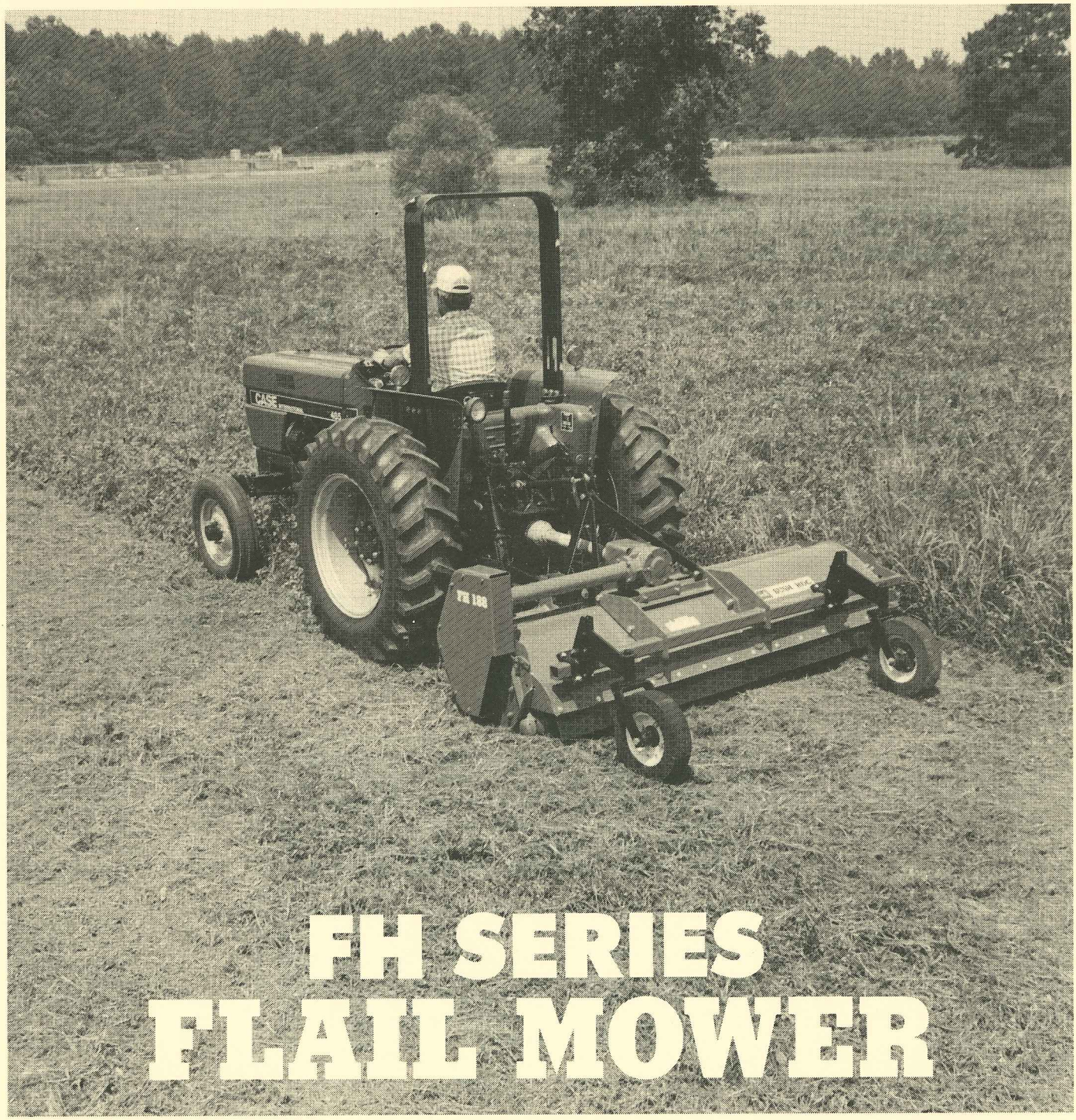
BUSH HOG®



FH SERIES
FLAIL MOWER

OPERATOR'S MANUAL
Assembly ● Operation ● Maintenance

1287 $3.00 Part No. 83232

CONGRATULATIONS!

You have invested in the best implement of its type on the market today.

The care you give your Bush Hog implement will greatly determine your satisfaction with its performance and its service life. We urge a careful study of this manual to provide you with a thorough understanding of your new implement before operating, as well as suggestions for operation and maintenance.

If your manual should become lost or destroyed, Bush Hog will be glad to provide you with a new copy. Order from Bush Hog, P.O. Box 1039, Selma, Alabama 36702-1039.

As an authorized Bush Hog dealer, we stock genuine Bush Hog parts which are manufactured with the same precision and skill as our original equipment. Our trained service personnel are well informed on methods required to service Bush Hog equipment, and are ready and able to help you.

Should you require additional information or assistance, please contact us.

YOUR AUTHORIZED
BUSH HOG DEALER

BECAUSE BUSH HOG MAINTAINS AN ONGOING PROGRAM OF PRODUCT IMPROVEMENT, WE RESERVE THE RIGHT TO MAKE IMPROVEMENTS IN DESIGN OR CHANGES IN SPECIFICATIONS WITHOUT INCURRING ANY OBLIGATION TO INSTALL THEM ON UNITS PREVIOUSLY SOLD.

BECAUSE OF THE POSSIBILITY THAT SOME PHOTOGRAPHS IN THIS MANUAL WERE TAKEN OF PROTOTYPE MODELS, PRODUCTION MODELS MAY VARY IN SOME DETAIL. IN ADDITION, SOME PHOTOGRAPHS MAY SHOW SHIELDS REMOVED FOR PURPOSES OF CLARITY. **NEVER OPERATE** THIS IMPLEMENT WITHOUT ALL SHIELDS IN PLACE.

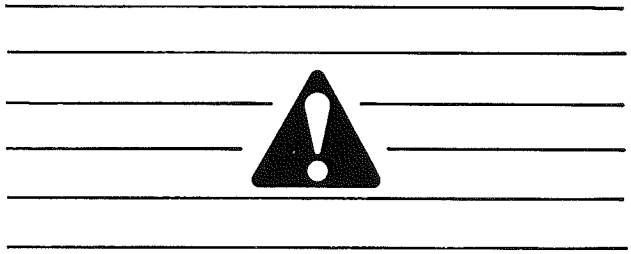
FLAIL MOWER
Operator's Manual

CONTENTS

OPERATOR'S RESPONSIBILITY

It is the responsibility of the user to read the Operator's Manual and understand the safe and correct operating procedures as pertains to the operation of the product, and to lubricate and maintain the product according to the maintenance schedule in the Operator's Manual. Failure to read the Operator's Manual is a misuse of this equipment.

The user is responsible for inspecting his machine, and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts. It is the user's responsibility to deliver his machine to a Bush Hog dealer, for service or replacement of defective parts which are covered by the standard warranty.



This symbol is used to call attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol, carefully read the message that follows and heed its advice. Failure to comply with safety precautions could result in serious bodily injury.

BUSH HOG®

WARRANTY

☆ ☆

Bush Hog warrants to the original purchaser of any new Bush Hog equipment, purchased from an authorized Bush Hog dealer, that the equipment be free from defects in material and workmanship for a period of one (1) year for non-commercial, state, and municipalities' use and ninety (90) days for commercial use after date of delivery.

Replacement or repair parts installed in the equipment covered by this warranty are warranted for ninety (90) days from the date of purchase of such part or to the expiration of the applicable new equipment warranty period, whichever occurs later.

Such parts shall be provided at no cost to the user at an authorized Bush Hog dealer or distributor during regular working hours. Bush Hog reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

DISCLAIMER OF IMPLIED WARRANTIES & CONSEQUENTIAL DAMAGES

Bush Hog's obligation under this warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed, including implied warranties of merchantability and fitness for a particular purpose and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include but not be limited to: transportation charges other than normal freight charges; cost of installation other than cost approved by Bush Hog; duty; taxes; charges for normal service or adjustments; loss of crops or any other loss of income; expenses due to loss, damage, detention or delay in the delivery of equipment or parts resulting from acts beyond the control of Bush Hog.

THIS WARRANTY SHALL NOT APPLY:

1. To vendor items which carry their own warranties, such as engines, tires, and tubes.
2. If the unit has been subjected to misapplication, abuse, misuse negligence, fire or other accident.
3. If parts not made or supplied by Bush Hog have been used in connection with the unit, if, in the sole judgement of Bush Hog such use affects its performance, stability, or reliability.
4. If the unit has been altered or repaired outside of an authorized Bush Hog dealership in a manner which, in the sole judgement of Bush Hog, affects it performance, stability or reliability.
5. To normal maintenance service and normal replacement items such as gearbox lubricant, hydraulic fluid, worn blades, or to normal deterioration of such things as belts and exterior finish, due to use or exposure.

NO EMPLOYEE OR REPRESENTATIVE OF BUSH HOG IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGE IS MADE IN WRITING AND SIGNED BY BUSH HOG'S SERVICE MANAGER, POST OFFICE BOX 1039, SELMA, ALABAMA 36702-1039.

☆ ☆

Record the model number, serial number, and date purchased. This information will be helpful to your dealer if parts or service are required.

MODEL NUMBER_____

SERIAL NUMBER_____

DATE PURCHASED _____

MAKE CERTAIN THE WARRANTY REGISTRATION CARD HAS BEEN FILED WITH BUSH HOG/ SELMA, ALABAMA.

DEALER PREPARATION CHECK LIST

Flail Mower

BEFORE DELIVERING MACHINE — The following check list should be completed. Use the Operator's Manual as a guide.

- ☐ 3-point hitch assembly completed.
- ☐ Gearbox filled with oil.
- ☐ All safety decals readable (See Decal page)
- ☐ All bolts tight (Including Blade Bolts) to torque specifications given on page 16.
- ☐ Machine operates properly.
- ☐ Operator's manual has been delivered to owner and he has been instructed on the safe and proper use of the mower.

Dealer's Signature _____

THIS CHECKLIST TO REMAIN IN OWNER'S MANUAL

It is the responsibility of the dealer to complete the procedures listed above before delivery of this implement to the customer.

IMPORTANT SAFETY PRECAUTIONS

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel in the operation, transport, maintenance and storage of equipment. Lack of attention to safety can result in accident, personal injury, reduction of efficiency and worst of all-loss of life. Watch for safety hazards and correct deficiencies promptly. Use the following safety precautions as a general guide to safe operations when using this machine. Additional safety precautions are used throughout this manual for specific operating and maintenance procedures. Read this manual and review the safety precautions often until you know the limitations.

1. Read the Operator's Manual. Failure to read the Operator's Manual is considered a misuse of this equipment.
2. Become familiar with all the machine's controls and all the caution, warning and danger decals affixed to the machine before attempting to start or operate.
3. Before starting or operating the machine, make a walk around inspection and check for obvious defects such as loose mounting bolts and damaged components. Correct any deficiency before starting.
4. Do not allow children to operate the mower. Do not allow adults to operate it without proper instruction.
5. Do not carry passengers.
6. Keep the area of operation clear of all persons, particularly small children and pets. The operator should cease mowing whenever anyone comes within the operating area.
7. Clear the work area of objects which might be picked up and thrown or jammed in rotor.
8. Do not operate without all guards and shields in place and in good condition.
9. Lower implement to ground, stop tractor engine, apply parking brake, and allow blades to completely stop before leaving the tractor.
10. Keep hands and feet away from blades.
11. Wear personal protective equipment such as, but not limited to, protection for eyes, ears, feet, hands and head when operating or repairing the equipment. Do not wear loose clothing or jewelry that may catch on equipment moving parts.
12. When performing adjustments or maintenance on the mower, first lower it to the ground or block it securely at a workable height.
13. Never stand between tractor and mower while tractor is being backed to the mower hitch.
14. Use tractor flashing warning lights, day or night, when transporting mower on road or highways unless prohibited by law.

SECTION I
INTRODUCTION & DESCRIPTION

1-1 INTRODUCTION

We are pleased to have you as a Bush Hog customer. Your Flail Mower has been carefully designed to give maximum service with minimum down time. This manual is provided to give you the necessary operating and maintenance instructions for keeping your flail mower in top operating condition. Please read this manual thoroughly. Understand what each control is for and how to use it. Observe all safety precautions decaled on the machine and noted throughout the manual for safe operation of implement. If any assistance or additional information is needed, contact your authorized Bush Hog dealer.

Table 1-1 Specifications

	FH162	FH174	FH188
Length	37"		
Width	72"	84"	98"
Height	20"		
Mowing Width	62"	74"	88"
Weight	671	745	778
Horsepower Range	40-72		
Rotor Speed @540 PTO RPM	1877 RPM		
Blade Tip Speed @540 PTO RPM	8600 FPM		
Mowing Height	1/2" to 5"		
Maximum Cutting Capacity	1-1/2" dia.		

NOTE

All references made to right, left, front, rear, top or bottom is as viewed facing the direction of forward travel with implement properly attached to tractor.

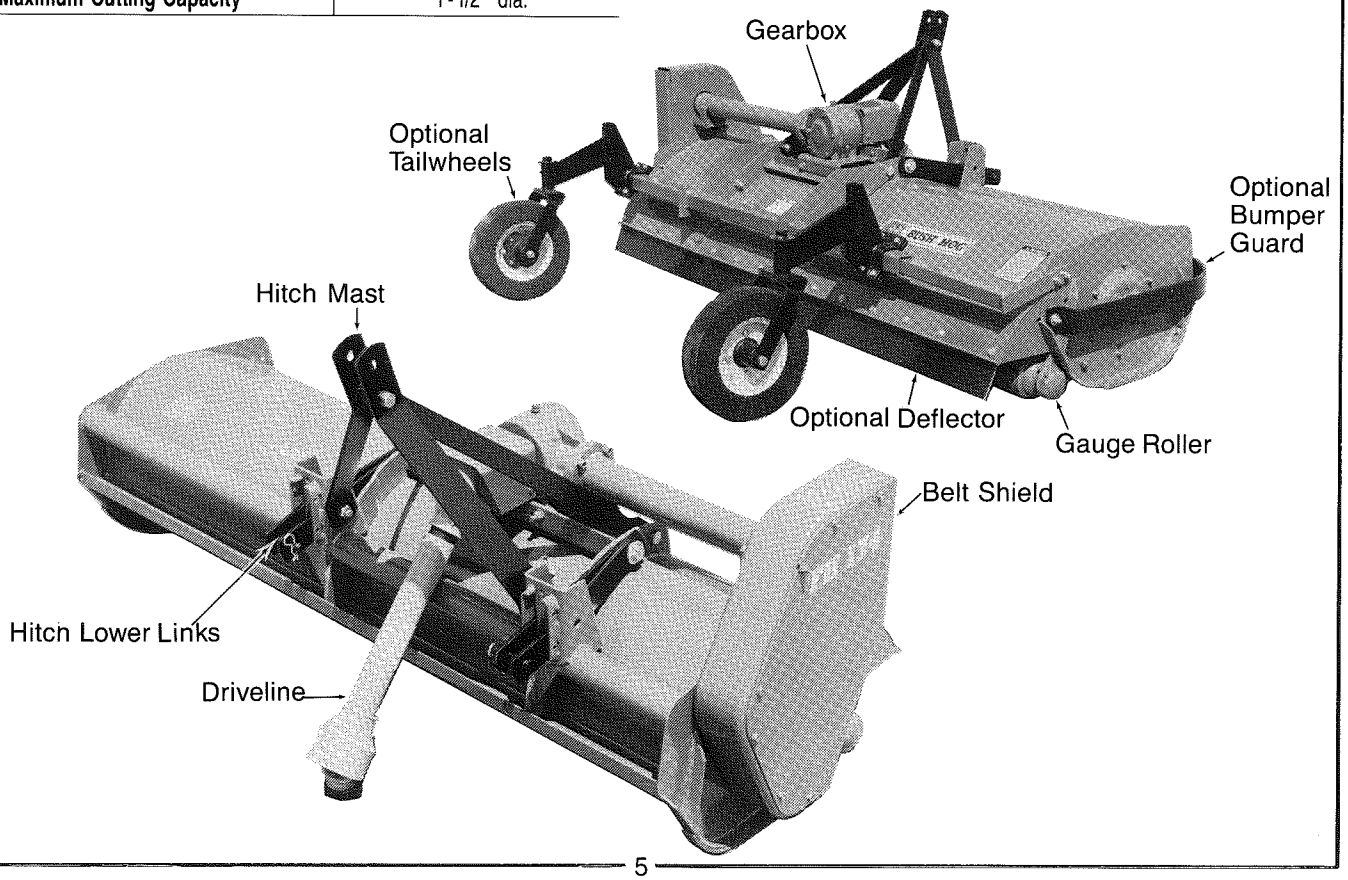
1-2 DESCRIPTION

The FH series flail mowers (Figure 1-1) are intended for cutting grass and brush up to 1-1/2" diameter. A choice of four blades makes the mower well suited for maintaining parks, golf courses, and lawns as well as airports and municipalities. The blades are link mounted to the rotor allowing them to both pivot and fold to absorb the shock of hitting an obstruction thus reducing possible damage to implement.

Power from the tractor is transmitted to the 90 degree gearbox through a telescoping, triangular driveshaft. This in turn drives the blade rotor using multiple B-section belts. These belts provide drivetrain protection by slipping when an obstruction is hit. Belt tension is easily maintained using an externally adjustable, spring loaded idler.

Mowing height is adjustable from 1/2 to 5 inches. It may be controlled by the gauge roller or optional tailwheels. The gauge roller is located close to the blade rotor to help prevent scalping and provide a more even cut.

Figure 1-1 Major Components



SECTION II
PREPARATION FOR USE

2-1 ATTACHING TO TRACTOR

⚠ WARNING ⚠
NEVER STAND BETWEEN TRACTOR AND MOWER WHILE TRACTOR IS BEING BACKED TO HITCH.

⚠ WARNING ⚠
ADDITIONAL TRACTOR FRONT BALLAST MAY BE NEEDED FOR STABLE OPERATION AND TRANSPORT OF THE MOWER. SEE TRACTOR OPERATOR'S MANUAL FOR RECOMMENDED WEIGHTS.

A. Attach mower to tractor 3-point Cat. I or II hitch per tractor operator's manual. Bushings must be used on Cat. II hitches. Do not attach driveline at this time.

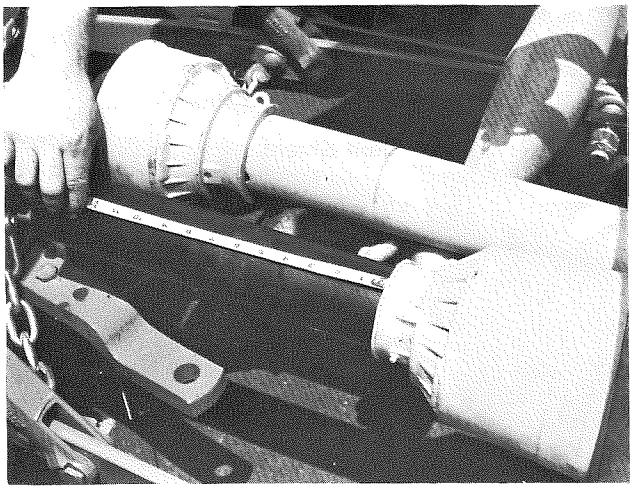
NOTE
Due to the many variations in tractor/implement hitch points and corresponding differences in distances between tractor PTO shafts and implement input shafts, drivelines may need to be shortened as described in the following steps.

B. Raise and lower mower to determine position with shortest distance between the tractor PTO shaft and gearbox input shaft. Shut down tractor leaving mower in position of shortest distance. SECURELY BLOCK MOWER IN POSITION.

C. Pull driveline apart. Attach outer (female) section to tractor PTO shaft. Pull on driveline section to be sure yoke locks into place.

D. Hold driveline sections parallel to each other to determine if too long. Each section should end approximately 3 inches (76mm) short of reaching universal joint shield mark on opposite section. (Figure 2-1) Do this for both sections.

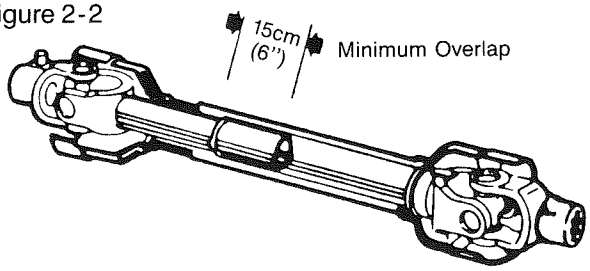
Figure 2-1



E. Raise and lower mower to determine position with greatest distance betwen PTO shaft and gearbox input shaft. Shut down tractor leaving mower in position of greatest distance. SECURELY BLOCK MOWER IN POSITION.

F. Hold driveline sections parallel to each other and check for minimum 6 inches (381mm) overlap. (Figure 2-2) If driveline has been marked for cutting, overlap will be the distance between two marks. If driveline has less than minimum overlap, DO NOT USE. Contact authorized Bush Hog dealer.

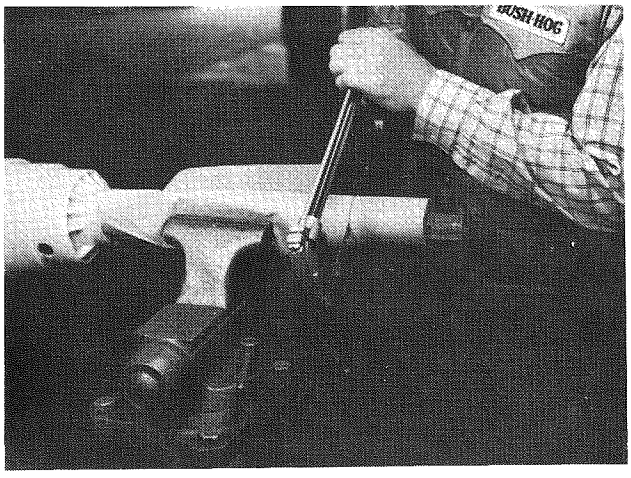
Figure 2-2



NOTE
If driveline is correct length, omit the following steps "G" through "J" and proceed to step "K."

G. Clamp driveline in a padded vice to prevent damage to shield. Cut off shield where marked. (Figure 2-3)

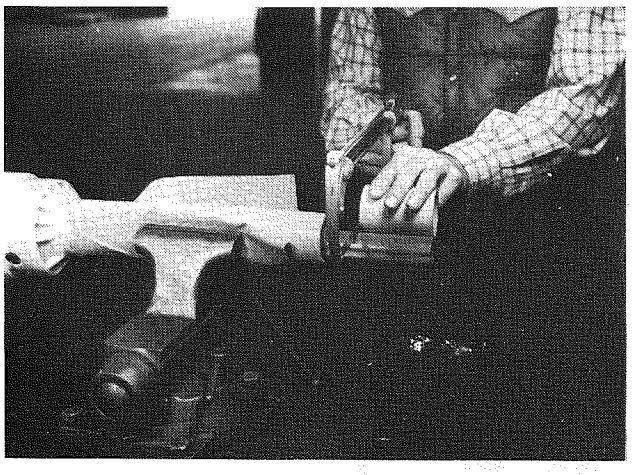
Figure 2-3



H. Using cut off section of shield as a guide, cut shaft the same amount. (Figure 2-4)

I. Repeat steps "G" and "H" to other driveline section.

Figure 2-4



J. Deburr ends of driveline sections and clean away all chips and filings. (Figure 2-5)

K. Apply multi-purpose grease to outside of male driveline section. Assemble driveline and install on tractor and mower. Note that shearbolt end of driveline should be installed on mower input shaft. Pull on each driveline section to be sure yokes lock into place. Make certain driveline shielding is in place and in good condition.

Figure 2-5

⚠ WARNING ⚠
MAKE CERTAIN DRIVELINE YOKES ARE SECURELY FASTENED. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY.

L. Lower mower until gauge roller almost rests on ground. Adjust lower lift arm to level mower right to left. Refer to tractor operator's manual for instructions.

M. Set up tractor stabilizer bars, sway blocks or equivalent to prevent implement side sway.

2-2 BLADE SELECTION

The standard cut blades (Figure 4-2) shipped on the flail will give excellent results in most grass. They are designed to create a suction that will lift the grass up before cutting. This suction will cause a slight increase in horsepower requirements for operation.

The optional thatching blades are used primarily for working runner-type grasses and legumes such as Bermuda grass and treefoil where the soil is being deprived of sunlight from too much ground cover or on golf courses or lawns where too much mulch has accumulated from repeated mowings. In runner-type crops the thatching blades sever and pulverize the plant runners, letting sunlight onto the ground. In ground conditions where too much mulch is present, the thatching blades pulverize and "fluff" the ground cover allowing air and sunlight to reach the soil. When using the thatching blades, operate the mower as close to the ground (without touching) as conditions will permit.

IMPORTANT
Do not run the blades into the ground. The thatching blades are not designed as soil renovators and should only be used to cut crop cover on top of the soil. Use only a full set of thatching blades. Do not mix blades on a rotor as this will cause an in-balance resulting in possible equipment failure.

The fine cut blades are for use in grass and light weeds. They require less horsepower than the standard blades.

The coarse cut blades are for use in rough or rocky terrain and heavy weed conditions.

Blade installation is described in paragraph 4-3.

SECTION III
OPERATING INSTRUCTIONS

3-1 GENERAL SAFETY

Only qualified people familiar with this operator's manual should operate this machine. Operator should wear hard hat, safety glasses and safety shoes. The operator should read, understand and practice all safety messages shown on the caution, warning and danger decals affixed to the mower to avoid serious injury or death. It is recommended that tractor be equipped with Rollover Protective System (ROPS) and a seat belt be used. Before beginning operation, clear work area of any objects that may be picked up and thrown or warped in mower blades. Check for ditches, stumps, holes or other obstacles that could upset tractor or damage mower. Always turn off tractor engine, set parking brake, lower mower to ground and allow blades to come to a complete stop before leaving tractor operator's seat.

3-2 ADJUSTING MOWING HEIGHT

⚠ WARNING ⚠

THE MOWER CAN FALL FROM HYDRAULIC SYSTEM FAILURE. TO AVOID SERIOUS INJURY OR DEATH, SECURELY SUPPORT MOWER BEFORE WORKING UNDERNEATH.

The mower should be operated in the highest position which will give desired mowing results. This will help prevent blades from striking ground, reducing blade wear and undue strain on the whole machine.

To adjust, raise mower using tractor 3-point lift and securely block into position. If equipped with gauge roller only, adjust to one of three holes shown in Figure 3-1 by loosening pivot bolt, align gauge roller with desired hole and secure using adjusting bolt. The holes correspond to 1/2", 2-3/4", and 5" mowing height. Fine tune the mowing height by adjusting the tractor top link in or out.

If equipped with optional tailwheels, set the gauge roller in the 1/2" (top) hole to prevent scalping. Adjust tailwheels to attain desired mowing height. Tailwheels are adjustable side to side on the mounting tube. Locate wheels as required for ground conditions. Note that clamps will only tighten onto outer tube.

3-3 Operation

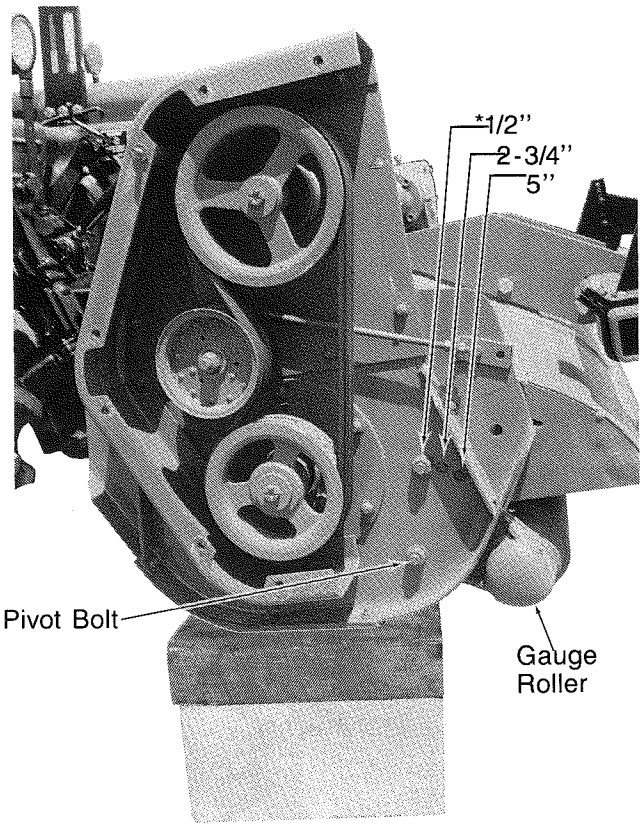
A. Perform BEFORE EACH USE maintenance listed in paragraph 4-1.

B. Start tractor. Lower mower until gauge roller or tailwheels touch ground.

⚠ DANGER ⚠

STAY CLEAR OF ROTATING DRIVELINE. DO NOT OPERATE WITHOUT ALL SHIELDS IN PLACE AND IN GOOD CONDITION. FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY OR DEATH.

Figure 3-1 Gauge Roller Adjustment



*Place in this position when using tailwheels.

⚠ DANGER ⚠

KEEP HANDS AND FEET FROM UNDER MACHINE AT ALL TIMES. MAKE CERTAIN EVERYONE IS CLEAR OF MACHINE BEFORE OPERATING. FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY OR DEATH.

C. With tractor at idle speed, engage PTO drive.

D. Place tractor in gear and proceed forward. Increase speed to 540 PTO rpm. For maximum cutting efficiency, forward speed should allow a constant 540 PTO rpm. Do not exceed 5 mph forward speed. If PTO is disengaged due to mower stalling or tractor bogging, mower must be raised and tractor throttle reduced to idle before re-engaging. Always mow up and down the face of slopes, never across.

⚠ WARNING ⚠

ALL FLAIL MOWERS HAVE THE ABILITY TO DISCHARGE OBJECTS AT HIGH SPEEDS WHICH COULD RESULT IN SERIOUS INJURY TO BYSTANDERS OR PASSERS-BY.

DO NOT OPERATE MOWER IN VICINITY OF OTHER PERSONS. CEASE MOWING WHENEVER ANYONE COMES WITHIN THE OPERATING AREA.

KEEP ENCLOSED SIDES, PERMANENT BANDS, BELTING, OR OTHER FACTORY APPROVED DISCHARGE SHIELDS IN PLACE AND IN GOOD CONDITION.

3-4 TRANSPORTING

Disengage PTO drive and fully raise mower before transporting. Obey all state and local laws when transporting on public roads. Always use tractor flashing warning lights unless prohibited by law. A slow moving vehicle (SMV) sign must be visible from the rear by approaching vehicles.

SECTION IV
MAINTENANCE

4-1 MAINTENANCE CHECK LIST

Perform scheduled maintenance as outlined below. Lower implement to ground, turn off tractor, and set parking brake before doing maintenance inspections or work. Some checks may require raising machine off ground and supporting with blocks. All bolts should be torqued as indicated in torque chart on page 16 unless otherwise indicated.

⚠ WARNING ⚠

THE MOWER CAN FALL FROM HYDRAULIC SYSTEM FAILURE. TO AVOID SERIOUS INJURY OR DEATH, SECURELY SUPPORT MOWER BEFORE WORKING UNDERNEATH.

BEFORE EACH USE

1. Check tractor tire air pressure. Refer to tractor operator's manual.
2. Check blades, rotor and roller to be sure that no foreign objects such as wire or steel strapping bands are wrapped around them.
3. Check blade bolts for tightness. Tighten to 31 ft./lbs.
4. Inspect blades for wear. Replace if necessary.
5. Make certain all shields are in place and in good condition.
6. Clean any debris from safety decals and check for legibility. Replace any missing or illegible decals. Read and heed safety decal messages.
7. Perform BEFORE EACH USE lubrication per paragraph 4-2.
8. During operation, listen for abnormal sounds which might indicate loose parts, damaged bearings or other damage.
9. Check belts for proper tension and excessive wear. Adjust or replace if necessary per paragraph 4-4.

AFTER EACH USE

1. Clean all debris from machine especially underside of deck and affixed decals. Replace any missing or illegible decals.
2. Inspect mower for worn or damaged components. Repair or replace before next use. Any replacement components installed during repair shall include the components current safety decals specified by the manufacturer.

4-2 LUBRICATION (Figure 4-1A, 4-1B)

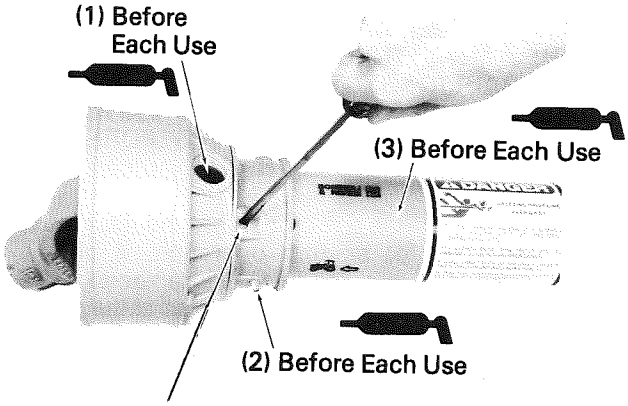
NOTE

The multi-purpose grease referenced in this section is an NLGI Grade 2 type grease.

BEFORE EACH USE

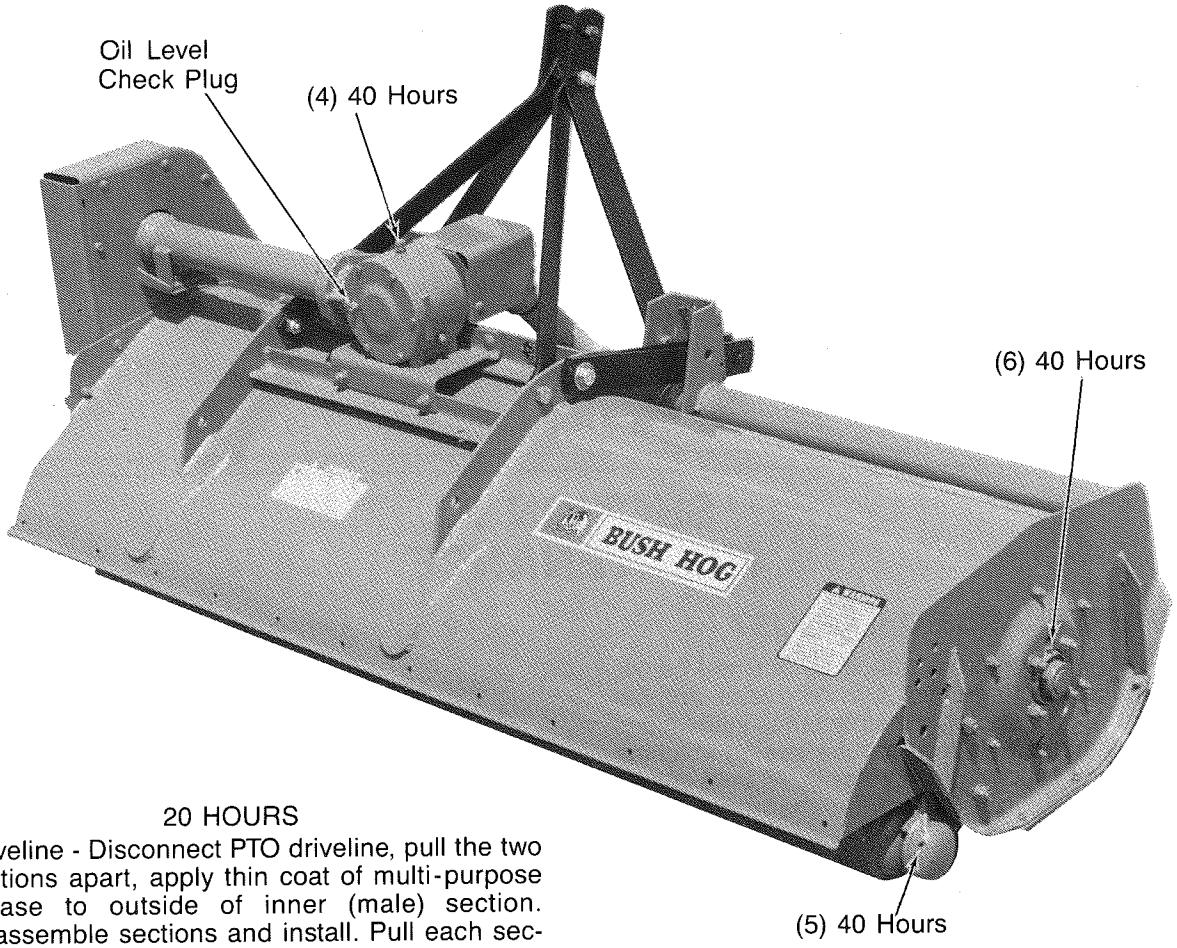
1. Driveline Universal Joints - Apply multi-purpse grease with grease gun.
2. Driveline Guard - Apply 2-3 shots of multi-purpose grease with grease gun to plastic fitting.

Figure 4-1A Lubrication



To Remove Yoke Shield: Press all three tabs with screwdriver and slide cover back.

Figure 4-1B Lubrication



20 HOURS

3. Driveline - Disconnect PTO driveline, pull the two sections apart, apply thin coat of multi-purpose grease to outside of inner (male) section. Reassemble sections and install. Pull each section to be sure driveline and shields are securely connected. Make certain PTO shielding is in good condition.

40 HOURS

4. Input Gearbox - Add EP80W-90 gear oil, if necessary, to bring oil level to check plug.
5. Gauge Roller - Apply multi-purpose grease with grease gun. (2 fittings)
6. Rotor Shaft - Apply multi-purpose grease with grease gun. (2 fittings)

4-3 BLADE REPLACEMENT

⚠ WARNING ⚠

THE MOWER CAN FALL FROM HYDRAULIC SYSTEM FAILURE. TO AVOID SERIOUS INJURY OR DEATH, SECURELY SUPPORT MOWER BEFORE WORKING UNDERNEATH.

When replacing blades remember that the rotor must remain balanced for smooth operation. If blades become worn and are ready to be replaced, it is recommended that all blades be replaced at the same time. If all blades are not replaced, then replace the same amount on each of the three mounting bars. Broken or missing blades should be replaced immediately. Never operate mower with missing blades. Use only one type of blade at a time.

Mount blades on rotor as shown in Figure 4-2 and 4-3. THE FINE CUT BLADES REQUIRE A DIFFERENT BALANCE WEIGHT SET-UP AS SHOWN IN FIGURE 4-2. If weights are changed, use a thread locking adhesive on retaining bolts to prevent the bolts from vibrating loose. Be sure to install the blade retaining bolt with head facing the direction of rotor rotation. Tighten bolt to 31 ft./lbs.

Figure 4-2

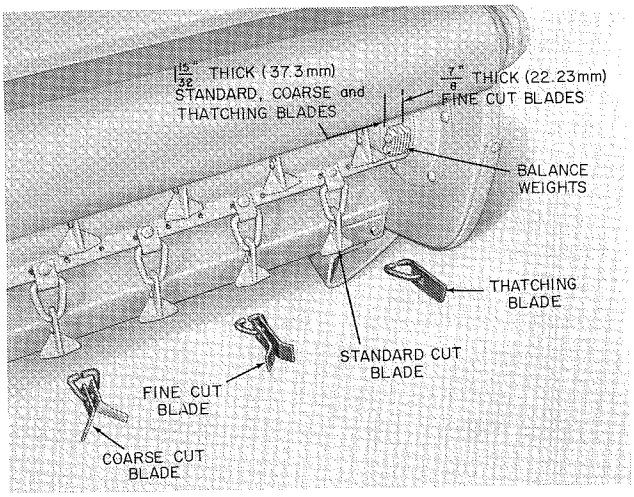
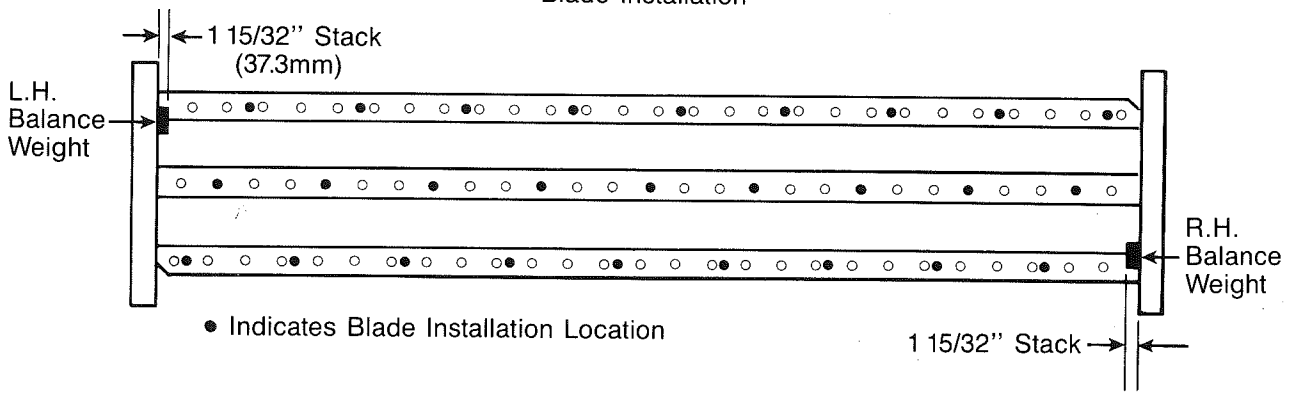
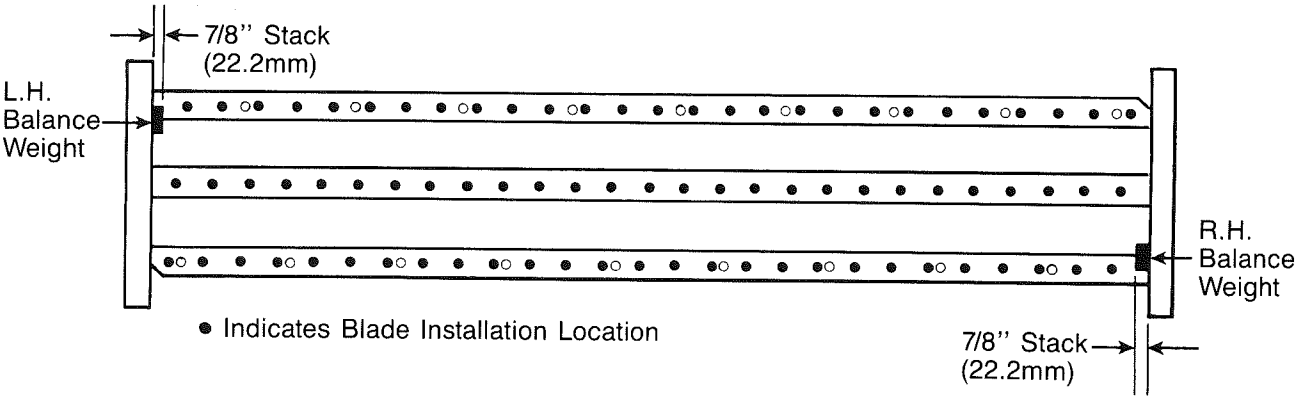


Figure 4-3

Standard, Coarse and Thatch Blade Installation



Fine Cut Blade Installation



4-4 BELT ADJUSTMENT

The drive belt (Figure 4-4) should be adjusted to have 1/2" deflection midway between sheaves under a 10 lb. load. (Figure 4-5) To adjust, loosen jam nut and tighten adjusting nut (Figure 4-4). Retighten jam nut.

Figure 4-5 Belt Deflection

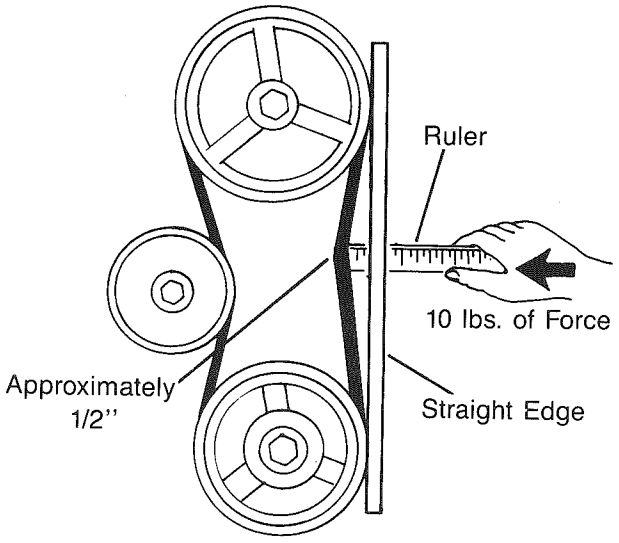
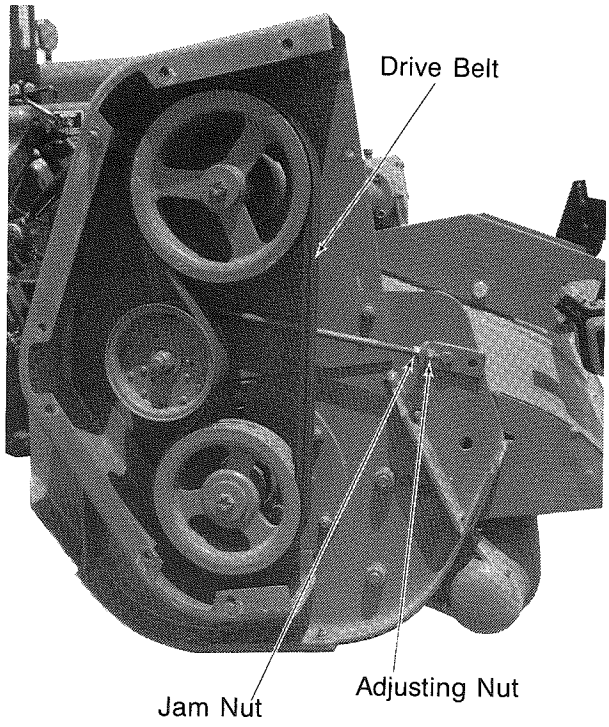


Figure 4-4



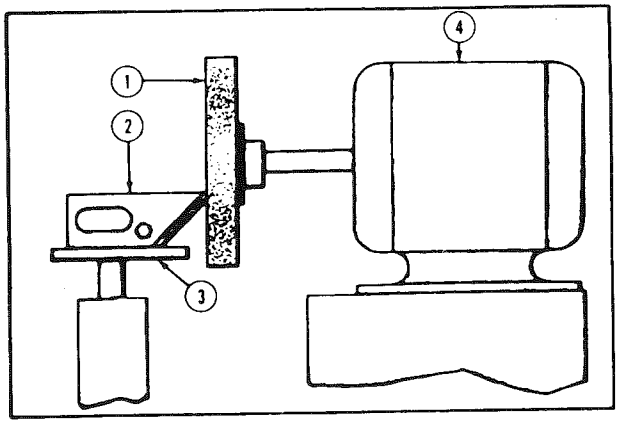
4-5 BLADE SHARPENING

Always keep the blades sharp. The blades are easily removed and sharpening requires only touching the edge of each blade to a bench grinder. (Figure 4-6)

⚠ WARNING ⚠

TO AVOID EYE INJURY, ALWAYS WEAR SAFETY GLASSES WHEN SHARPENING BLADES.

Figure 4-6



1. Grinding Wheel
2. Standard Blade
3. Tool Rest
4. Electric Motor

4-6 TROUBLESHOOTING

Troubleshooting procedures are listed in Table 4-1 below. If the problem cannot be solved or replacement parts are necessary, contact your authorized Bush Hog dealer. Please have ready your machine name, model number, serial number, purchase date and exact cause or description of problem.

Table 4-1 Troubleshooting

Machine Vibrating	Blades missing.	Replace missing blades.
	Blades not in proper location.	Install in proper location.
	Balance weights missing.	Replace missing weights. Refer to paragraph 4-3.
	Wrong amount of balance weights.	Install proper amount for type blade used. Refer to paragraph 4-3.
	Bent rotor.	Repair or replace.
	Bad bearing.	Repair or replace.
Noisy	Loose components.	Check all bolts for tightness. Refer to Torque Specifications.
	Low oil in gearbox.	Check for proper oil level. Refer to Lubrication Section.
	Foreign object around blade rotor.	Remove.
Bogging	Tractor engine speed too slow.	Increase engine speed to 540 PTO rpm.
	Ground speed too fast.	Use lower tractor gear.
	Vines, etc., wrapped around blade rotor.	Remove.
Uneven Cut	Blades dull, worn out or missing.	Sharpen or replace. Refer to paragraph 4-5.
	Tractor engine speed too slow.	Increase engine speed to 540 PTO rpm.
	Ground speed too fast.	Use lower tractor gear.
	Wrong blades.	Install proper blades for type work.
	Gauge roller not adjusted properly.	Readjust.

SECTION V
ASSEMBLY

⚠ WARNING ⚠
THE FOLLOWING SAFETY PRECAUTIONS SHOULD BE THOROUGHLY UNDERSTOOD BEFORE ATTEMPTING MACHINE ASSEMBLY.

1. Do not lift heavy parts or assemblies. Use crane, jack, tackle, fork trucks, or other mechanical devices.
2. Select an area for assembly that is clean and free of any debris which might cause persons working on the assembly to trip.
3. Arrange parts to be assembled neatly in the work area and have tools or other mechanical assisting devices in easy reach.
4. Inspect all parts and assemblies thoroughly and remove any sharp edges, grease, oil, or dirt which might cause pieces to slip when handling.
5. Preview the assembly instructions in your operator's manual before proceeding further.
6. If the assembly instructions call for parts or assemblies to be blocked up, use only blocking material that is in good condition and is capable of handling the weight of the assembly to be blocked. Also insure that the blocking material is on a clean, dry surface.
7. Never put hands or any other part of body under blocked up assemblies if at all possible.
8. Always wear goggles or safety glasses when hammering, grinding, or drilling metal parts.
9. If the assembly calls for welding or cutting, be sure that there are no flammable materials close at hand and that bystanders have taken necessary precautions.

AFTER COMPLETING ANY ASSEMBLY STEP, THOROUGHLY READ THE NEXT STEP IN THE ASSEMBLY INSTRUCTIONS BEFORE PROCEEDING WITH THAT STEP.

10. After completing assembly, thoroughly inspect the machine to be sure that all nuts, bolts, hydraulic fittings or any other fastened assemblies have been thoroughly tightened.
11. After completing assembly, be sure that all safety locking devices or guards are in place.
12. Before operating the machine, thoroughly read the operation section of this manual.
13. Before operating, read the maintenance section of this manual to be sure that any parts requiring lubrication such as gearboxes are full to avoid any possible damage.

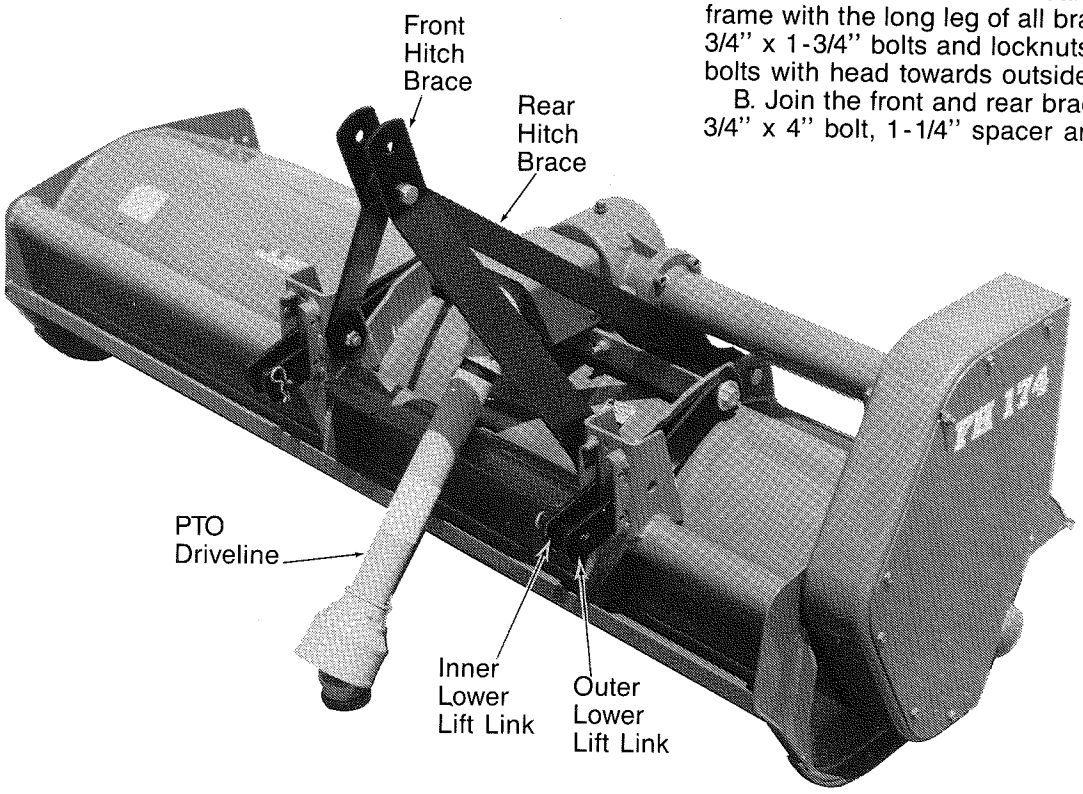
BEFORE OPERATING THE EQUIPMENT, IF YOU HAVE ANY QUESTIONS REGARDING THE PROPER ASSEMBLY OR OPERATION, CONTACT YOUR AUTHORIZED BUSH HOG DEALER OR REPRESENTATIVE.

5-1 BASE ASSEMBLY

A. Attach the front and rear hitch braces to the frame with the long leg of all braces to the top using 3/4" x 1-3/4" bolts and locknuts. (Figure 5-1) Install bolts with head towards outside of machine.

B. Join the front and rear braces together using a 3/4" x 4" bolt, 1-1/4" spacer and locknut.

Figure 5-1 Base Unit Assembly



C. Insert inner and outer lower lift links through slots in frame. Fasten to frame using 3/4" x 2-1/4" bolts, bushings, flatwashers and locknuts.

D. Depress pin and slide PTO driveline onto gearbox input shaft. Release pin making sure that it locks into groove on input shaft. Make certain shields are in place and in good condition.

E. Check the oil level in gearbox. Refer to paragraph 4-2.

NOTE

It is important that the customer receive this operator's manual with his machine. Safe and satisfactory performance of this machine depends on the operator knowing the correct operating and maintenance procedures. The customer should be reminded to fill out and mail in the warranty registration card within ten days of purchase.

5-2 OPTIONAL BUMPER GUARD ASSEMBLY

Attach bumper guard as shown in Figure 5-2 using hardware provided. The reinforcing strap is assembled inside the channel on the front, right end.

5-3 OPTIONAL REAR DEFLECTOR

Cut deflector to length so it will fit as shown in Figure 5-2. Attach to mower using 3/8" x 3/4" bolts, flatwashers, and locknuts.

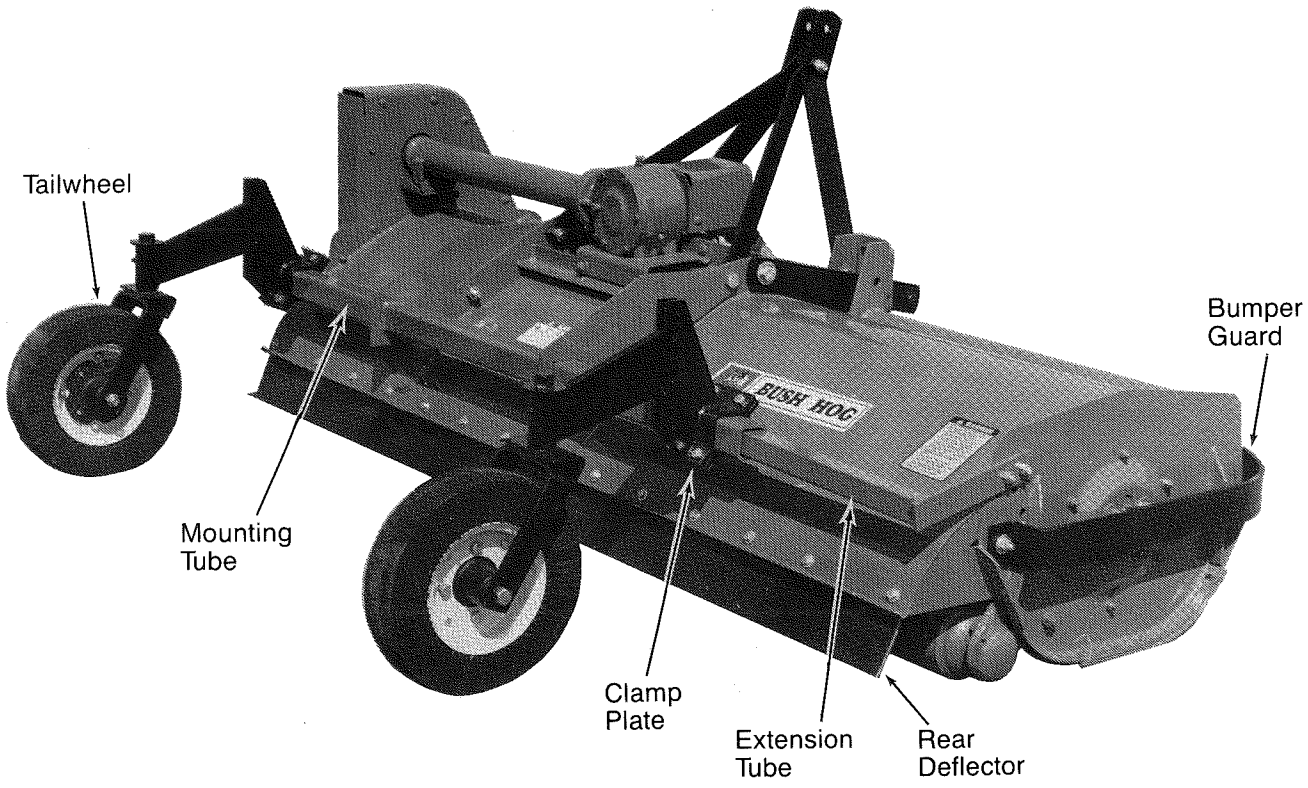
5-4 OPTIONAL TAILWHEELS

A. Attach mounting tube to frame using 3/4" x 2" bolts and locknuts. (Figure 5-2)

B. Slide extension tube inside right end mounting tube and fasten to mower end plate using two 1/2" x 1-1/4" bolts and locknuts.

C. Attach tailwheels to mounting tube using 1/2" x 1-1/2" bolts, locknuts and clamp plates.

Figure 5-2 Optional Equipment

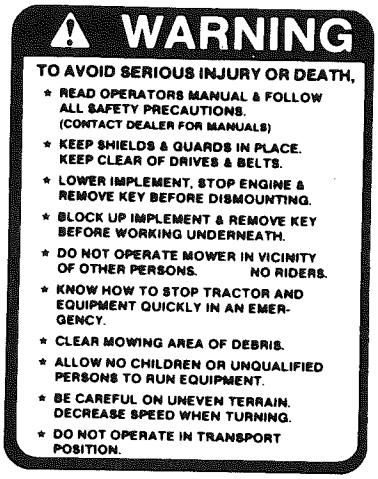


SAFETY DECALS

To promote safe operation, Bush Hog supplies safety decals on all products manufactured. Because damage can occur to safety decals either through shipment, use or reconditioning, Bush Hog will, upon request, provide safety decals for any of our products in the field at no charge. Contact your authorized Bush Hog dealer for more information.

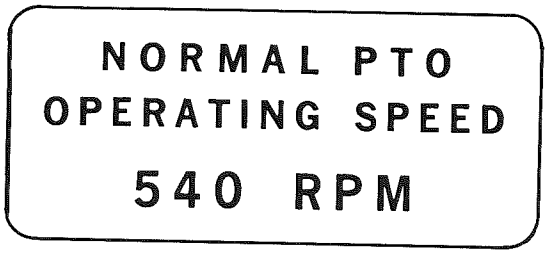
Part No. 78608

Part No. 78786

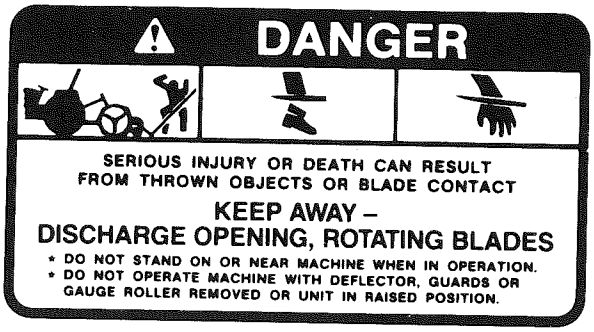


Part No. 80491

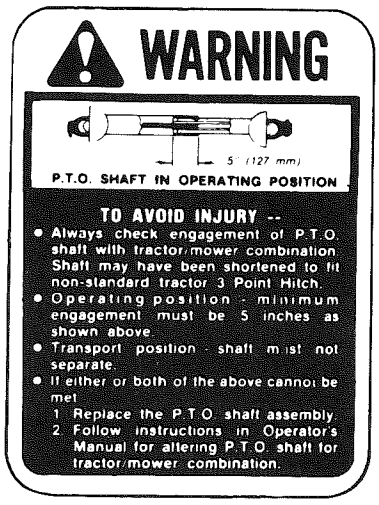
Part No. 80488



Part No. 80490



Part No. 80487



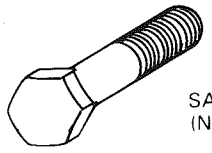
Part No. 80492

Part No. 80489

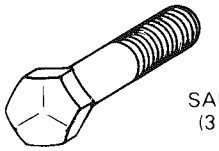
TORQUE SPECIFICATIONS

AMERICAN

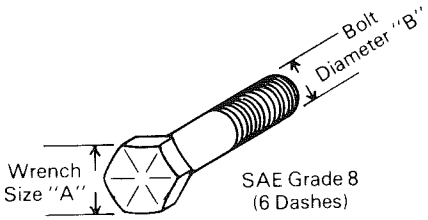
Bolt Head Markings



SAE Grade 2
(No Dashes)



SAE Grade 5
(3 Dashes)

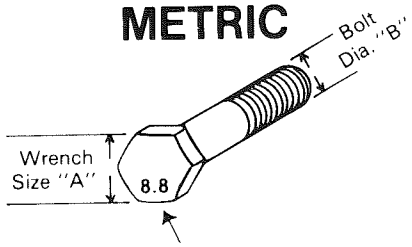


SAE Grade 8
(6 Dashes)

Proper torque for American fasteners used on Bush Hog equipment.
Recommended Torque in Foot Pounds (Newton Meters). *

WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 - 20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 - 28 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 - 18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 - 24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 - 14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 - 12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4 - 16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1 - 8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1 - 14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8 - 12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 - 12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)

METRIC



Numbers appearing on bolt heads indicate ASTM class.

Proper torque for metric fasteners used on Bush Hog equipment.
Recommended Torque in Foot Pounds (Newton Meters). *

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM CLASS 4.6	ASTM CLASS 8.8	ASTM CLASS 9.8	ASTM CLASS 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)	19 (26)	21.1 (29)	27 (37)
16	10	14.5 (20)	38 (52)	42 (57)	53 (72)
18	12	25 (34)	67 (91)	73 (99)	93 (126)
21	14	40 (54)	107 (145)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)

* Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.

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