BUSH HOG

2400 QT
Front End Loader

Operator's Manual
Assembly • Operation • Maintenance

$3.00 Part No. 25H30142
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.
## 2400 QT
Operator’s Manual

### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION/PARA</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty</td>
<td>2</td>
</tr>
<tr>
<td>Dealer Preparation Check List</td>
<td>3</td>
</tr>
<tr>
<td>Safety Precautions</td>
<td>4</td>
</tr>
<tr>
<td>I INTRODUCTION &amp; DESCRIPTION</td>
<td>5</td>
</tr>
<tr>
<td>1-1 Introduction</td>
<td>5</td>
</tr>
<tr>
<td>1-2 Description</td>
<td>5</td>
</tr>
<tr>
<td>II PREPARATION FOR USE</td>
<td>6</td>
</tr>
<tr>
<td>2-1 Attaching To Tractor</td>
<td>6</td>
</tr>
<tr>
<td>2-2 PTO Pump Mounting</td>
<td>7</td>
</tr>
<tr>
<td>III OPERATION INSTRUCTIONS</td>
<td>8</td>
</tr>
<tr>
<td>3-1 General Safety</td>
<td>8</td>
</tr>
<tr>
<td>3-2 Operation</td>
<td>8</td>
</tr>
<tr>
<td>3-3 Bale Spear Operation</td>
<td>11</td>
</tr>
<tr>
<td>3-4 Self-Leveling Valve Operation &amp; Adjustment</td>
<td>11</td>
</tr>
<tr>
<td>3-5 Transporting</td>
<td>11</td>
</tr>
<tr>
<td>3-6 Loader Detaching &amp; Storage</td>
<td>11</td>
</tr>
<tr>
<td>IV MAINTENANCE</td>
<td>11</td>
</tr>
<tr>
<td>4-1 Maintenance Check List</td>
<td>11</td>
</tr>
<tr>
<td>4-2 Lubrication</td>
<td>12</td>
</tr>
<tr>
<td>4-3 Hydraulic Pressure Adjustment</td>
<td>12</td>
</tr>
<tr>
<td>4-4 Troubleshooting</td>
<td>12</td>
</tr>
<tr>
<td>V ASSEMBLY</td>
<td>14</td>
</tr>
<tr>
<td>5-1 Loader Assembly</td>
<td>14</td>
</tr>
<tr>
<td>5-2 Optional (Hydraulic Valve &amp; Stand Assembly)</td>
<td>15</td>
</tr>
<tr>
<td>5-3 Optional Self-Leveling Valve Assembly</td>
<td>16</td>
</tr>
<tr>
<td>5-4 Assembly Instructions For Independent Hydraulic System</td>
<td>17</td>
</tr>
<tr>
<td>5-5 Bucket Options</td>
<td>18</td>
</tr>
<tr>
<td>5-6 Fork Lift Option</td>
<td>19</td>
</tr>
<tr>
<td>5-7 Bale Spear</td>
<td>19</td>
</tr>
<tr>
<td>Safety Decals</td>
<td>20</td>
</tr>
<tr>
<td>Torque Specifications</td>
<td>21</td>
</tr>
</tbody>
</table>

### 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 its 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.

MAKE CERTAIN THE WARRANTY REGISTRATION CARD HAS BEEN FILED WITH BUSH HOG/SELMA, ALABAMA.
DEALER PREPARATION CHECK LIST
2400 QT Loader

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

☐ Machine properly assembled.
☐ All safety decals readable (See decal page)
☐ All bolts tightened to torque specifications given in torque chart.
☐ Machine operates properly.
☐ Customer has appropriate mounting kit for his tractor and loader.
☐ Operator’s manual has been delivered to owner and he has been instructed on the safe and proper use of the front end loader.

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

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.

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 machine.
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 loader. 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.
7. Use a piece of cardboard or wood rather than hands to search for hydraulic leaks. Escaping hydraulic oil under pressure can penetrate the skin. If fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.
8. Lower implement to ground, stop tractor engine and apply parking brake before leaving tractor.
9. Do not lift or carry anyone in the bucket or on any other portion of the loader or loader attachment.
10. Do not get under bucket or lift arms or reach through lift arms when the loader is raised.
SECTION I
INTRODUCTION AND DESCRIPTION

1-1 INTRODUCTION
We are pleased to have you as a Bush Hog customer. Your model 2400 Front End Loader 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 loader 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.

1-2 DESCRIPTION
The model 2400 Front End Loader is designed for two-wheel drive tractors up to 75 hp. Two 2" x 21\(\frac{1}{2}\)" hydraulic cylinders control the bucket and two 2\(\frac{1}{4}\)" x 27\(\frac{3}{4}\)" hydraulic cylinders control the boom. All cylinders are double-acting. A bucket level indicator allows operator to gauge bucket position even when bucket cannot be seen. Parking stands support loader so tractor can be "driven in" for quick attaching. Major components of loader are shown in Figure 1-1. Technical specifications are given in Table 1-1.

![Figure 1-1 Major Components](image)

**Table 1-1 Technical Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1245 lbs.</td>
</tr>
<tr>
<td>Recommended Hydraulic Pressure</td>
<td>2500 psi</td>
</tr>
<tr>
<td>Bucket Cylinders</td>
<td>2&quot; x 21(\frac{1}{2})&quot;, Double-Acting</td>
</tr>
<tr>
<td>Boom Cylinders</td>
<td>2(\frac{1}{4})&quot; x 27(\frac{3}{4})&quot;, Double-Acting</td>
</tr>
<tr>
<td>Breakaway Capacity</td>
<td>3340 lbs.</td>
</tr>
</tbody>
</table>

The following specifications correspond with Fig. 1-2:

A. Max. Lift Height                   | 110\(\frac{1}{2}\)"
B. Clearance With Attachment Dumped  | 84\(\frac{1}{2}\)"
C. Reach At Max. Height              | 26"
D. Max. Dump Angle                   | 43°
E. Reach With Attachment On Ground   | 62"
F. Attachment Rollback Angle         | 13\(\frac{1}{2}\)°
G. Digging Depth                     | 2\(\frac{3}{4}\)"
H. Overall Height In Carrying Position | 54"
J. Lift Capacity To Full Height      | 2400 lbs.

Specifications based on tractor system of 2500 psi hydraulic pressure and 11 gpm pump capacity. Specifications will vary slightly with different tractors.

![Figure 1-2 Loader Specifications](image)
SECTION II
PREPARATION FOR USE

2-1 ATTACHING TO TRACTOR

Tractors that have movable front axles must be set forward in the long wheelbase position as shown in Figure 2-1 to prevent excessive leverage being exerted on the tractor frame.

It is recommended that tractor tires be moved to the widest setting and rear wheel ballast be applied to increase tractor stability. Air pressure in front tires should be adequate for heavy loads. Refer to tractor owner's manual for further instructions. Attach loader to tractor as follows:

A. Slowly drive tractor into loader. (Figure 2-2)
B. Connect hydraulic hoses to tractor auxiliary outlets. If PTO pump is used, attach to tractor per paragraph 2-2.
C. Carefully extend or retract boom cylinders to align cross tube with front mounting brackets.
D. Drive tractor forward to seat cross tube in front bracket. Install pin on bracket to retain cross tube. (Figure 2-3)
E. Raise loader rear subframe and remove parking stands.
F. Lower loader rear subframe allowing it to seat on rear brackets. (Figure 2-4) There must be a 1/4" (6.3mm) space between loader frame and rear bracket. (Figure 2-5)
G. Install clamp to secure loader subframe to bracket.
H. Store parking stands as shown in Figure 2-6.
I. Secure hydraulic hoses to tractor to prevent interference. It is recommended that hoses be run under tractor operator’s platform.
J. Extend and retract both sets of cylinders beginning with short strokes. Gradually increase the length of stroke until cylinders “bottom out” in each direction. Hold valve open with cylinders “bottomed out” for 3-5 seconds. This will purge air from hydraulic components.

NOTE
When valve is held open, a squealing noise will be heard when cylinders “bottom out” and hydraulic oil passes through relief valve. This may cause overheating if valve is held open longer than 5 seconds.

K. Check hydraulic oil level in either tractor hydraulic reservoir or loader hydraulic reservoir, whichever is applicable.

2-2 PTO PUMP MOUNTING
A. Slip pump over PTO shaft and connect chain securely to an immovable location on tractor. (Figure 2-7) Pump must be chained in close to tractor.
B. Route hoses through a protected area that will not require removal of fittings when loader is removed from tractor. Do not allow hoses to become pinched or kinked.
SECTION III
OPERATING INSTRUCTIONS

3-1 GENERAL SAFETY
Only qualified people should operate this machine. It is recommended that tractor be equipped with Rollover Protective System (ROPS) and a seat belt be used. Check for ditches, stumps, holes or other obstacles that could upset tractor or damage loader. Fluid and/or weights for rear tires is recommended for added stability. Always turn off tractor engine, set parking brake, and lower loader to ground before dismounting tractor.

3-2 OPERATION
The loader should be operated with the tractor engine running at 1200-1700 rpm. Excessive speeds are dangerous and may cause bucket spillage and unnecessary strain on both the tractor and loader.

When operating in temperatures below 30°F (-1°C.), run the tractor engine below 1200 rpm until the oil temperature exceeds 30°F. (-1°C.)

A bucket level, gauge rod (Figure 3-1) located on the right side of loader frame can be used to determine bucket angle. Before beginning work, observe the position of gauge rod with bucket flat on ground. Raise boom to several different positions. At each position, level bucket, then observe gauge rod. Once familiar with the gauge rod positions, operation of loader will be easier and more efficient.
The following illustrations are suggested operating techniques for added safety and efficiency.

⚠️ CAUTION ⚠️
DO NOT LIFT ROUND HAY BALES. ROUND BALES CAN ROLL DOWN LOADER ARMS CAUSING SERIOUS INJURY OR DEATH TO OPERATOR.

FILLING THE BUCKET
Approach and enter the pile with a level bucket.

Roll bucket back gradually as the loader moves through the pile.

The lift and rollback of the bucket will increase efficiency because...

a level bucket throughout the lifting cycle resists bucket lift or breakaway.

RAISING THE BUCKET
⚠️ CAUTION ⚠️
MAKE SURE MATERIAL IN BUCKET CANNOT ROLL OUT AND DOWN ON TRACTOR WHEN BUCKET IS RAISED TO FULL HEIGHT. KEEP CLEAR OF OVERHEAD OBSTRUCTIONS SUCH AS TREES, LIMBS OR POWER LINES WHEN RAISING THE BUCKET.

⚠️ WARNING ⚠️
DO NOT LIFT OR CARRY ANYONE IN THE BUCKET OR ON ANY OTHER PORTION OF THE LOADER OR LOADER ATTACHMENT. INADVERTENT MOVEMENT OF THE LOADER OR ATTACHMENT COULD RESULT IN SERIOUS INJURY OR DEATH FROM FALLING OR CRUSHING.

⚠️ CAUTION ⚠️
DO NOT PUSH ANYTHING WITH BUCKET WHEN LIFTED ABOVE HEIGHT SHOWN ABOVE. DOING SO CAN CAUSE EXTENSIVE DAMAGE TO TRACTOR AND/OR LOADER.

⚠️ CAUTION ⚠️
POSITION THE BUCKET JUST BELOW THE LEVEL OF THE TRACTOR HOOD, FOR MAXIMUM STABILIT Y AND VISIBILITY, WHETHER THE BUCKET IS LOADED OR EMPTY.

⚠️ CAUTION ⚠️
WHEN OPERATING THE LOADER ON A HILL OR SLOPE, KEEP THE BUCKET AS LOW AS POSSIBLE. THIS KEEPS THE BUCKET’S CENTER OF GRAVITY AS LOW AS POSSIBLE. THIS WILL GIVE YOU MAXIMUM TRACTOR STABILITY, AND AVOID TIPPING.

⚠️ CAUTION ⚠️
WHEN TRANSPORTING THE LOAD, KEEP THE BUCKET AS LOW AS POSSIBLE TO RESIST TIPPING, IN CASE A WHEEL DROPS IN A RUT. THIS WILL AVOID TIPPING AND POSSIBLE INJURY.

DUMPING THE BUCKET
Lift the bucket high enough to clear the side of the vehicle. Move the tractor in as close to the side of the vehicle as possible, then dump the bucket.

Sidecutting is the best method of reducing large stockpiles. If the sides of the pile are too high, use the loader to pull them down and reduce the possibility of slides.
OPERATING WITH FLOAT CONTROL
During hard surface operation, keep the bucket level and put the lift lever in the float position to permit the bucket to float on the working surface. If hydraulic down pressure is exerted on the bucket, it will wear faster than normal.

The float position will also prevent the mixing of surface material with stockpile material. The float position will reduce the change of surface gouging when removing snow or other material, or when working with a blade.

PEELING AND SCRAPING
Use down pressure and a slight bucket angle to start long cuts. Make a short angle cut and break out cleanly.

With the bucket level, start a cut at the notch approximately two inches deep. Hold the depth by feathering the bucket lever to adjust the cutting lip up or down. When the front tires enter the notch, adjust the lift and bucket lever to maintain proper depth.

Make additional cuts until the desired depth is reached.

During peeling operations, use lift cylinder down pressure and a slight bucket angle for penetration to the desired working depth. After reaching the desired working depth, use only the bucket lever, leaving the lift lever in either the float or neutral position. This allows the operator to control the bucket angle and maintain a precise cut.

If the lever is used without controlling the bucket angle, the bucket will gouge and leave a series of ruts in the surface.

BACKFILLING
Approach the pile with a level bucket. When adjusting the cut to a load that the tractor can push, actuate the lift lever and maintain a level bucket.

Leave the soil in the bucket because dumping on each pass wastes time. Lift and level the bucket for the next pass while backing from the excavation.

Operate at right angles to the ditch. Take as big a bite as the tractor can handle without lugging the engine.

Leave the soil which drifts over the side of the bucket for final cleanup.

Efficient backfilling occurs when the tractor pushes the maximum amount of soil without losing speed or traction. If the tractor slows, reduce the width of cut. If the tractor is not working at capacity, increase the width of cut.

When backfilling on a slope, have the soil piled on the high side for easier backfilling.
3-3 BALE SPEAR OPERATION
Add rear ballast as necessary to provide adequate stability for handling round bales. When operating on a slope, always work with tractor facing uphill. Approach bale with tractor in low gear. Run spears all the way into bale. Lift bale just high enough for adequate ground clearance to transport maintaining good visibility. Always carry load as low as possible, when transporting, for improved stability. Use low gear on downhill grades. Unload round bales on a level surface.

⚠️ CAUTION ⚠️
UNLOAD ROUND BALES ON LEVEL SURFACE ONLY TO PREVENT INJURY OR PROPERTY DAMAGE FROM A ROLLING BALE.

3-4 SELF-LEVELING VALVE OPERATION AND ADJUSTMENT
The self-leveling valve is a single direction valve and works only when the boom is being raised. When the control valve is actuated to raise boom, the self-leveling valve automatically feeds hydraulic oil to bucket cylinders to keep bucket level. The bucket control valve can be used at any time to override self-leveling valve.

An adjustment on the self-leveling valve allows the operator to change the amount of hydraulic oil flow to bucket cylinders. This can be used to make bucket roll back, dump or remain level when raising boom. To adjust, remove cap, loosen jamnut, and turn allen screw clockwise (in) to increase roll back, counterclockwise (out) to increase dump. Tighten jamnut and replace cap.

3-5 TRANSPORTING
When transporting on road or highway, day or night, use tractor flashing warning lights unless prohibited by law. Carry load as low as possible maintaining adequate ground clearance and visibility. Reduce tractor ground speed when transporting a load. Take extra care when traveling over rough terrain or on slopes.

⚠️ CAUTION ⚠️
WHEN TRANSPORTING THE LOAD, KEEP THE BUCKET AS LOW AS POSSIBLE TO RESIST TIPPING, IN CASE A WHEEL DROPS IN A RUT. THIS WILL AVOID TIPPING AND POSSIBLE INJURY.

3-6 LOADER DETACHING AND STORAGE
A. Assemble parking stand.
B. Retract bucket cylinders completely. Lower bucket to rest on ground.
C. Remove nuts and clamps securing loader subframe to rear mounting bracket.
D. Extend boom cylinders to gain clearance for installing parking stand.
E. Install parking stand.
F. Retract boom cylinders allowing all weight to rest on parking stand.
G. Remove pin securing loader subframe to front mounting bracket.
H. Back-up tractor until subframe clears front bracket.
I. Disconnect hydraulic lines from tractor. Store lines on top of loader frame. Do not lay hoses on ground.
J. Clean all dirt and debris from loader. Dirt will hold moisture causing rust.

NOTE
It is recommended that loader be stored in a dry place. If loader is to be stored for an extended period of time (two weeks or more), perform steps “K” and “L”.

K. Perform lubrication per paragraph 4-2.
L. Apply coat of heavy grease to cylinder rods to prevent rust.

SECTION IV
MAINTENANCE

4-1 MAINTENANCE CHECK LIST
Perform scheduled maintenance as outlined below. Lower machine to ground, turn off tractor, and set parking brake before doing maintenance inspections or work. All bolts should be torqued as recommended in torque chart on page 21 unless otherwise indicated.

BEFORE EACH USE
1. Inspect hydraulic lines and fittings for wear or leaks. Repair or replace if needed.

⚠️ CAUTION ⚠️
USE A PIECE OF CARDBOARD OR WOOD RATHER THAN HANDS AND WEAR EYE PROTECTION WHEN SEARCHING FOR HYDRAULIC LEAKS. ESCAPING HYDRAULIC OIL UNDER PRESSURE CAN PENETRATE SKIN. IF OIL IS INJECTED INTO SKIN, IT MUST BE SURGICALLY REMOVED WITHIN A FEW HOURS BY A DOCTOR OR GANGRENE MAY RESULT.
2. Inspect all pivot pins for wear. Make certain cotter pins are installed to retain each pivot pin.
3. Check all bolts for tightness.
4. Perform BEFORE EACH USE lubrication per paragraph 4-2.
5. During operation, listen for abnormal sounds which might indicate loose parts or other damage.

AFTER EACH USE
1. Clean all debris from machine.

4-2 LUBRICATION (Figure 4-1)

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

BEFORE EACH USE
1. Boom Pivot Pins - Apply multi-purpose grease to each fitting (1 fitting each side)
2. Boom Cylinders - Apply multi-purpose grease to each fitting (2 fittings each cylinder)
3. Bucket Cylinders - Apply multi-purpose grease to each fitting (2 fittings each cylinder)
4. Bucket Pivot Pin - Apply multi-purpose grease to each fitting (1 fitting each side)
5. Hydraulic Oil - Cycle boom and bucket cylinders 2 or 3 times before use than check hydraulic oil level in tractor reservoir or loader reservoir, whichever applicable. Use SAE-10 HD for loader reservoir.

4-3 HYDRAULIC PRESSURE ADJUSTMENT
A hydraulic pressure setting of 2500 psi (172 bars) is recommended for maximum efficiency and service. Do not exceed 3000 psi (207 bars) as this will damage components possibly causing serious injuries. The Bush Hog control valve (optional) is pre-set at factory and cannot be adjusted.

4-4 TROUBLESHOOTING
Troubleshooting procedures are listed in Table 4-1. 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>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerky Lift Operation</td>
<td>Cold oil</td>
<td>Warm oil by raising and lowering boom with tractor at half throttle.</td>
</tr>
<tr>
<td></td>
<td>Low oil supply or air in hydraulic system.</td>
<td>Check for oil leaks or loose connections. Check oil supply and add proper amount and type of oil.</td>
</tr>
<tr>
<td>Oil Leaks</td>
<td>Defective fittings or hoses.</td>
<td>Replace fittings or hoses. Reseal and tighten connections.</td>
</tr>
<tr>
<td></td>
<td>Loose connections.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Worn or damaged seals at rod end of cylinder.</td>
<td>Have authorized Bush Hog dealer replace seals.</td>
</tr>
<tr>
<td></td>
<td>Seal in valve worn or damaged.</td>
<td>Have authorized Bush Hog dealer replace seals.</td>
</tr>
<tr>
<td>Insufficient Lift Capacity</td>
<td>Tractor relief valve set too low or stuck open.</td>
<td>See your tractor manual for proper adjustment (2000 PSI is pressure relief setting recommended)</td>
</tr>
<tr>
<td>Slow Raise</td>
<td>Improper rate of flow through control valve in tractor or on loader.</td>
<td>Adjust rate of flow. (see tractor operator’s manual)</td>
</tr>
<tr>
<td>Slow Leakdown</td>
<td>Worn control valve.</td>
<td>Have authorized Bush Hog dealer replace seals.</td>
</tr>
<tr>
<td></td>
<td>Worn cylinder piston seals.</td>
<td>Have authorized Bush Hog dealer replace seals.</td>
</tr>
<tr>
<td>Excessive wear on bottom of bucket</td>
<td>Float position not used while operating loader.</td>
<td>Use float position provided on valve.</td>
</tr>
<tr>
<td>and wear pads.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic Cylinders Inoperative</td>
<td>Hoses from independent control valve improperly connected to rear of tractor.</td>
<td>Reverse hose connections</td>
</tr>
<tr>
<td>Pump operating continually on closed center tractor hydraulic system.</td>
<td>Hydraulic control valve relief stuck open.</td>
<td>See your tractor manual for proper adjustment or Bush Hog dealer for loader valve. (2500 PSI is maximum pressure relief setting recommended)</td>
</tr>
<tr>
<td></td>
<td>Hydraulic control valve set too low.</td>
<td></td>
</tr>
<tr>
<td>Loader lift and bucket tilt controls do not work according to decal.</td>
<td>Hoses improperly connected.</td>
<td>Refer to plumbing diagram on page 13 and correct hose connections.</td>
</tr>
</tbody>
</table>
SECTION V
ASSEMBLY

5-1 LOADER ASSEMBLY

A. Attach bucket to boom using two 1" x 6½" pins. Secure pins with cotter pins. (Figure 5-1)
B. Attach bucket cylinders to bucket using 1" x 6½" pins. Secure pins with cotter pins. If bucket has two sets of holes, cylinders must attach to bottom holes as shown in Figure 5-2.
C. Slide guide tube over level indicator rod as shown in Figure 5-3. Attach end of rod to bucket using two cotter pins. Attach guide tube to boom using bolt, locknut, and three flatwashers. Do not overtighten nut. Guide tube must be free to rotate during operation.
D. Pin parking stands to loader as shown in Figure 5-4.
E. Connect hydraulic hoses to loader as shown in Figure 5-5. If optional hydraulic valve is used, refer to paragraph 5-2 for valve and stand assembly instructions.
5-2 OPTIONAL HYDRAULIC VALVE AND STAND ASSEMBLY (Figure 5-6)

A. Attach mounting bracket to loader frame using two \( \frac{1}{2}'' \times 1\frac{3}{4}'' \) bolts, flatwashers, lockwashers, and nuts.

B. Attach mounting tube to bracket using a \( 3/8'' \times 3'' \) bolt, flatwasher, lockwasher, and nut through slot and \( \frac{1}{2}'' \times 3\frac{1}{2}'' \) bolt, flatwasher, lockwasher and nut through round hole.

C. Attach valve plate to tube using U-bolts, nuts, and lockwashers.

D. Attach valve to plate using three \( 3/8'' \times 2\frac{1}{2}'' \) bolts, lockwashers and nuts.

E. Plumb valve as shown in Figure 5-6. Two sets of \( 90^\circ \) adapters (\( \frac{1}{2}'' \) NPT and \( \frac{3}{4}'' \) SAE O-RING) are supplied for tractor end of valve supply and return hoses. Install adapters that correspond with customer's quick disconnect couplers.

F. This valve is set up for an open center tractor hydraulic system. If tractor has a closed center hydraulic system, remove open center plug and install closed center plug supplied with valve. (Refer to Figure 5-6)

G. Install decal on loader frame.
5-3 OPTIONAL SELF-LEVELING VALVE ASSEMBLY

A. Position valve as shown in Figure 5-7 and use as a pattern to mark holes for drilling.
B. Drill 5/16” holes at places marked.
C. Mount valve to upright using two 5/16” x 7” bolts, nuts and lockwashers.
D. Plumb valve as shown in Figure 5-8.

Figure 5-7 Self-Leveling Valve Mounting

Figure 5-8 Self-Leveling Valve Plumbing Diagram

<table>
<thead>
<tr>
<th>KEY</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Self Leveling Valve</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>90° Elbow ¾” JIC male to ¾” JIC male</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Tee ¾” JIC male</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>90° Adaptor Elbow ¾” JIC male to 7½” “O” Ring Boss</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>Hydraulic Hose 2½” ¾” JIC female</td>
</tr>
</tbody>
</table>
When unit is equipped with PTO pump and reservoir, and operates in a fluctuating manner, check first the clamps holding the large hose to the pump and tank, and oil level in the tank. This is the most common cause of air in the lines.
5-5 BUCKET OPTIONS
Assembly of the different bucket options is shown in Figure 5-9.

Figure 5-9 Bucket Option Assembly

- Side Plates
- Dirt Plate
- Blade Points Toward Bucket
- Locknut
- 3/8" U-Bolt
- 1/2" x 1"
- 1/2" x 1 1/4"
- 1/2" x 1 1/4" Gr. 5
- 3/8" U-Bolt

BUCKET TEETH ASSEMBLY
5-6 FORK LIFT OPTION

A. Position basic frame with wide cross channel at bottom. Attach left-hand and right-hand mounting brackets to top cross channel of basic frame by inserting four 5/8" x 4" capscrews through each upper mounting plate and mounting bracket. Fasten loosely with lockwashers and nuts. (Figure 5-10)

B. Position lower mounting plates inside bottom cross channel and secure loosely to mounting brackets with four 5/8" x 2" capscrews, lockwashers, and nuts on each plate.

C. Position each bracket 1" (25.4mm) from outside plate on frame. Tighten all bolts.

D. Insert fork support rods through frame and fork. Secure in place with cotter pins.

5-7 BALE SPEAR

Attach mounting brackets to bale spear using U-bolts as shown in Figure 5-11. Brackets should be spaced 43 inches apart center to center and an equal space from each end of bale spear.

Figure 5-11 Bale Spear
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.

⚠️ CAUTION ⚠️

1. Read operator’s manual before operating this machine.
2. Move and turn tractor at low speeds.
3. Carry loader arms at a low position during transport.
4. Stop engine, lower arms, relieve all hydraulic pressure, and lock brakes before leaving operator’s seat.
5. Do not stand or work under raised loader.
6. Add recommended wheel ballast or rear weight for stability.
7. Move wheels to widest recommended settings to increase stability.
8. Do not lift or carry anyone on loader or in bucket or attachment.
9. A roll-over protective structure is recommended for a tractor equipped with a loader.
10. Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin, causing serious personal injury. If injured by escaping fluid, obtain medical treatment immediately.

Part No. 36022508

⚠️ WARNING ⚠️

DO NOT LIFT OR CARRY ANYONE IN THE BUCKET OR ON ANY OTHER PORTION OF THE LOADER OR LOADER ATTACHMENTS.

INADVERTENT MOVEMENT OF THE LOADER OR ATTACHMENT COULD RESULT IN SERIOUS INJURY FROM FALLING OR CRUSHING.

Part No. 25H50277

⚠️ WARNING ⚠️

THESE FORKS ARE NOT INTENDED FOR USE WITH LARGE OBJECTS SUCH AS ROUND HAY BALES OR OTHER ITEMS WHICH MAY ROLL BACKWARDS AND FALL CAUSING INJURY TO THE OPERATOR.

Lift only objects that are within the stated lift capacity of the loader. Refer to your owner’s manuals for the loader and for this fork attachment for load limits and other safety considerations.
### American Bolt Head Markings

**SAE Grade 2** (No Dashes)
- **SAE Grade 5** (3 Dashes)
- **SAE Grade 8** (6 Dashes)

### Metric Bolt Head Markings

- **Wrench Size "A"**

#### Proper Torque for American Fasteners

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

#### Proper Torque for Metric Fasteners

<table>
<thead>
<tr>
<th>WRENCH SIZE (mm) &quot;A&quot;</th>
<th>BOLT DIAMETER (mm) &quot;B&quot;</th>
<th>ASTM CLASS 4.8</th>
<th>ASTM CLASS 8.8</th>
<th>ASTM CLASS 10.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>5</td>
<td>1.8 (2.4)</td>
<td>5.1 (6.9)</td>
<td>6.5 (8.8)</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>3 (4)</td>
<td>8.7 (12)</td>
<td>11.1 (15)</td>
</tr>
<tr>
<td>13</td>
<td>8</td>
<td>7.3 (10)</td>
<td>21.1 (29)</td>
<td>27 (37)</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>14.5 (20)</td>
<td>42 (57)</td>
<td>53 (72)</td>
</tr>
<tr>
<td>18</td>
<td>12</td>
<td>25 (34)</td>
<td>74 (100)</td>
<td>73 (99)</td>
</tr>
<tr>
<td>21</td>
<td>14</td>
<td>40 (54)</td>
<td>118 (160)</td>
<td>116 (157)</td>
</tr>
<tr>
<td>24</td>
<td>16</td>
<td>62 (84)</td>
<td>167 (226)</td>
<td>181 (245)</td>
</tr>
<tr>
<td>30</td>
<td>20</td>
<td>122 (165)</td>
<td>325 (440)</td>
<td>449 (608)</td>
</tr>
<tr>
<td>33</td>
<td>22</td>
<td>443 (600)</td>
<td>611 (828)</td>
<td>778 (1054)</td>
</tr>
<tr>
<td>36</td>
<td>24</td>
<td>211 (286)</td>
<td>563 (763)</td>
<td>778 (1054)</td>
</tr>
<tr>
<td>41</td>
<td>27</td>
<td>821 (1112)</td>
<td>1138 (1542)</td>
<td>1547 (2096)</td>
</tr>
<tr>
<td>46</td>
<td>30</td>
<td>418 (566)</td>
<td>1119 (1516)</td>
<td>1547 (2096)</td>
</tr>
</tbody>
</table>

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