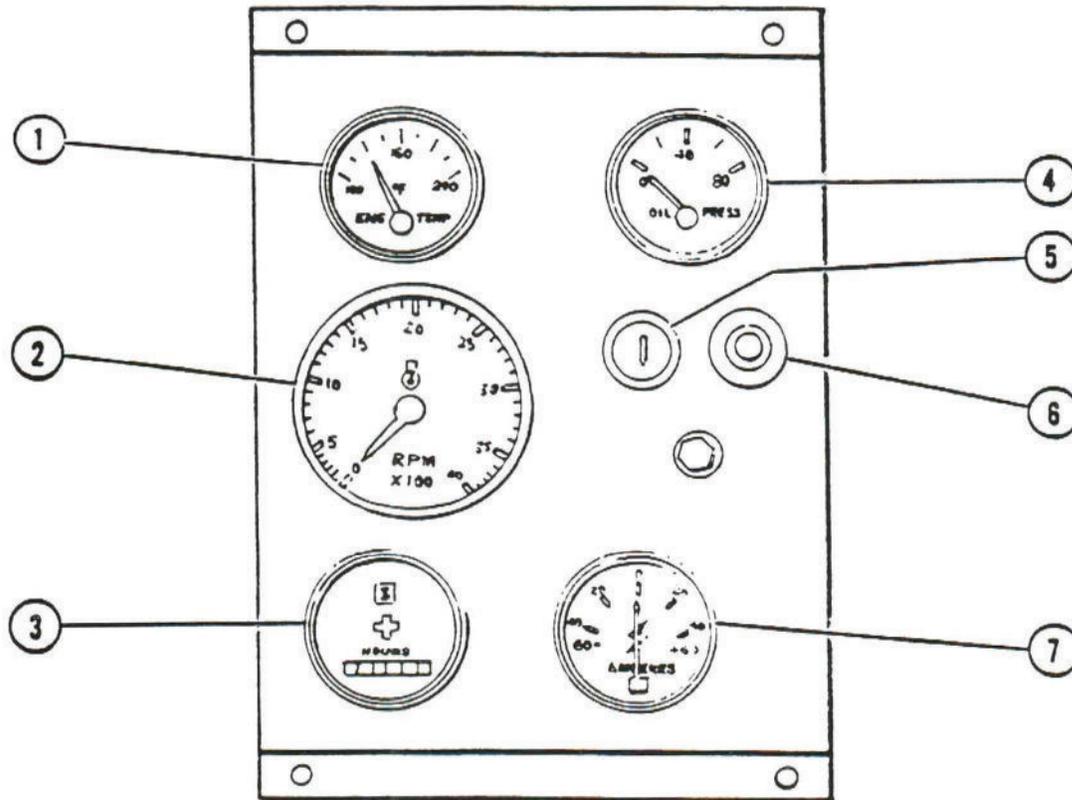
The locations of the mower power unit controls and instruments, and hydrostatic pump control in the excavator cab are shown below. The controls and indicators are easily accessible to the operator, but do not interfere with any of the functions required to operate the excavator.



# CONTROLS AND INDICATORS

## AUXILIARY POWER PLANT CONTROL PANEL

The control panel (Figure 1-5) is located forward on the right in the cab and is tilted to provide the operator with optimum visual contact. The locations and functions of the gauges and switches are shown below.



- 1) ENGINE TEMPERATURE GAUGE
- 2) TACHOMETER
- 3) HOUR METER
- 4) ENGINE OIL PRESSURE GAUGE
- 5) SWITCH - Key switch for starting diesel engine.
- 6) PERMISSIVE START BUTTON - Button has to be depressed and held before starting engine with switch key.
- 7) AMPERES GAUGE - Indicates whether unit is charging or not.

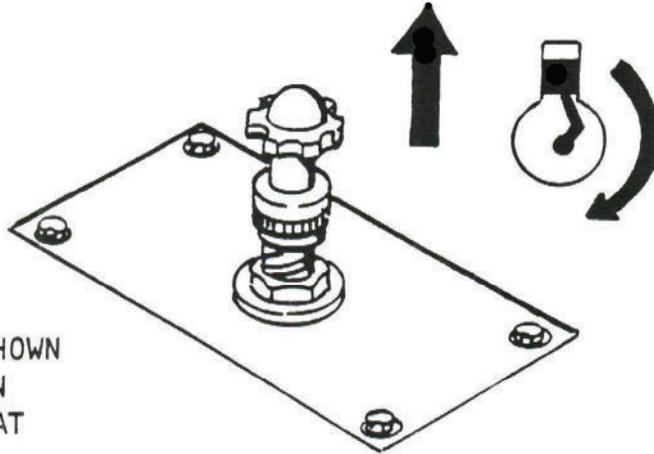
### NOTE

If temperature becomes too high engine will shut off automatically. Also, if oil pressure drops too low, the engine will shut off automatically.

Figure 1-5. Mower Power Plant Control Panel

## MOWER ENGINE THROTTLE

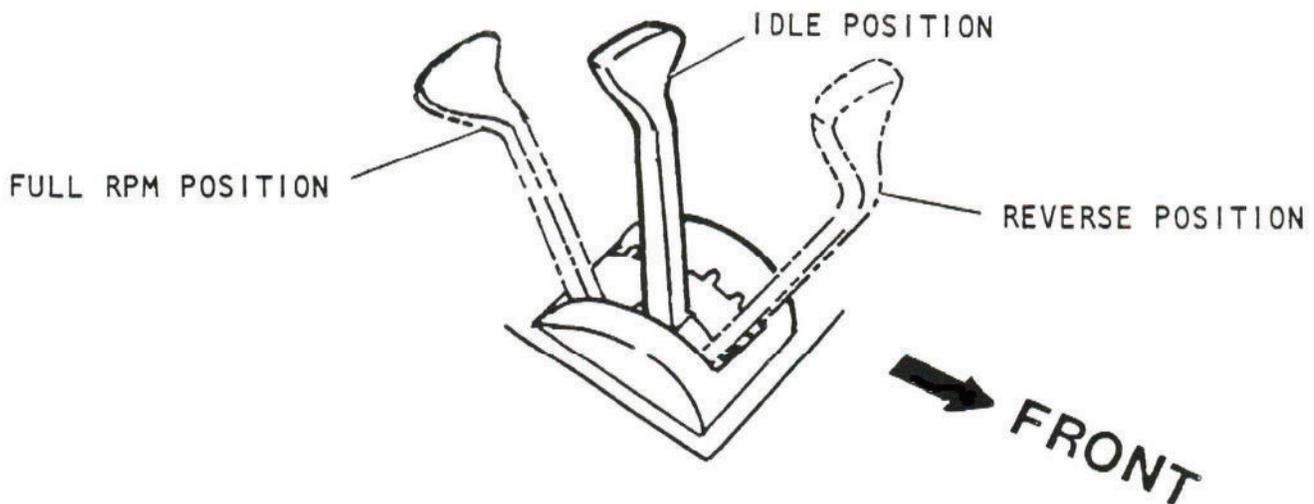
The throttle control for the mower engine is located on or next to the auxiliary engine control panel. The throttle, when turned, will raise or lower slower, allowing finer rpm adjustment. Depressing the red button on the top allows the operator to raise or lower the throttle rapidly. The throttle is in idle position when pushed all the way down.



THE THROTTLE IS SHOWN  
IN RAISED POSITION  
(ENGINE WOULD BE AT  
FULL RPM)

## MOWER HYDROSTATIC PUMP CONTROL

The mower hydrostatic pump control (seen below) is located on the left side of the cab. The control is in neutral position when the lever is centered. The hydrostatic pump rpm's increase as the lever is moved rearward. When the lever is positioned all the way forward toward the front, the hydrostatic pump goes into reverse.



# OIL/TEMPERATURE GAUGE

An oil / temperature gauge for monitoring the hydraulic fluid level and temperature is located on the downward tube where the hydraulic filler cap is located.

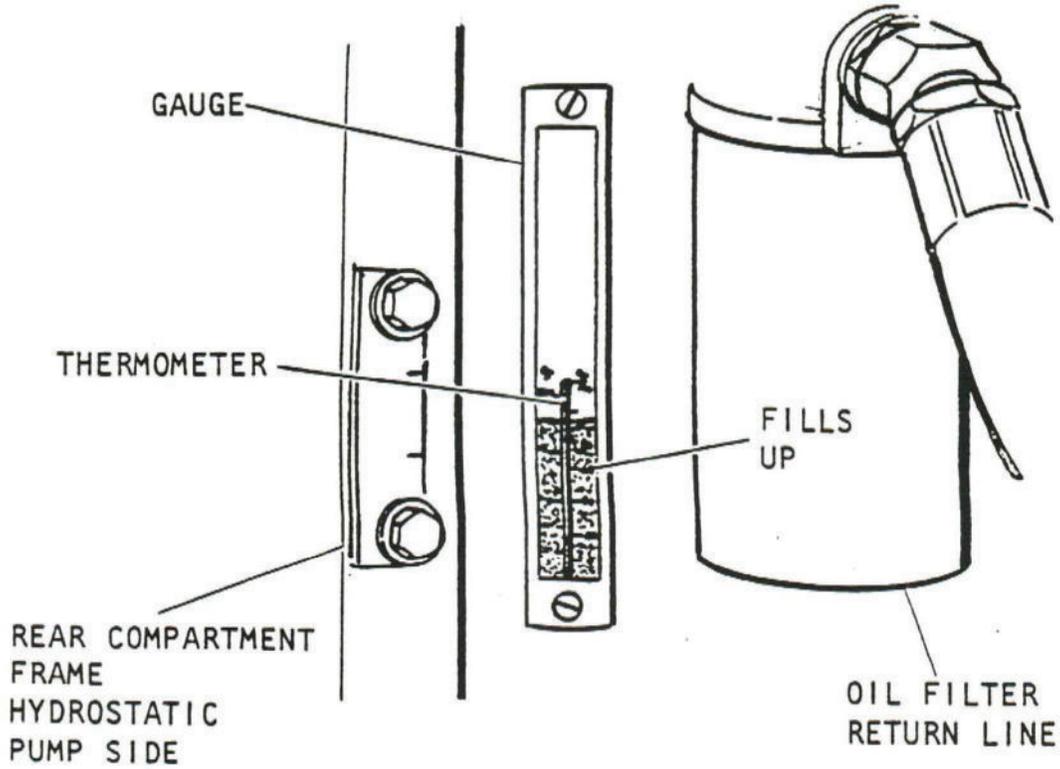


Figure 1-9. Oil/Temperature Gauge

## PRE-START INSPECTION, CHECKS, AND SERVICE



The equipment should NOT be running. Both the Brontosaurus engine and excavator engine should be shut down when the following procedures are being performed.

Prior to start-up, the following suggested inspection, checks, and service procedures should be performed.

Inspect hydraulic hoses, lines, and fittings for leaks or cracks. Any leaks, cracks, or structural failures should be corrected before placing equipment back in use.

Inspect the mower housing for loose or missing hardware. Check for cracks and/or damaged areas such as dents that could affect moving parts or indicate that a shaft may be bent, or broken holder.

Inspect the mounting pin area attaching the mower unit to the excavator arm for any signs of cracks, pin damage, or missing parts. Correct any defects before placing the equipment back in use.

Inspect the mower engine and hydrostatic pump compartments for any signs of leaks, damage, loose or missing hardware. Correct any deficiencies before placing the equipment back in use.

Check the oil level in the mower engine. Refer to the engine manufacturer's manual for oil specifications.

### **NOTE**

Refer to the engine manufacturer's manual for any specific service instructions or error codes.

## PRE-START CHECKS

Check coolant level if liquid-cooled engine, or make certain air cooling area is clear if air-cooled engine. Refer to the manufacturer's manual for coolant specifications and any special procedures.

Check level of hydraulic fluid. Replenish if required.

Check the mower knives for sharpness. If knives are dull and need sharpening, refer to the MAINTENANCE Section for knives sharpening procedures.

Check the mower knives for broken or missing parts. Manually rotate the drum to check all knives. Check for any loose bolts and tighten if needed.



Any broken or missing knives will cause an unbalanced condition adversely affecting the rotation of the drum. Missing or broken knives must be replaced before placing machine into use.

Refer to the MAINTENANCE Section for replacement instructions.

Refer to the lubrication schedule in the MAINTENANCE Section for lube intervals, and lube specifications for the bearings. Perform all lubrication requirements.

Check that all guards are in place and the doors are closed tightly.

Perform all inspections, checks, and services required in the excavator's manual.

Check to make certain that all tools have been removed and properly stored.

# START UP

The following are suggested procedures for starting up the mower equipment. All phases of start-up and operation are to be performed from inside the excavator cab. The system should be maintained so as to be operable from the cab at all times. Proceed as follows:



**CAUTION**

Before starting make certain the mower hydrostatic pump control is in the neutral position (mid-position).

Start the excavator and raise the mower unit until it is clear of the ground with the drum horizontal. This allows the unit to be clear of any obstructions which could prevent the drum from turning

Push the Brontosaurus engine throttle all the way down (idle position).

Depress the permissive start button on the control panel.

Turn the key to start the engine while keeping the start button pressed



**CAUTION**

The starter should not be operated for longer than 30-second intervals. A waiting period of at least two minutes should be observed to protect the starter from overheating.

With the engine running at idle speed, move the mower hydrostatic pump control slowly toward the front to allow the drum to rotate at a low speed. Under extreme cold conditions (zero degree fahrenheit or lower) the drum should remain at this speed for 10-15 minutes to ensure it is rotating freely.

## PRE-START CHECKS

Move the mower hydrostatic pump control lever to its full position.

Raise the engine throttle until the RPM indicator on the control panel reads between 2000-2100 RPM.



**CAUTION**

Do not exceed 2100 RPM. Higher RPM will cause overspeeding of the drum.

The 2100 engine rpm will run the mower drum at 1500 rpm which is optimum cutting speed for your mower.

Use the excavator controls to place and maneuver the mower unit on site.



**CAUTION**

The mower unit should be raised and lowered slowly. The unit weighs ~ 4,000 lbs and will drop quicker than most excavator attachments.

The mower unit should be swung slowly to prevent hitting a boulder or ledge that may be partially hidden in the brush. Hitting the ledge at a higher speed could damage the unit.

Inspect the work area before starting to mow. Check to see if there are any hidden rocks, ledges, cables, steel, etc.

Observe all overhead clearances and plan maneuvering in accordance.

It is recommended that two-way FM transceivers or cellular phones be used for communication between the ground crew and excavator operator to eliminate the possibility of a crew member coming within the 200 ft danger area range of the equipment.

## PRE-START CHECKS

The operator should remain alert at all times; to side conditions, locating the excavator, and placement of the mower unit.



The equipment should be shut down immediately should any person or persons come within the 200 foot danger zone.



Do not allow any riders on the machine or in the cab.



Shut the equipment down at any time before the operator leaves the cab.

The manufacturer has no direct control over how the owner/user will use the equipment or the conditions at the worksite. It is the owner/user's responsibility to use proper judgement and follow the safety practices mentioned in this manual, and the other manufacturer's manuals associated with the equipment as well as insurance requirements, safety codes, local, state, and federal laws, rules, and regulations.

# SHUT-DOWN PROCEDURES

The following are suggested procedures for shutting down the equipment:

Return the Brontosaurus throttle to idle position by pushing the throttle all the way down. Wait until the engine rpm slow to idle speed before proceeding to the next step.

Return the mower's hydrostatic pump lever slowly to the neutral position (center-position).

## SECTION II MAINTENANCE

### INTRODUCTION

This section contains lubrication instructions, maintenance, and repair procedures. Costly repairs and replacements can be avoided by regular preventive maintenance program. Defective components or equipment malfunctions, resulting from lack of maintenance, may jeopardize safety as well as causing down time.

### LUBRICATION

It is important that all lubricants be kept in closed containers and stored in a clean, dry place. Dust, dirt, water, or foreign matter should not be allowed to mix with the lubricants.

#### **NOTE**

Refer to the excavator manufacturer's manual, and engine manufacturer's manual for detailed lubrication information.

### LUBRICATION INSTRUCTIONS

The following lubrication chart lists the system components and their respective lubrication requirements. Illustrations are provided as location references.



Fittings should be wiped clean before and after greasing.

# MAINTENANCE

Your two Main Shaft Bearings should be greased twice daily. Once mid-day, and once again at the end of the day. These times are best because the bearing will be warm and will accept the grease better. Spin the drum by hand while greasing to thoroughly get the grease throughout the bearing.

5 to 6 hand pumps at each greasing is sufficient.

Use a high end, Moly/Poly Grease that is Temperature rated and pressure rated to get the longest life out of your bearings.

## BEARING FAILURES ARE CAUSED BY:

1. Over tightening of the belts. The belts only need to be tight enough to not slip.
2. Flexing of the shell. Every time you drag material or push material using the mower head, you are bending the shell (or flexing it), which in turn puts a load on the bearing shortening it's life. Make sure the sides of the shell are square.
3. Trying to clear material that is too large. The larger the tree your clearing, the shorter the life span of the bearings will be. Price your jobs accordingly. While a bearings lifespan should last over 500 hours, large (8 inch and up) trees can cut a bearings life in half or more.
4. An out of balance head or broken mainshaft. Never run the mower head with a broken tooth.
5. Forcing the mower head into a stall. Everytime you force your mower into a stall you are putting excess pressure onto the bearings, and eventually will overload the bearing into failure.

# Appendix A

This appendix contains instructions for vendor supplied equipment applicable to the Brown Brontosaurus Brush Mower System. Data applies except for differences as indicated in the manual.

# OHLA<sup>®</sup> 900

## OVERHUNG LOAD ADAPTORS

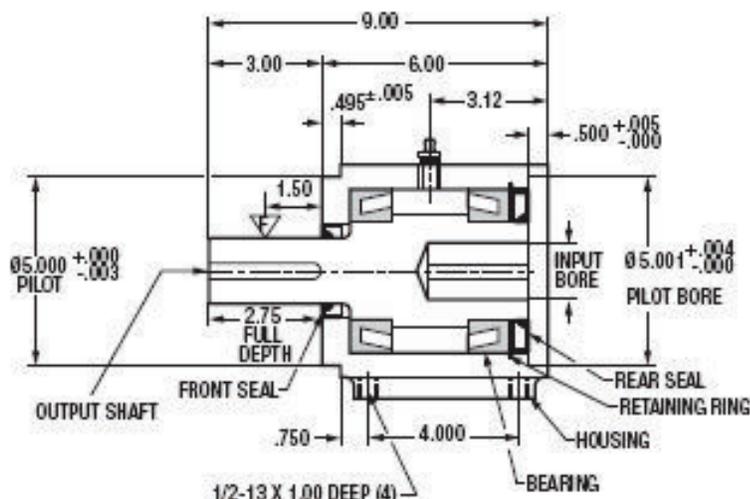
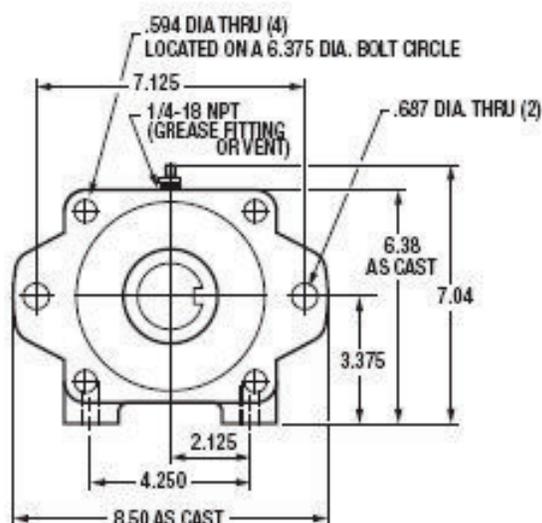
*Used on the 30 GPM  
Brown Brontosaurus*

- For SAE "C-C" mount motor or pump applications.
- Features heavy-duty tapered roller bearings.
- Accepts speeds up to 2700 RPM with proper lubrication. See Page 15.



### STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
915-14S	1.500 - 3/8 x 3/16	14 Tooth 12/24 Spline
915-17S	1.500 - 3/8 x 3/16	17 Tooth 12/24 Spline
915-24	1.500 - 3/8 x 3/16	1.500 - 3/8 x 3/16
915-28	1.500 - 3/8 x 3/16	1.750 - 7/16 x 7/32
928-14S	1.750 - 7/16 x 7/32	14 Tooth 12/24 Spline
928-17S	1.750 - 7/16 x 7/32	17 Tooth 12/24 Spline
928-24	1.750 - 7/16 x 7/32	1.500 - 3/8 x 3/16
928-28	1.750 - 7/16 x 7/32	1.750 - 7/16 x 7/32



Used on the 50 GPM  
Brown Brontosaurus

# OHLA<sup>®</sup> 1100

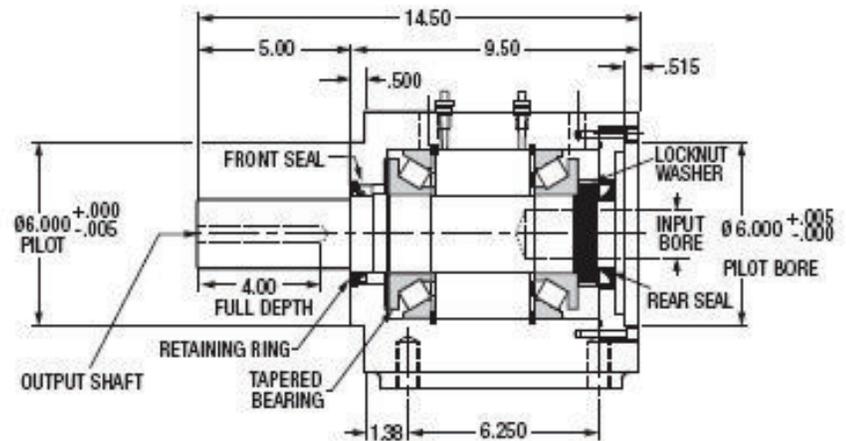
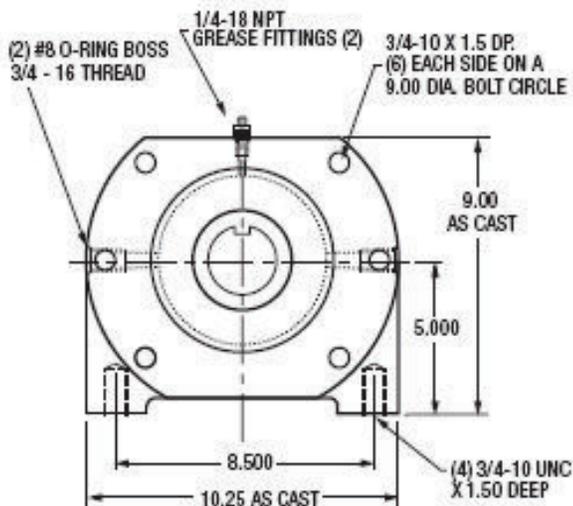
OVERHUNG LOAD ADAPTORS



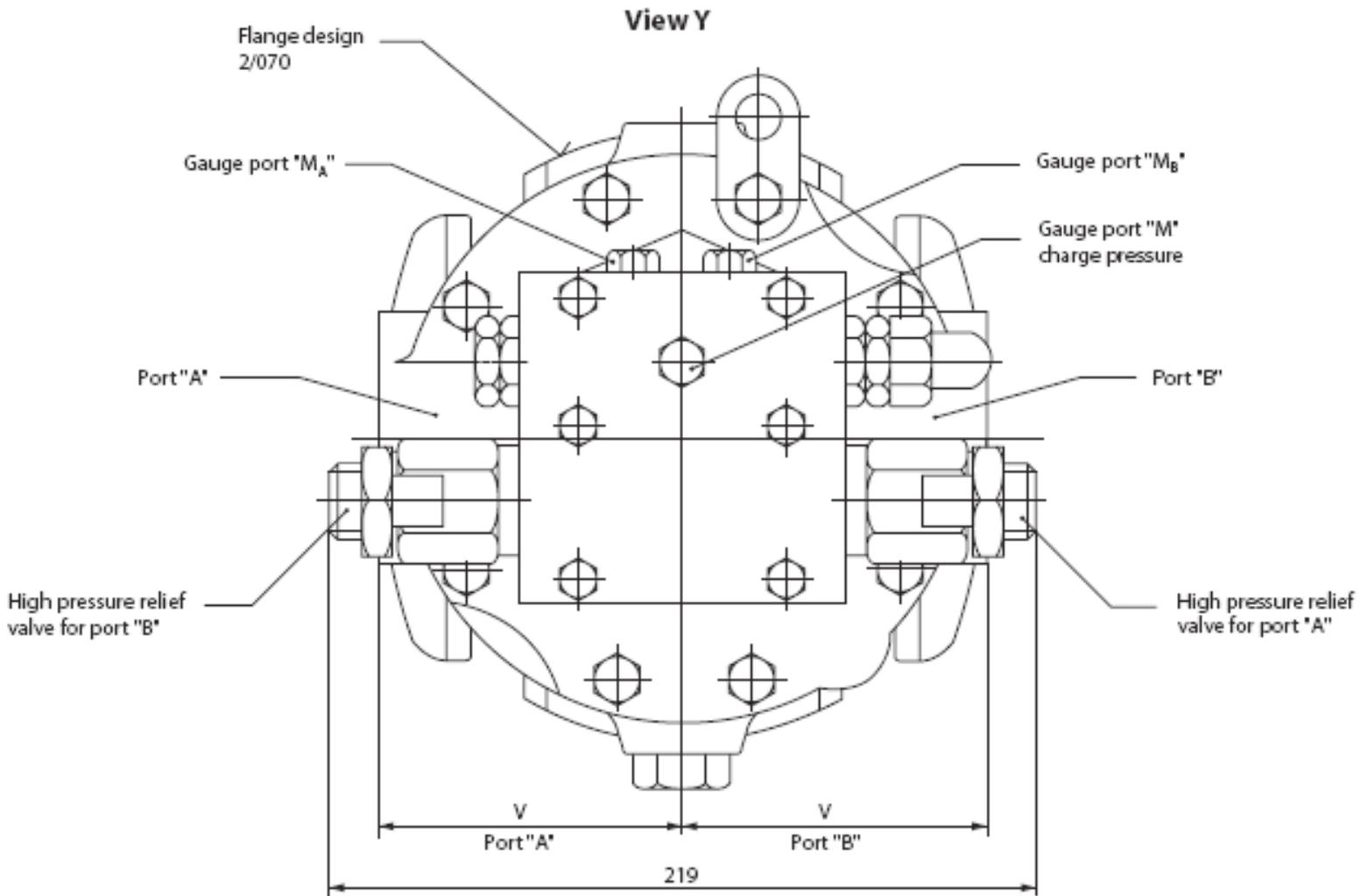
- For SAE "D" mount motor or pump applications.
- Features heavy-duty, tapered roller bearings.
- Accepts speeds up to 3500 RPM with proper lubrication. See Page 15.

## STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
1136-28	2.250 - 1/2 x 1/4	1.750 - 7/16 x 7/32
1136-13S	2.250 - 1/2 x 1/4	13 Tooth 8/16 Spline



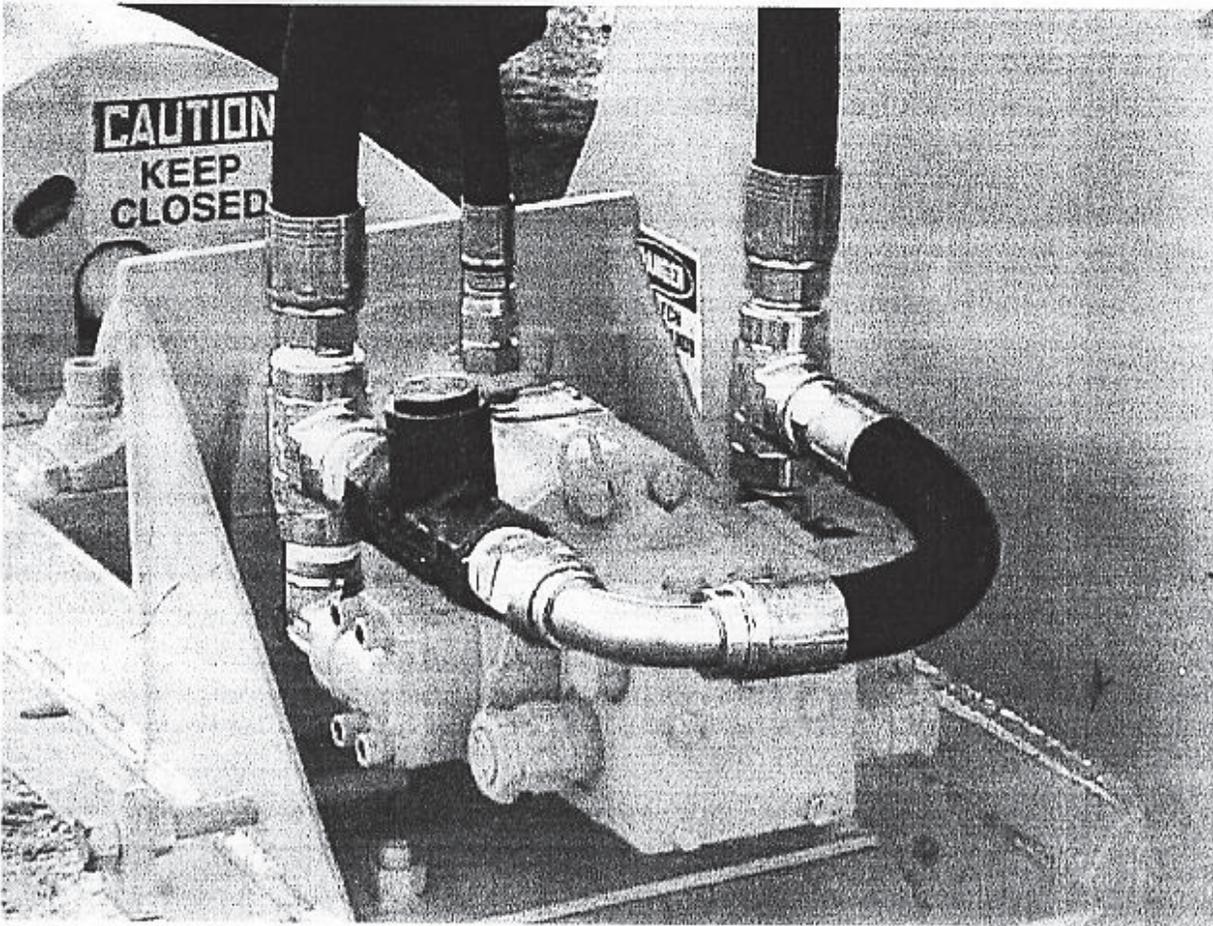
# Hydraulic Motor Ports and Relief Valves



P005 101E

\* Shaft spline data: spline shaft with involute spline, according to SAE handbook, 1963, class 1, fillet root side fit.

Frame size	Port A and B	Port L <sub>1</sub> and L <sub>2</sub>	Port M <sub>A</sub> and M <sub>B</sub>	Port M
070	SAE flange, size 1 SAE split flange boss 5000 psi 4 threads 3/8-16 UNC-2B 18 deep	7/8-14 UNF-2B SAE straight thread O-ring boss	7/16-20 UNF-2B SAE straight thread O-ring boss	
089				



**One way Check Valve  
Installed on 30 GPM Motor**

**Sauer Danfoss - Sundstrand**

**Part #  
HSP-1000-4-65 (1/2 inch)**

**HSP-1000-8-65 (1 inch)**

**Used on Open Loop - Self Powered Mower  
Heads**

# SECTION III

## PARTS

### INTRODUCTION

The parts section of this manual provides an illustrated parts breakdown of the equipments. Items are listed according to FIGURE & INDEX NO. and are provided with individual PART NO.s. The DESCRIPTION column describes each item by name. Items that are part of an assembly are indented to so indicated. The UNITS PER ASSY column indicates the total number of that particular part in the assembly.

Parts may be ordered by calling:

J.C.B Leasing Corporation  
14 B & B Lane  
Weare, NH 03281

Telephone:	603-529-7974
Toll Free:	1-888-227-6686
Fax:	603-529-7976

#### NOTE:

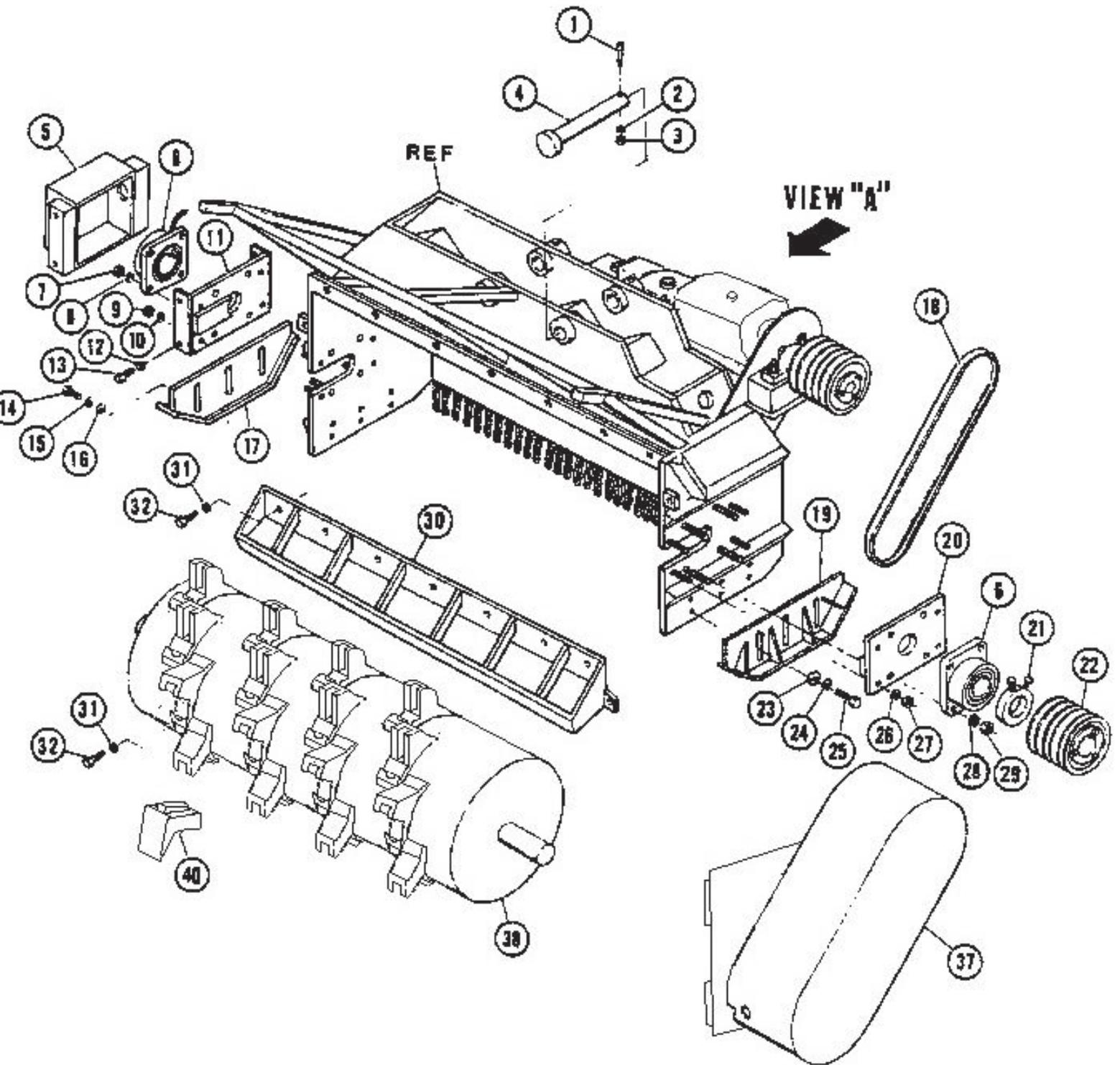
All hardware used on the equipment carries are "grade-8" rating and replacements should carry the same rating.

All hydraulic hoses carry a 4,000 lb working pressure, with a 10,000 lb burst pressure. All replacement hydraulic hoses should carry the same ratings as above.

# Brown Bronto Mower Head Model 2.5 EM, 3.0 E/EM, 4.0 E



# PARTS



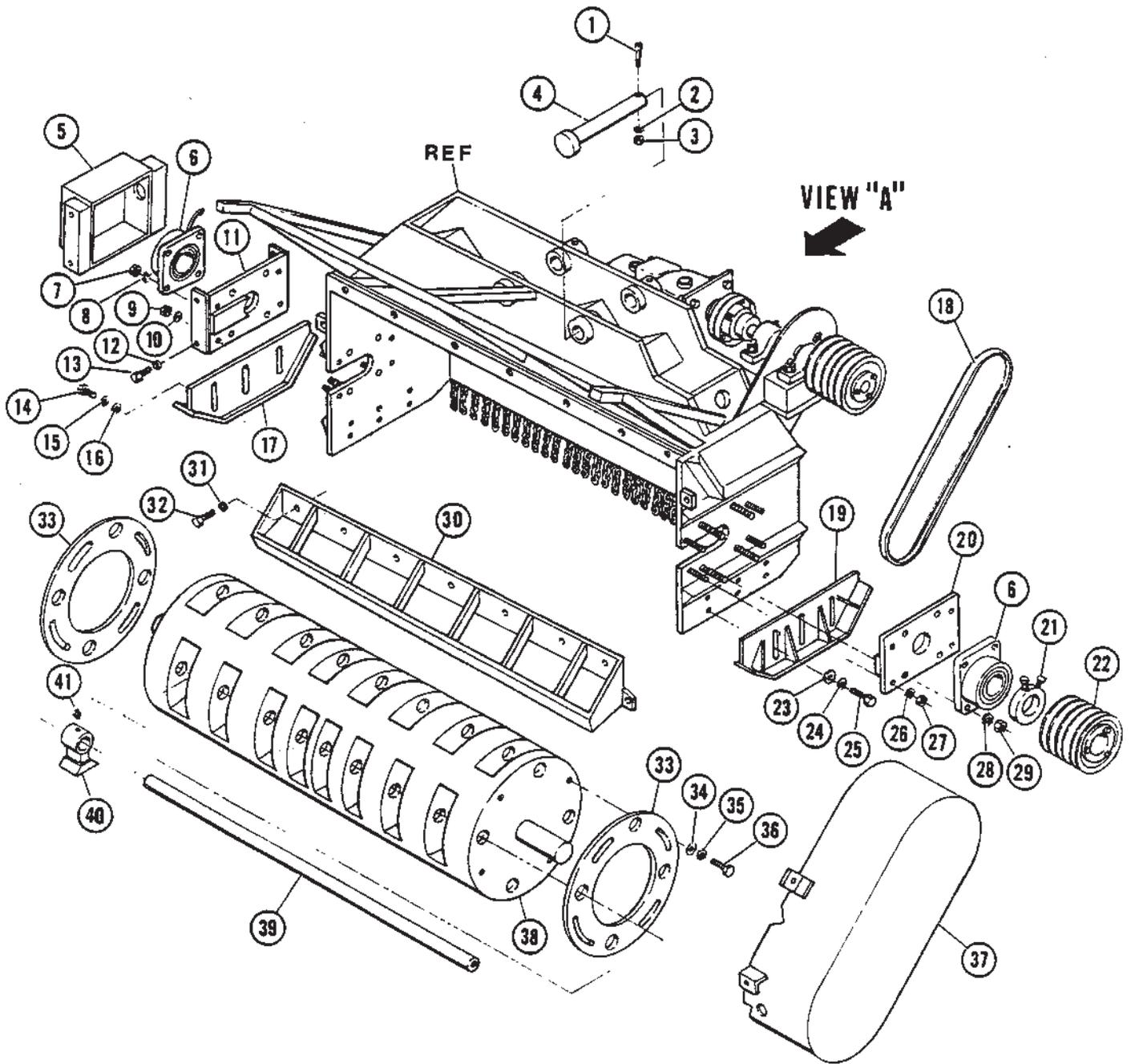
# PARTS

Figure	Part Number	Description	Units Per Assy
1	CP0108	Bolt, 5/8 x 5 coarse Thread	2
2	CP0109	Washer	2
3	CP0110	Nut, Hex, 5/8 coarse thread	2
4	BBP0130	Pin	2
5	BBP0131	Guard, Bearing	1
6	VP0113	SKF Bearing 3 11/16 - Collar with Bolts countersink in shaft	2
	VP0113QM	QM Bearing 3 11/16 - Concentric Locking Collar	2
7	CP0111	Nut, Hex, 7/8 coarse thread	4
8	CP0112	Washer, Lock, 7/8	4
9	CP0113	Nut, Hex, 5/8 coarse thread	4
10	CP0114	Washer, Lock, 5/8	4
11	BBP0132	Bearing support plate	1
12	CP0115	Washer, Lock, 5/8	4
13	CP0116	Nut, Hex, 5/8 coarse thread	4
14	CP0117	Bolt, Hex, 5/8x2 coarse thread	6
15	CP0118	Washer, Lock, 5/8	6
16	CP0119	Washer, Flat, 5/8	6
17	BBP0133	Shoe, Cutting Height Adjustment (Left Side)	1
18	VP0114	5VX900 Drive Belt	5
19	BBP0134	Shoe, Cutting Height Adjustment (Right Side)	1
20	BBP0135	Support Plate, Bearing	1
21	BBP0136	Collar (comes with bearing)	2
22	VP0115	Lower Pulley with Taper Lock	1
23	CP0120	Washer, Flat, 5/8	6
24	CP0121	Washer, Lock, 5/8	6
25	CP0122	Bolt, Hex, 5/8x2 coarse thread	6
26	CP0123	Washer, Lock, 5/8	4
27	CP0124	Nut, Hex, 5/8 coarse thread	4
28	CP0125	Washer, Lock, 7/8	4
29	CP0126	Nut, Hex, 7/8	4
30	BBP0137	Guard	1
31	CP0127	Washer, Lock, 1/2	7
32	CP0128	Bolt, Hex, 1/2 x 1 1/2 coarse thread	7
37	BBP0139	Belt Guard Door	1
38	BBP0140	Complete Mower Drum (knife holders, shaft, balanced)	1
39	BBP0141-4.0	Knife Holder - Fixed Tooth Holder welded onto drum	48
	BBP0141-3.0	Knife Holder - Fixed Tooth Holder welded onto drum	40
	BBP0141-2.5	Knife Holder - Fixed Tooth Holder welded onto drum	32
40	BBP0142FT-4.0	Fixed Style Knife	48
40	BBP0142FT-3.0	Fixed Style Knife	40
40	BBP0142FT-2.5	Fixed Style Knife	32

Brown Bronto Mower Head  
Model 2.5 STM/ST, 3.0 STM/ST, 4.0 STM/ST



# PARTS



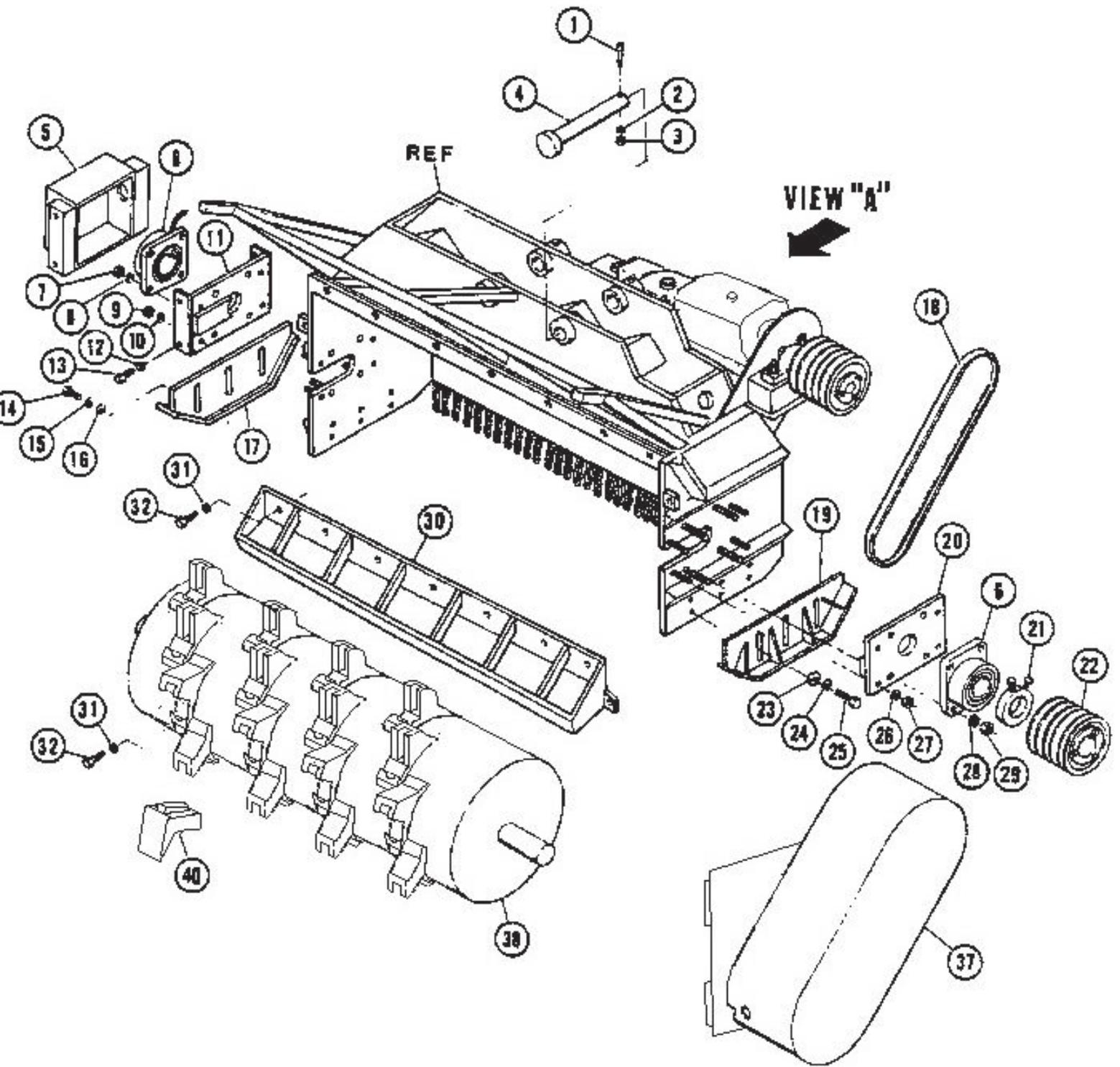
# PARTS

Figure	Part Number	Description	Units Per Assy
1	CP0108	Bolt, 5/8 x 5 coarse Thread	2
2	CP0109	Washer	2
3	CP0110	Nut, Hex, 5/8 coarse thread	2
4	BBP0130	Pin	2
5	BBP0131	Guard, Bearing	1
6	VP0113	SKF Bearing 3 11/16 - Collar with Bolts countersink in shaft	2
	VP0113QM	QM Bearing 3 11/16 - Concentric Locking Collar	2
7	CP0111	Nut, Hex, 7/8 coarse thread	4
8	CP0112	Washer, Lock, 7/8	4
9	CP0113	Nut, Hex, 5/8 coarse thread	4
10	CP0114	Washer, Lock, 5/8	4
11	BBP0132	Bearing support plate	1
12	CP0115	Washer, Lock, 5/8	4
13	CP0116	Nut, Hex, 5/8 coarse thread	4
14	CP0117	Bolt, Hex, 5/8x2 coarse thread	6
15	CP0118	Washer, Lock, 5/8	6
16	CP0119	Washer, Flat, 5/8	6
17	BBP0133	Shoe, Cutting Height Adjustment (Left Side)	1
18	VP0114	5VX900 Drive Belt	5
19	BBP0134	Shoe, Cutting Height Adjustment (Right Side)	1
20	BBP0135	Support Plate, Bearing	1
21	BBP0136	Collar (comes with bearing)	2
22	VP0115	Lower Pulley with Taper Lock	1
23	CP0120	Washer, Flat, 5/8	6
24	CP0121	Washer, Lock, 5/8	6
25	CP0122	Bolt, Hex, 5/8x2 coarse thread	6
26	CP0123	Washer, Lock, 5/8	4
27	CP0124	Nut, Hex, 5/8 coarse thread	4
28	CP0125	Washer, Lock, 7/8	4
29	CP0126	Nut, Hex, 7/8	4
30	BBP0137	Guard	1
31	CP0127	Washer, Lock, 1/2	7
32	CP0128	Bolt, Hex, 1/2 x 1 1/2 coarse thread	7
33	BBP0138	Knife Shaft Retaining Ring	2
37	BBP0139	Belt Guard Door	1
38	BBP0140	Complete Mower Drum (knife shafts, main shaft, balanced)	1
39	BBP0141-4.0	Knife Shaft	4
	BBP0141-3.0	Knife Shaft	4
	BBP0141-2.5	Knife Shaft	4
40	BBP0142-4.0	Flail Style Knife	24
40	BBP0142-3.0	Flail Style Knife	20
40	BBP0142-2.5	Flail Style Knife	16

# Brown Bronto Mower Head Model 2.0 EM



# PARTS



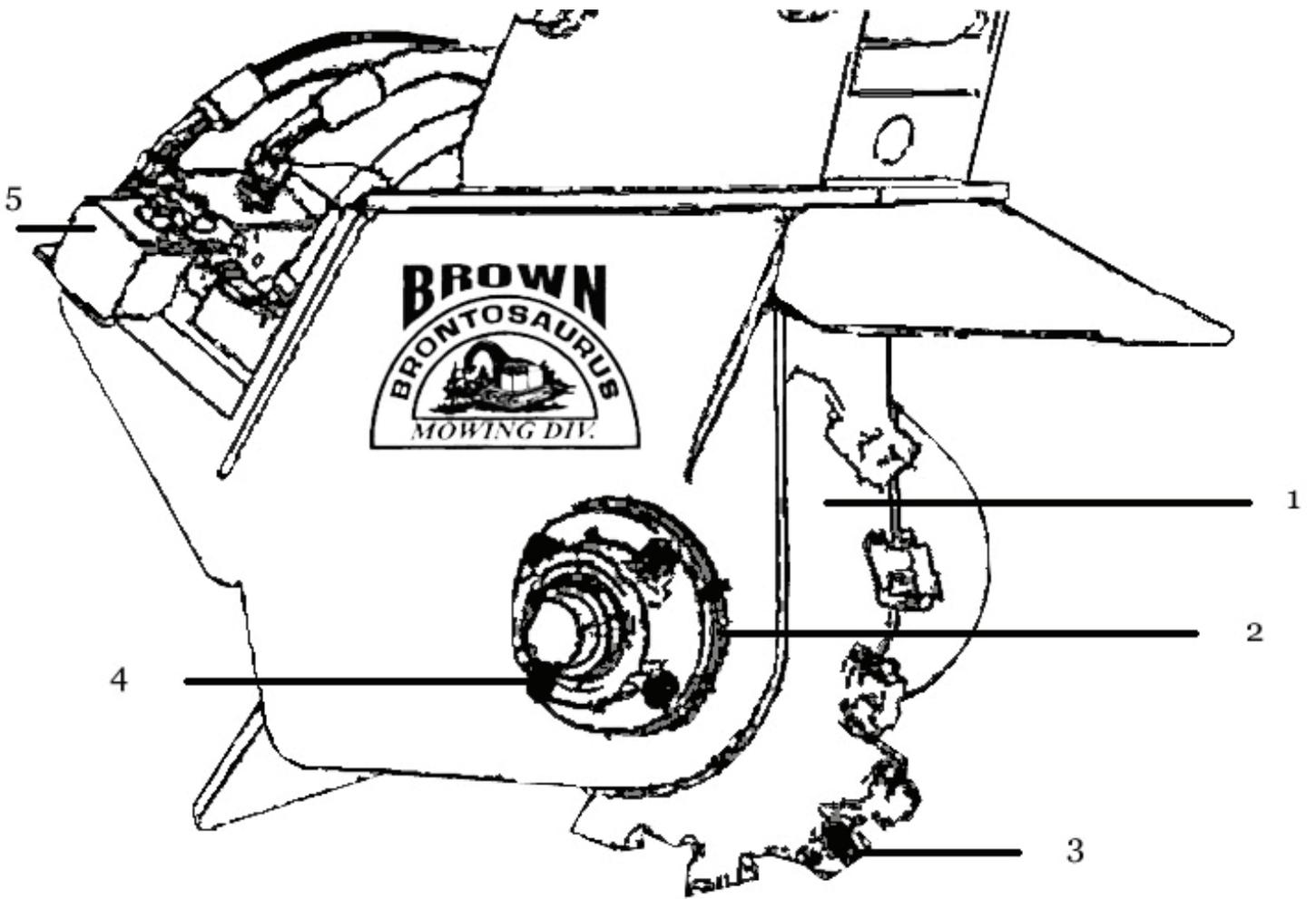
# PARTS

Figure	Part Number	Description	Units Per Assy
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2	CP0109	Washer	2
3	CP0110	Nut, Hex, 5/8 coarse thread	2
4	BBP0130	Pin	2
5	BBP0131	Guard, Bearing	1
6	VP0113	SKF Bearing 2 15/16 - Collar with Bolts countersink in shaft	2
	VP0113QM	QM Bearing 2 15/16 - Concentric Locking Collar	2
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14	CP0117	Bolt, Hex, 5/8x2 coarse thread	6
15	CP0118	Washer, Lock, 5/8	6
16	CP0119	Washer, Flat, 5/8	6
17	BBP0133	Shoe, Cutting Height Adjustment (Left Side)	1
18	VP0114	5VX800 Drive Belt	5
19	BBP0134	Shoe, Cutting Height Adjustment (Right Sidea)	1
20	BBP0135	Support Plate, Bearing	1
21	BBP0136	Collar (comes with bearing)	2
22	VP0115	Lower Pulley with Taper Lock	1
23	CP0120	Washer, Flat, 5/8	6
24	CP0121	Washer, Lock, 5/8	6
25	CP0122	Bolt, Hex, 5/8x2 coarse thread	6
26	CP0123	Washer, Lock, 5/8	4
27	CP0124	Nut, Hex, 5/8 coarse thread	4
28	CP0125	Washer, Lock, 7/8	4
29	CP0126	Nut, Hex, 7/8	4
30	BBP0137	Guard	1
31	CP0127	Washer, Lock, 1/2	7
32	CP0128	Bolt, Hex, 1/2 x 1 1/2 coarse thread	7
37	BBP0139	Belt Guard Door	1
38	BBP0140	Complete Mower Drum (knife holders, shaft, balanced)	1
39	BBP0141-2.0	Knife Holder - Fixed Tooth Holder welded onto drum	24
40	BBP0142FT-2.0	Fixed Style Knife	24

# Brown Stump Grinder Model 30 / Model 50



# PARTS



# PARTS

Figure	Part Number	Description	Units Per Assy
1	VP0201	Leonardi Stump Grinding Wheel	1
2	VP0113QM	2 /15/16 QM Bearing	2
3	VP0202	Carbide Stump Grinding Tooth - Regular Duty/All Purpose	12
	VP0203	Carbide Stump Grinding Tooth - Rock/Heavy Duty	12
4	BBP0130	Bolt and Washer, Lock, 5/8	8
5	VP0121-30	Model 30 Hydraulic Motor	1
	VP0121-50	Model 50 Hydraulic Motor	1

## *Mower Head Installation Notes*

Hydraulic installations should only be performed by a qualified hydraulics specialist who can gauge PSI and GPM.

Your mower head has been equipped with a 30 GPM, 22 series Sundstrand hydraulic motor, or a 50 GPM, 24 Series Sundstrand hydraulic piston motor. The relief valves are pre-set from the factory at 5000 PSI on the flow, and 1500 PSI on the return line.

There are three lines that are attached to the hydraulic motor from your carrier (Excavator or Skid Steer). The flow, return, and case drain line.

Please refer to your skid steer manual to understand which lines these are coming off your carrier, or refer to your qualified hydraulics specialist that installed the excavator auxiliary hydraulics.

Attach these lines to the hydraulic motor in the specified ports. Flow and Return hydraulics are hooked onto the Port A and Port B, and the case drain line is attached to the top of the motor's case drain port.

Pressures should be checked, and your mower head should be set to run at roughly 1600 to 1800 RPM. We balance all our mower heads at 1625 RPM.

## **Brown Brontosaurus Warranty**

JCB Leasing warrants the Brown Brontosaurus attachment for a period of One hundred eighty days from the date of purchase against defects in material and workmanship under normal operating conditions.

Any use of knives or shafts other than those provided by JCB Leasing will void this warranty.

### **Exclusions:**

All components which bear other manufacturers brand names, or accessories such as pumps and motors. All warranty repairs involving these items should be directed to that specific manufacturer.

Any defects which can be attributed to negligence, misuse, accident, or improper application. Normal maintenance, wear items, and depreciation. Any alterations or modifications not approved by JCB Leasing.

### **Limitation Under Warranty Conditions:**

Any labor charges under warranty conditions will be limited to thirty-five dollars per hour. Warranty items bearing other manufacturers names must be done by factory authorized representatives. JCB Leasing will not cover or reimburse any charges dealing with removal or replacement of an item for warranty repair. JCB Leasing will not cover transportation to and from a specific service area. Any charges that are incurred and are found to be non-warranty items will be the responsibility of the customer

## BRONTOSAURUS OPERATION INFORMATION

- 1) THE BRONTOSAURUS TOOTH (Diagram A), the cutting edge of the tooth should slope down from the top side with a sharp edge ( Diagram A). Sharpening at the proper downward angle, at the cutting edge, gives the Bronto tooth the ability to slice the wood fibers instead of abruptly splitting the wood fibers. (Smooth cuts start at microscopic levels ).
- 2) SLICING THE WOOD FIBERS WITH SHARP TEETH greatly reduces shock to the main bearings. It also creates smaller wood chips that are thrown shorter distances vs. dull mower teeth (BATTING) the wood chips much farther.
- 3) SHARP TEETH ENABLE THE OPERATOR TO KEEP THE MOWER SHOES around 6 to 10 inches off the ground during a right to left mowing pass. (or counter clockwise pass). NORMALLY, if the mower teeth are sharp, everything gets chopped up on the first pass, providing you don't hurry the mowing head through the brush. The teeth grab the brush and literally suck it up and through the wheel.THIS IS WHY A NEW BRONTO TOOTH IS SHAPED LIKE IT IS.(See diagram B). Not only does it cut, but it creates a vacuum which also helps suck the brush up from the ground. Even when the mower teeth are getting shorter as you grind them, you can still keep their original shape.(Diagram A ). Sharpening teeth wrong (diagram C,D,E) forces you to chase brush closer to the ground (that's where you find all the hard objects).
- 4) IN THE FIELD, THE DRUM DEPENDS ON YOU TO KEEP IT FROM VIBRATING:
  - A. Keep the mower teeth sharp
  - B. Grease the main bearings daily
  - C. Don't hit any rocks or steel
  - D. Grease the mower teeth 2 or 3 times a day.
- 5) AS YOU GRIND TEETH TO SHARPEN THEM, your teeth should be replaced when you are  $\frac{1}{2}$  to  $\frac{3}{4}$  of the way worn down from the tip.
- 6) REPLACING THE BOLTS on the drum should be done every second or third knife change. The bolts are Grade 8 11 coarse thread bolts.

## Operator's Manual

### 7) THE MAIN BEARINGS NEED TO BE GREASED DAILY!

- a) 1 or 2 pumps of grease every 2 hours when in heavy dust, sand, or water.
- b) 3 to 5 pumps of grease per day in normal mowing conditions. You will feel resistance on the grease gun handle when the bearing is full. Don't over grease, the excess grease will push the grease covers out of the bearing.
- c) 1 or 2 pumps of grease every 2 hours during winter months.

### 8) WINTER MONTHS REQUIRE A VERY LIGHT GREASE FOR TEETH.

#### REGARDING FLAIL KNIVES ONLY:

Other operators choose not to use any grease at all for the mower teeth and shafts. Instead, they spray chain and cable fluid, and or dry moly on the shafts (rods) each week. Browns Brontosaurus manufacturer recommend trickling diesel fuel over the knives and shafts during real cold weather. What ever the remedy for keeping the teeth spinning on the shafts, When you shut everything down for the night, make sure the tracks are on a log out of the snow, the booms are extended as far as they can reach, and settle the mower head flat on the belt drive cover. Make sure all the mower teeth are pointing outward before you leave. For cold weather start up, see the Bronto Policy page.

9) PROTECTING THE MAIN BEARINGS. Besides greasing daily, don't hit any rocks. When mowing, leave high stumps around rocks, junkyards, etc. and your utility person / ground worker will finish cutting the stumps down with a chainsaw. Bluntly hitting hard objects with the drum creates a shock wave. These shock waves break mower teeth, bend shafts(rods) and crack main bearings.

### **KEEP THE TEETH SHARP!!!**

Sharp teeth will cut the brush. Dull teeth will bat the brush, creating a higher level of shock waves to the main bearings.

10) AT THE END OF EACH WEEK, GIVE THE BRONTO HEAD A PHYSICAL. Remove main bearing covers, clean and inspect main bearings for cracks, check all nuts and bolts for tightness. Check belts for tightness, and wipe off any excess grease. Note any weld cracks, report them, and get them welded ASAP. Small weld cracks get bigger very quickly on a Brontosaurus.

### 11) BRONTO HEADS ARE HEAVY, AND EXPENSIVE.

Reaching out with the boom slows the reaction time to lift the head up if you see a rock approaching. Remember, the farther you reach with the boom, the slower you should make your mowing pass. Always be calculating boom reaction time vs. boom extension.

## Operator's Manual

12) WHEN MOWING ON A HILL, mow, going down the hill. Keep the tracks pointing straight down the incline to eliminate most chances of sliding. Having the boom on the low side of the machine and in front of you maximizes the machines stability. As you swing the machine back and forth while mowing, don't extend the outer boom much more than half of its reach. If you feel the high side of the machine trying to lift up as you make your mowing pass, you are reaching too far in front of the machine with the outer boom.

IF you bring the outer boom in close to the machine while making your mowing pass , and you still feel the high end trying to lift up, then you are on a hill that's too steep to be on. Shut the mower drum down, and GENTLY track up the hill to the top. The cab will still be facing down the hill. DON'T SPIN THE TRACKS . The precious carpet of vegetation your tracks are hanging on to is very Important. If you do (spin the sod) from under 1 or both of your tracks, stop the machine, (and the drum,) put the mower head to the ground, and at the same time, begin tracking up the hill and pushing with the boom at the same speed that your tracks are moving.

13) WHILE ON THE FLAT AND YOU COME TO THE BOTTOM OF A HILL, mow the bottom edge, and reach up the hill with the boom. Mow all you can without climbing the hill. Once you mow everything on stable territory, shut the machine down, get out and hike the easiest path to the top. Once you see the machine will be on solid ground at the top, walk back to the machine, start it up, extend the boom out, and up the hill, keeping the boom as low to the ground as possible. This approach gives the best traction for the machine. Remember to observe your surroundings.

14) IF YOU'RE ON A STEEP HILL, with boom extended up the hill and low to the ground, normally, the machine will make it all the way to the top. If the tracks start spinning on the ground, immediately stop the machine, back straight down the hill to the bottom, level out, turn the machine around, pull the boom in close, and start up the hill again. Follow the same easiest path you were on before. This time when you approach the area of loose soil, put the head to the ground, and gently nudge the machine up the hill with just enough boom pressure to keep the tracks from spinning. If you do this right, then you will just leave small ruts in the ground from the head gently pushing.

## Operator's Manual

15) ALWAYS MOVE THE BOOM (SLOW) WHEN MOWING ON A HILL!

Also, work the machine in slow motion when on a hill. Keep walking the machine to the top, then mow down the hill to the bottom. This may take several passes on the ROW to mow the entire hill. THAT'S OK. Bad things happen to an excavator when you try to mow up a hill.

16) WHEN MOWING THE TOP OF THE HILL, or along the edge of any bank, Always make sure the track that is on the flat surface at the top of the bank is not riding on any rocks or trees. If the ground under the track on the low side of the machine gives out, and the track on the top side is on rocks or tree logs, (anything harder than dirt) the machine will start sliding down the hill.

17) WHEN YOU'RE ENTERING AN AREA THAT LOOKS WET OR MUDDY, There's normally a downward slope at the edge of the area in question. Walk the machine to the edge of the slope, (mower drum is shut down), reach out with the boom and settle the mower head onto the wet or muddy area. Lift the front end of your tracks off the ground a little. If the mower head does sink in the ground, then avoid that area with the Brontosaurus. Write down where the area is and leave it for a hand crew.

If the mower head does not sink in the ground, then proceed forward with the front of the tracks off the ground. Keep pulling the boom in toward the machine at the same speed the tracks are turning. This way, you don't disturb the ground you are advancing on to. When the back end of the tracks start going down the slope, begin lowering the front of the tracks at the same time. (This method allows both ends of both tracks to settle onto the wet ground at the same time). Then, track forward slowly. You don't want to disturb the grass under the tracks. Don't turn the tracks when on a wet land, line the tracks up with your exit point at the other side, or the next dry area in the wet land. Then go straight to it, mowing slowly as you go. If you turn the tracks on a wet land, they will cut the Sod, and then you will begin digging up mud. And sinking deeper .and deeper.

Each time you move forward (slowly) on a wetland, make sure the boom is in close to the machine. (this action puts a better center of gravity on the tracks) or in other words, (balances the foot pounds on the tracks more evenly).

18) IF YOU DRIVE ONTO BLACK MUD. You will see the ground shaking around the machine beginning from your tracks extending a foot away and as far as 5+ feet away from your tracks. As soon as you discover this, SLOWLY (with boom in close), track the machine back onto dry territory.

19) IF YOU DO SINK IN THE MUD, don't panic.

As the machine is sinking, turn the body of the machine so the boom is pointing in the direction that it will be pulled out. Also, shift the tracks in the same direction. You will have one or two attempts to get the machine lined up for your rescue excavator before you sink to deep. Do not try to paw your way out. A Brontosaurus only sinks, it CANNOT dig its way out. It is too heavy and has no bucket. The back engine compartment will hang up in the mud and you will not be able to turn.

20) WHEN THE RESCUE EXCAVATOR ARRIVES, raise your boom so the rescue Excavator can dig out the front of your tracks, and the hook on the frame between the tracks. 5 or 6 scoops of mud will do. Have 30 to 50 feet of chain or cable ready, and hook one end of the chain or cable to the hook between the tracks. Hook the other end to the bucket of the rescue excavator and have him back up until some tension starts. The rescue excavator then booms back while the stuck excavator tracks forward with its own boom pushing down and pulling in toward the tracks. Pushing down with the boom gets the front of the tracks out of the mud. It looks like a fishing derby from a distance. The rescue excavator may have to back up 2 or 3 times and pull to get you out, But the rescue is a smooth one, the machine doesn't get broken, and the rescue bill can stay around \$500.00 instead of up to \$1500.00.

21) AS YOU'RE BEING PULLED OUT OF THE MUD have your rescuer stop pulling a few times so you can turn the machine around and fill in the mud hole as you're coming out of it. ( you need to do this!) Usually, you are more than half way out of the mud when this process begins.

22) AS YOU'RE MOWING AND THE DRUM PICKS UP WIRE, do not lift the head off the ground. Instead, bring the head near the ground as soon as possible, then power down the drum. Bringing the head close to the ground stops the wire from bending around the bottom of the mower head, and lashing the hoses as the drum is spinning.(This all happens really fast)!

## Operator's Manual

23) IF THE WIRE WEDGES ITSELF tightly between the drum and the head, it is good practice to remove the main bearing covers. Then remove the collar bolts from both sides. This relieves pressure on the main bearings and also helps loosen the wire that's packed between the drum and head. Once this is done, you can take out the torch and begin cutting wire out. (Don't forget your cutting goggles.) If there is wire wedged on both ends of the drum, start cutting on the end with the least amount of wire in it. If they both look bad, then you are in for a long day.

24) MOWER ENGINE SHUTS DOWN. If the mower engine over heats, it shuts down automatically. If you hear this happen, quickly push the reset button and start the engine. Keep the reset button depressed so the motor will continue running. Power down the Bronto head to full stop. Then shut the engine down.

25) IF THE MOWER ENGINE SHUTS DOWN and you let the mower drum continue spinning until it stops, this action creates excessive pressure on the hydraulic system. Which can cause pump failure or pump pick up failure.

26) SETTLING THE TRACKS BEFORE MOWING stabilizes the machine from the rocking chair effect when mowing. Each time you drive forward or back and stop to mow, drop the head a little to feel if the tracks are stable on the ground. If they are not, then move forward a little more or shift the tracks left or right to settle them in .

27) WHEN MOWING A TRANSMISSION ROW stay 10ft away from guy wires. A ground person will cut the rest with a chain saw.

28) WHEN MOWING ROAD SIDE clean up the area as you go. Shut down the drum, and use the outer mower shoe to drag the chips out of the ditch. (just the chips)

29) MOWING ROAD SIDE involves constant awareness. You need to look out for pedestrians, vehicles, mail boxes, driveways, low hanging telephone lines, guy wires, wires crossing the road, homeowners pets, curious kids, homes, campers, swimming pools, boats, your wood chips in the street, soft ditches, stone walls, land stakes, fences, etc. Know where your wood chips are going! And always make sure the mower teeth are sharp.

## Operator's Manual

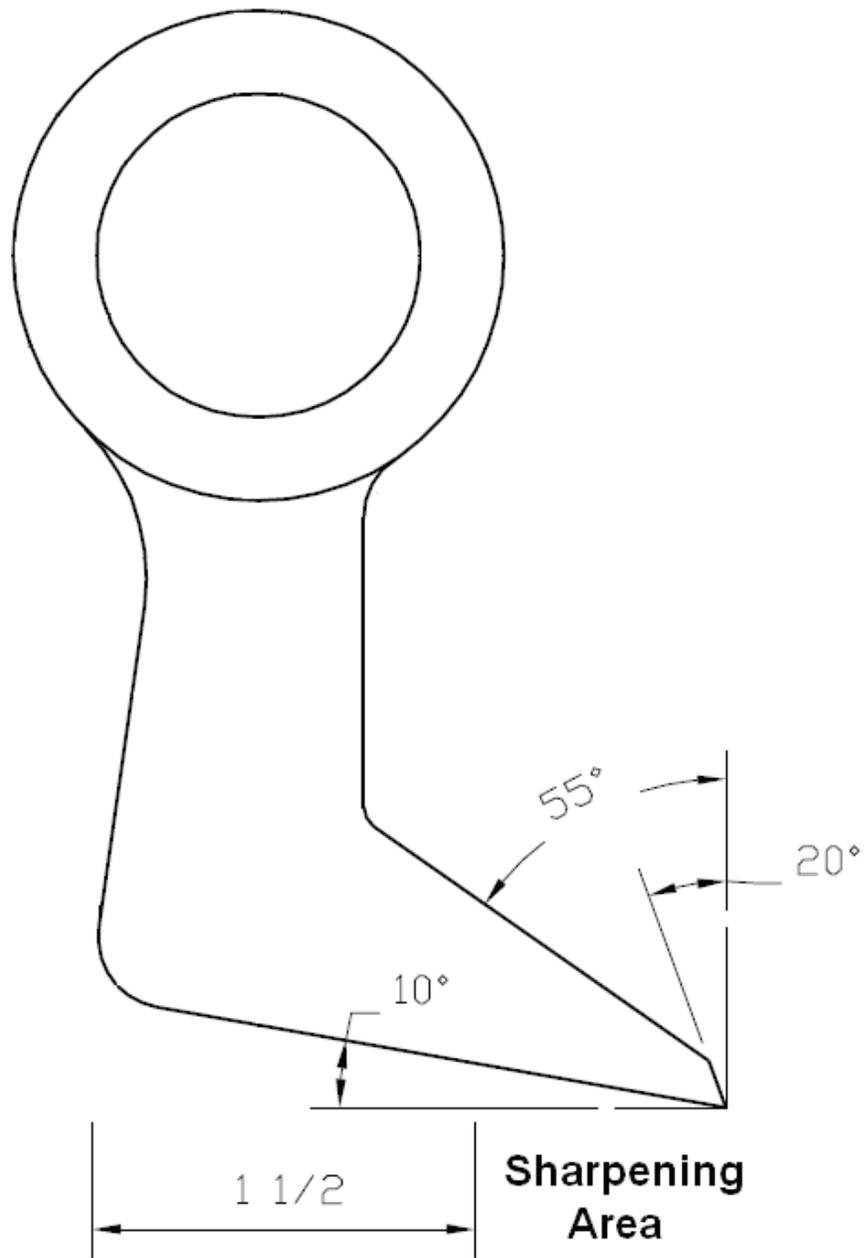
30) WHEN THE OUTER MOWER SHOE gets worked over the ground properly, the ditches get fixed very well. The public loves it, the town loves it, and you get to stay in the area and keep mowing.

31) OIL CHANGES. Every 200 hours the oil and oil filters needs to be changed in both engines. If you are operating daily, then change the oil each month. 2 empty 5gal hydraulic pails are enough to drain the used oil into. Put all used filters in a garbage bag and give the used oil and filters to your supervisor to dispose of properly.

32) THE AIR FILTERS and radiators need to be blown out with compressed air weekly. This is a proven fact. The air filters should be replaced monthly.

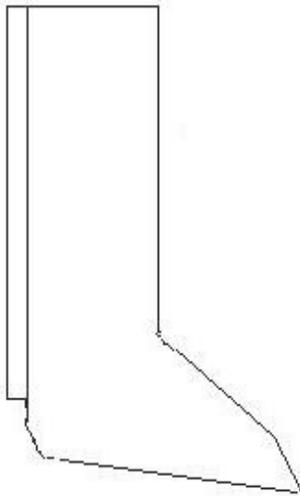
33) THE FUEL FILTERS and secondary fuel filters should be changed monthly. This only pertains to those with an Auxiliary Power Pack that runs the Brown Brontosaurus.

Figure A

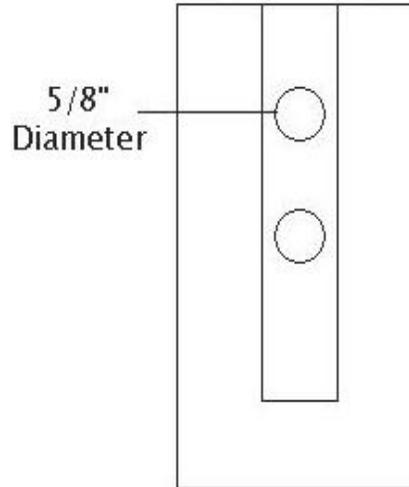


John Brown & Sons  
Fixed Tooth Knife

Side View

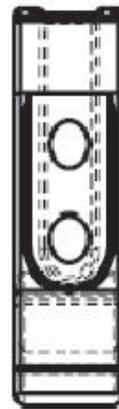
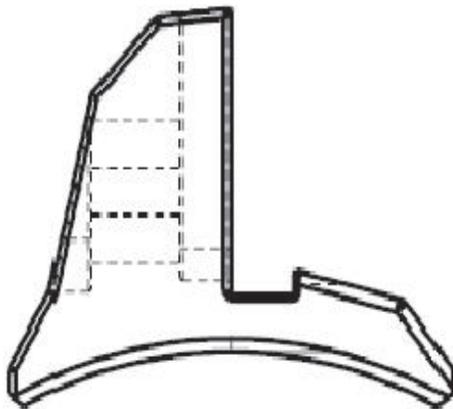


Rear View



Part Number: BBP-0142FT

Fixed Tooth Knife  
Holder



Part Number: BBP-KH3116