

Safety, Setup & Operation Manual

WM4000

rev. B3.01



Safety is our #1 concern! Read and understand all safety information and instructions before operating, setting up or maintaining this machine.

Form #2013

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Wood-Mizer

8180 West 10th Street
Indianapolis, Indiana 46214

Table of Contents

Section-Page

| | | |
|--------------------------|--|------------|
| ABOUT THIS MANUAL | | VI |
| SECTION 1 | SAFETY | 1-1 |
| 1.1 | Safety Symbols..... | 1-1 |
| 1.2 | Safety Instructions..... | 1-2 |
| 1.3 | Electrical Lockout Procedures..... | 1-7 |
| SECTION 2 | SERVICING THE SAWMILL | 2-1 |
| 2.1 | If You Need To Order Parts..... | 2-1 |
| 2.2 | If You Need Service..... | 2-1 |
| 2.3 | Customer and Sawmill Identification..... | 2-2 |
| 2.4 | Specifications..... | 2-3 |
| 2.5 | Warranty..... | 2-4 |
| SECTION 3 | SETUP | 3-1 |
| 3.1 | Site Preparation..... | 3-1 |
| 3.2 | Operator Station Installation..... | 3-3 |
| 3.3 | Sawmill Installation..... | 3-4 |
| 3.4 | Bed Extension Installation (Optional)..... | 3-7 |
| | 3.4.1 Extension Frame Installation (BX6 & BX12)..... | 3-7 |
| | 3.4.2 Power Taper Set Roller Installation (BX12 Only)..... | 3-11 |
| 3.5 | Hydraulic Log Clamp Installation..... | 3-12 |
| | 3.5.1 Hydraulic Log Clamp Installation (Sawmill Bed)..... | 3-12 |
| | 3.5.2 Hydraulic Log Clamp Installation (Optional BX12 Bed Extension Only)..... | 3-13 |
| 3.6 | Pantograph Cable Boom..... | 3-14 |
| 3.7 | Lube Installation..... | 3-23 |
| | 3.7.1 Standard Lube System..... | 3-23 |
| | 3.7.2 Optional Pressure Lube System..... | 3-25 |
| 3.8 | Electrical Installation..... | 3-27 |
| | Electrical Requirements..... | 3-27 |
| | Installation..... | 3-28 |
| | 3.8.1 Blade Motor Cable (W1)..... | 3-34 |
| | 3.8.2 Hydraulic Pump Motor (W2)..... | 3-35 |
| | 3.8.3 Feed Motor Cable (W3)..... | 3-36 |
| | 3.8.4 Up/Down Servo Motor Cable (W4)..... | 3-37 |
| | 3.8.5 Up/Down Servo Encoder Cable (W5)..... | 3-38 |
| | 3.8.6 Low Voltage Box Cables (W20-22, W41, W103 and W131)..... | 3-39 |
| 3.9 | Hydraulic Installation..... | 3-40 |
| | 3.9.1 Hydraulic Installation (Optional BX12 Bed Extension Only)..... | 3-44 |
| 3.10 | Air Installation..... | 3-46 |
| 3.11 | Sawmill Installation Setup..... | 3-47 |
| | 3.11.1 Level Sub-Frame..... | 3-47 |
| | 3.11.2 Level Saw Head..... | 3-50 |
| | 3.11.3 Level Bed Rails..... | 3-53 |
| | 3.11.4 Level Blade Guide Arm..... | 3-54 |

Table of Contents

Section-Page

| | | |
|--------|---|------|
| 3.12 | Initial Sawmill Setup | 3-56 |
| 3.12.1 | <i>Installation Configuration</i> | 3-56 |
| 3.12.2 | <i>Feed Setup</i> | 3-59 |
| 3.12.3 | <i>Head Setup.....</i> | 3-61 |
| 3.12.4 | <i>Upper and Lower Saw Head Stop Adjustment</i> | 3-62 |
| 3.12.5 | <i>Setworks Setup.....</i> | 3-63 |

SECTION 4 OPERATION

4-1

| | | |
|--------|--|------|
| 4.1 | Control Overview | 4-1 |
| 4.2 | Distribution Box Overview | 4-2 |
| 4.3 | Joystick Control Overview | 4-3 |
| 4.4 | Programming the Control..... | 4-8 |
| 4.4.1 | <i>System Setup</i> | 4-8 |
| 4.4.2 | <i>Joystick Configuration.....</i> | 4-13 |
| 4.4.3 | <i>Feed Setup</i> | 4-17 |
| 4.4.4 | <i>Head Setup.....</i> | 4-20 |
| 4.4.5 | <i>Setworks Setup.....</i> | 4-22 |
| 4.4.6 | <i>Bed Extension Setup (Optional)</i> | 4-23 |
| 4.5 | Starting The Machine | 4-25 |
| 4.6 | Installing A Blade..... | 4-26 |
| 4.7 | Loading, Turning And Clamping Logs | 4-29 |
| 4.8 | Setworks Overview | 4-32 |
| 4.8.1 | <i>Common Indicators and Buttons for All Modes ...</i> | 4-32 |
| 4.8.2 | <i>Common Indicators and Buttons for Reference, Pattern, and Stack Modes</i> | 4-34 |
| 4.8.3 | <i>Common Indicators and Buttons for Reference and Pattern Modes</i> | 4-36 |
| 4.8.4 | <i>Manual Mode.....</i> | 4-37 |
| 4.8.5 | <i>Reference Mode</i> | 4-37 |
| 4.8.6 | <i>Pattern Mode</i> | 4-39 |
| 4.8.7 | <i>Stack Mode</i> | 4-41 |
| 4.8.8 | <i>Dashboard</i> | 4-44 |
| 4.9 | General Sawing Sequence | 4-47 |
| 4.9.1 | <i>Prepare the sawmill for loading a log.....</i> | 4-47 |
| 4.9.2 | <i>Load the log.....</i> | 4-47 |
| 4.9.3 | <i>Make the opening cut on the first side</i> | 4-48 |
| 4.9.4 | <i>Turn the log to side 2.....</i> | 4-49 |
| 4.9.5 | <i>Make the opening cut on the second side</i> | 4-50 |
| 4.9.6 | <i>Make the opening cut on the third side.....</i> | 4-50 |
| 4.9.7 | <i>Make the opening cut on the fourth side.....</i> | 4-51 |
| 4.9.8 | <i>Return to the staging position, if set.....</i> | 4-51 |
| 4.10 | Automated Sawing Sequence | 4-52 |
| 4.10.1 | <i>Prepare the sawmill for loading a log.....</i> | 4-52 |
| 4.10.2 | <i>Load the log.....</i> | 4-53 |
| 4.10.3 | <i>Make the opening cut on the first side</i> | 4-54 |
| 4.10.4 | <i>Turn the log to side 2.....</i> | 4-55 |
| 4.10.5 | <i>Make the opening cut on the second side</i> | 4-56 |
| 4.10.6 | <i>Make the opening cut on the third side.....</i> | 4-56 |
| 4.10.7 | <i>Make the opening cut on the fourth side.....</i> | 4-56 |
| 4.10.8 | <i>Return to the staging position, if set.</i> | 4-57 |

Table of Contents

Section-Page

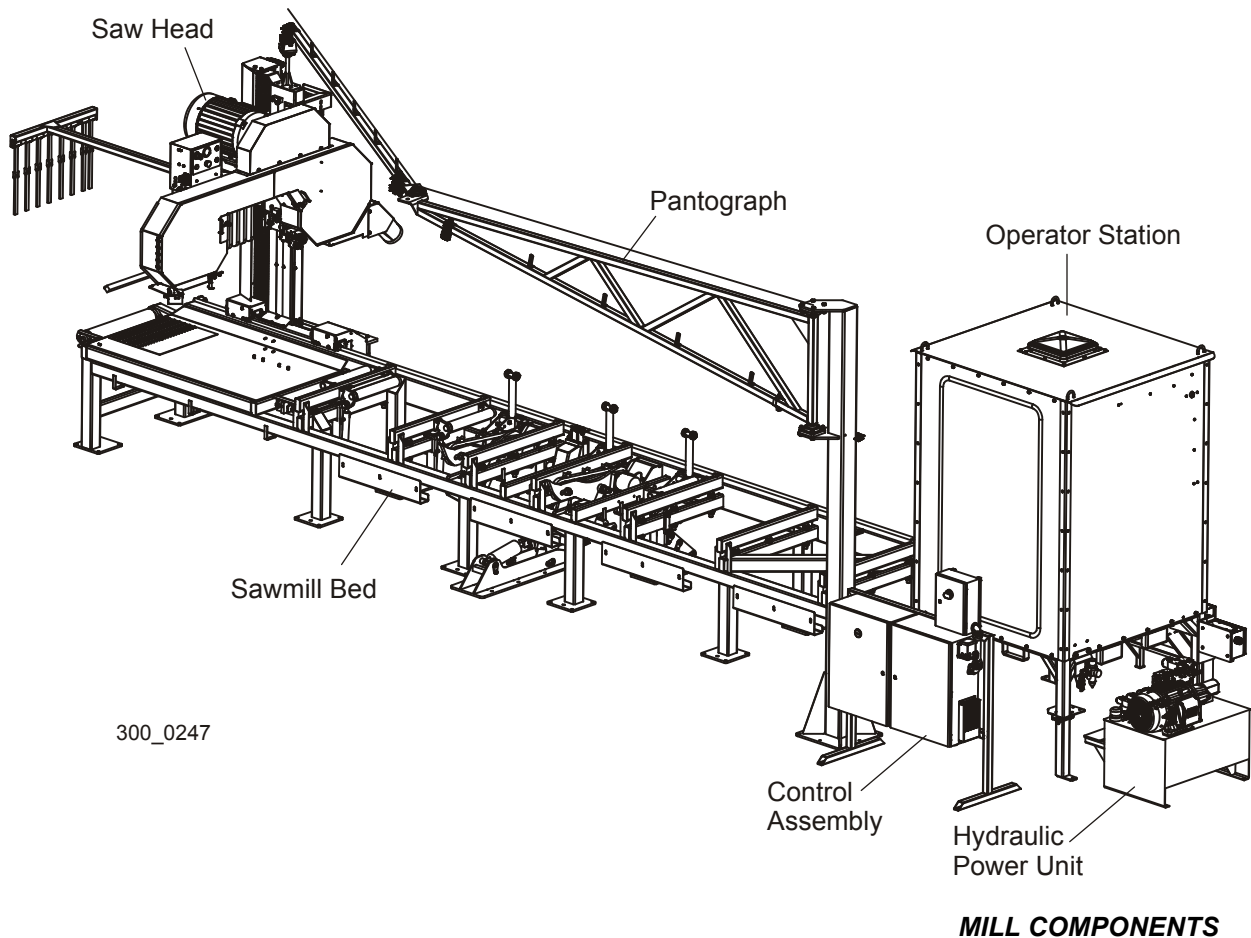
| | | |
|------------------|--|------------|
| SECTION 5 | MAINTENANCE | 5-1 |
| 5.1 | Blade Guides (Standard Block/Roller Guides)..... | 5-1 |
| 5.2 | Sawdust Removal..... | 5-3 |
| 5.3 | Track Rails & Scrapers..... | 5-4 |
| 5.4 | Miscellaneous..... | 5-6 |
| 5.5 | Proximity Sensors..... | 5-7 |
| | 5.5.2 Broken Blade Sensor..... | 5-7 |
| | 5.5.3 Up/Down Ball Screw Sensor..... | 5-8 |
| 5.6 | Hydraulic System Maintenance..... | 5-9 |
| 5.7 | Blade Wheel Bearings & Scrapers..... | 5-10 |
| 5.8 | Up/Down System..... | 5-11 |
| 5.9 | Power Feed..... | 5-13 |
| 5.10 | Drive Belt Tension & Alignment..... | 5-15 |
| 5.11 | Turner Chain Tension..... | 5-18 |
| SECTION 6 | TROUBLESHOOTING | 6-1 |
| 6.1 | Blade Guides..... | 6-1 |
| 6.2 | Power Feed Problems..... | 6-2 |
| SECTION 7 | ALIGNMENT | 7-1 |
| 7.1 | Bed Frame..... | 7-1 |
| | 7.1.1 Level Bed Frame In Length Direction..... | 7-1 |
| | 7.1.2 Level Bed Frame In Width Direction..... | 7-2 |
| | 7.1.3 Level Saw Head..... | 7-3 |
| | 7.1.4 Level Bed Rails..... | 7-5 |
| | 7.1.5 Align Side Supports..... | 7-6 |
| 7.2 | Blade Guides (Standard Block/Roller Guides)..... | 7-7 |
| | 7.2.1 Blade Guide Adjustment Overview..... | 7-7 |
| | 7.2.2 Preparing For Blade Guide Alignment..... | 7-10 |
| | 7.2.3 Blade Wheel Vertical Alignment..... | 7-11 |
| | 7.2.4 Blade Guide Arm Alignment..... | 7-13 |
| | 7.2.5 Blade Guide Alignment..... | 7-14 |
| SECTION 8 | HYDRAULIC INFORMATION | 8-1 |
| 8.1 | Hydraulic Schematics (WM4000)..... | 8-1 |
| 8.2 | Hydraulic Schematics (WM4000 w/BX12)..... | 8-12 |
| 8.3 | Hydraulic Components (WM4000)..... | 8-32 |
| 8.4 | Hydraulic Components (WM4000 w/BX12)..... | 8-34 |
| 8.5 | Hydraulic Hoses (WM4000)..... | 8-37 |
| 8.6 | Hydraulic Hoses (WM4000 w/BX12 Bed Extension)..... | 8-39 |
| | INDEX | I |

ABOUT THIS MANUAL

This manual is to replace or to be used with all previous information received on the Wood-Mizer sawmill. All future mailings will be an addition to or a revision of individual sections of this manual as we obtain new information.

The information and instructions given in this manual do not amend or extend the limited warranties for the equipment given at the time of purchase.

For general information regarding Wood-Mizer and our “Forest to Final Form” products, please refer to the All Products Catalog in your support package.



SECTION 1 SAFETY

1.1 Safety Symbols

The following symbols and signal words call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.



DANGER! indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING! suggests a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION! refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury or damage to equipment.



IMPORTANT! indicates vital information.

NOTE: gives helpful information.

1.2 Safety Instructions

OWNER/OPERATOR'S RESPONSIBILITY

The procedures listed in this manual may not include all ANSI, OSHA, or locally required safety procedures. **It is the owner/operator's responsibility and not Wood-Mizer Products to ensure all operators are properly trained and informed of all safety protocols.** Owner/Operators are responsible for following all safety procedures when operating and performing maintenance to the sawmill.

NOTE: ONLY safety instructions regarding personal injury are listed in this section. Caution statements regarding only equipment damage appear where applicable throughout the manual.

OBSERVE SAFETY INSTRUCTIONS



IMPORTANT! Read the entire Operator's Manual before operating the sawmill. Take notice of all safety warnings throughout this manual and those posted on the machine. Be able to access this manual at all times while operating the mill.

Read all additional manufacturer's manuals and observe all applicable safety instructions including dangers, warnings, and cautions.

Only persons who have read and understood the entire operator's manual should operate the sawmill. The sawmill is not intended for use by or around children.



IMPORTANT! It is always the owner/operator's responsibility to comply with all applicable federal, state and local laws, rules and regulations regarding the ownership and operation of your Wood-Mizer equipment. All Wood-Mizer operators are encouraged to become thoroughly familiar with these applicable laws and comply with them fully.



WEAR SAFETY CLOTHING



WARNING! Secure all loose clothing and jewelry before operating the sawmill. Failure to do so could result in death or serious injury.



WARNING! Always wear gloves and eye protection when handling bandsaw blades. Keep all personnel away from area when coiling, carrying, or changing a blade. Failure to do so could result in death or serious injury.



WARNING! Always wear eye, ear, and foot protection when operating or servicing the sawmill. Failure to do so could result in death or serious injury.



WARNING! Some woods require respiration protection when operating the sawmill. Failure to do so could result in death or serious injury. **It is the sawyer's responsibility to know which woods require respiration protection.**



KEEP SAWMILL AND AREA AROUND SAWMILL CLEAN



DANGER! Maintain a clean and clear path for all necessary movement around the mill and lumber stacking areas. Failure to do so will result in death or serious injury.

HANDLE FUEL/LUBRICANTS SAFELY



WARNING! Never use flammable fuels or liquids such as diesel fuel with the water lube accessory. Failure to do so could result in death or serious injury.

If these types of liquids are necessary to clean the blade, remove it and clean with a rag. Failure to do so can damage the equipment and could result in serious injury or death.

DISPOSE OF SAWING BY-PRODUCTS PROPERLY




IMPORTANT! Always properly dispose of all sawing by-products, including sawdust and other debris, coolant, oil, fuel, oil filters and fuel filters.

CAUTIONS FOR SAWMILL SETUP




WARNING! Securely fasten the feet of a stationary sawmill to the floor before operating the sawmill. Failure to do so could result in death or serious injury.


CHECK SAWMILL/BLADES BEFORE OPERATION

 **DANGER!** Ensure that all guards and covers are in place and secured before operating or towing the sawmill. Failure to do so will result in death or serious injury.


Be sure the blade housing and pulley covers are in place and secure. Use the safety retainer pin and cable to fasten blade housing covers.


 **DANGER!** Check and maintain your blades to prevent blade breakage during operation. Failure to do so will result in death or serious injury.


Blade guide alignment is essential for optimal cutting performance, blade life and safety. Failure to check and maintain proper blade guide alignment will result in stress cracks forming in the blade. These cracks will lead to premature blade breakage. If the blade breaks during operation and the blade has multiple stress cracks, the blade could shatter into several pieces and escape from the protective guards of the sawmill. Small blade pieces projected into the area around the sawmill creates a safety hazard for the operator and any bystanders surrounding the mill.

 **DANGER!** Never use blades with stress cracks. Failure to do so will result in death or serious injury.

KEEP PERSONS AWAY


 **DANGER!** Always shut off the sawmill and wait until the blade wheels have come to a complete stop before changing the blade. Failure to do so will result in death or serious injury.

 **DANGER!** Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in death or serious injury.

 **DANGER!** Always be sure the blade is disengaged and all persons are out of the path of the blade before starting operation. Failure to do so will result in death or serious injury.



KEEP HANDS AWAY

 **DANGER!** Disengage the blade and shut off the sawmill engine before changing the blade. Failure to do so will result in death or serious injury.



DANGER! Keep hands away from moving bandsaw blade. Failure to do so will result in death or serious injury.



DANGER! Stay a safe distance from rotating members and ensure that loose clothing or long hair does not engage rotating members resulting in possible injury. Failure to do so will result in death or serious injury.



WARNING! Do not spin the blade wheels by hand. Failure to do so could result in death or serious injury.



WARNING! Disengage the blade whenever the sawmill is not cutting. Failure to do so could result in death or serious injury.



WARNING! Keep hands, feet, and any other objects away from the sawdust chute when operating sawmill. Failure to do so could result in death or serious injury.

USE PROPER PROCEDURE WHEN CONDUCTING ELECTRICAL SAFETY CHECKS AND MAINTENANCE

ARC FLASH AND SHOCK HAZARD! Hazardous voltage inside the electric sawmill disconnect box, starter box, and at the motor can cause shock, burns, or death. Disconnect and lock out power supply before servicing! Keep all electrical component covers closed and securely fastened during mill operation. Wear appropriate Personal Protection Equipment.



DANGER! Ensure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with applicable electrical codes.



DANGER! Keep all electrical component covers closed and securely fastened during mill operation. Failure to do so will result in death or serious injury.



WARNING! Consider all electrical circuits energized and dangerous. Failure to do so could result in death or serious injury.



WARNING! Disconnect the negative battery terminal cable before performing any service to the 12-Volt electrical system. Failure to do so could result in death or serious injury.





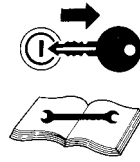
WARNING! Never assume or take the word of another person that the power is off; check it out and lock it out. Failure to do so could result in death or serious injury.



WARNING! Do not wear rings, watches, or other jewelry while working around an open electrical circuit. Failure to do so could result in death or serious injury.



WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (0) position and remove the key. Failure to do so could result in death or serious injury.



WARNING! Remove the blade before performing any service to the engine or sawmill. Failure to do so could result in death or serious injury.

KEEP SAFETY LABELS IN GOOD CONDITION



IMPORTANT! Always be sure that all safety decals are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact your local distributor, or call your Customer Service Representative to order more decals.



IMPORTANT! If replacing a component that has a safety decal affixed to it, ensure that the new component also has the safety decal affixed.

USE CAUTION WHEN WORKING WITH HEAVY LOGS



WARNING! Ensure log is clamped securely before sawing. Failure to do so could result in death or serious injury.

AUTOMATIC OPTIONAL BOARD RETURN SAFETY



DANGER! Keep all persons out of the path of returning boards. Failure to do so will result in death or serious injury.

1.3 Electrical Lockout Procedures

RULES FOR USING LOCKOUT PROCEDURE

The sawmill shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch or valve bearing a lock.

LOCKOUT PROCEDURES MUST BE USED DURING:

| | |
|------------------------------|--|
| Changing or adjusting blades | Electrical maintenance |
| Unjamming operations | Retrieval of tools/parts from work area |
| Cleaning | Activities where guards or electrical panel guard is open or removed |
| Mechanical repair | |

MAINTENANCE HAZARDS INCLUDE:

| | |
|---------------|-------------------------------------|
| Blade contact | Missiles (thrown blades/wood chips) |
| Pinch points | Electrical |
| Kickbacks | |

FAILURE TO LOCKOUT MAY RESULT IN:

| | |
|---------------|--------------------------|
| Cut | Serious injury and death |
| Crush | Amputation |
| Blindness | Burn |
| Puncture | Shock |
| Electrocution | |

TO CONTROL MAINTENANCE DANGERS:

- Lockout procedures must be followed (see OSHA regulation 1910.147).
- Never rely on machine stop control for maintenance safety (emergency stops, on/off buttons, interlocks).
- Do not reach into moving blades or feed systems. Allow all coasting parts to come to a complete stop.
- Electrical power supply and air supply must both be locked out.

- Where established lockout procedures cannot be used (electrical troubleshooting or mechanical dynamic troubleshooting), alternative effective protective techniques shall be employed which may require special skills and planning.
- Always follow safe operations practices in the workplace.

SAWMILL LOCKOUT PROCEDURE

Lockout procedures per OSHA regulation 1910.147, appendix A:

GENERAL

The following simple lockout procedure is provided to assist owner/operators in developing their procedures so they meet the requirements of OSHA regulation 1910.147. When the energy isolating devices are not lockable, tagout may be used, provided the owner/operator complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the owner/operator must provide full operator protection (see OSHA regulation 1910.147, paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented, and utilized.

PURPOSE

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before personnel perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

COMPLIANCE WITH THIS PROGRAM

All personnel are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized personnel are required to perform the lockout in accordance with this procedure. All operators, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

SEQUENCE OF LOCKOUT

1. Notify all affected personnel that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
2. The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
4. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).
5. Lock out the energy isolating device(s) with assigned individual lock(s).
6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.



CAUTION! Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

8. The machine or equipment is now locked out.

RESTORING EQUIPMENT TO SERVICE

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all personnel have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.

4. Remove the lockout devices and re-energize the machine or equipment.

NOTE: The removal of some forms of blocking may require re-energization of the machine before safe removal.

5. Notify affected personnel that the servicing or maintenance is completed and the machine or equipment is ready for use.

PROCEDURE INVOLVING MORE THAN ONE PERSON

In the preceding steps, if more than one individual is required to lock out the sawmill, **each shall place his own personal lock on the energy isolating devices.**

SECTION 2 SERVICING THE SAWMILL

Wood-Mizer is committed to providing you with the latest technology, best quality and strongest customer service available on the market today. We continually evaluate our customers' needs to ensure we're meeting current wood-processing demands. Your comments and suggestions are welcome.

2.1 If You Need To Order Parts

From the continental U.S., call our toll-free Parts hotline at **1-800-525-8100**. Please have the vehicle identification number and your customer number ready when you call. Wood-Mizer will accept these methods of payment:

- Visa, Mastercard, or Discover
- COD
- Prepayment
- Net 15 (with approved credit)

Be aware that shipping and handling charges may apply. Handling charges are based on size and quantity of order. In most cases, items will ship on the day they are ordered. Second Day and Next Day shipping are available at additional cost.

If your sawmill was purchased outside of the United States, contact your distributor for replacement parts.

2.2 If You Need Service

From the continental U.S., call us toll-free at **1-800-525-8100**. Ask to speak with a Customer Service Representative. Please have your vehicle identification number and your customer number ready when you call. The Service Representative can help you with questions about alignment of your mill, blade sharpening, or cutting a particular species of wood. He also can schedule you for a service call.

Office Hours: All times are Eastern Standard Time.

| Monday - Friday | Saturday | Sunday |
|------------------|-------------------|--------|
| 8 a.m. to 5 p.m. | 8 a.m. to 12 p.m. | Closed |

If your sawmill was purchased outside the United States, contact the distributor for service.

2 Servicing The Sawmill

Customer and Sawmill Identification

2.3 Customer and Sawmill Identification

Each Wood-Mizer sawmill is identified with a serial number, revision, and electrical information (see the figure below).

| | | | | | |
|--|---------------------|----|---------|---------------------|--------|
| MFG BY: WOOD-MIZER LLC, 8180 W. 10th St. Indianapolis, IN 46214-2400 317/271-1542 or 800/553-0182 | | | | | |
| SERIAL # | WM4000 0103002A1.00 | | | FLA OF LARGEST LOAD | 47 |
| FLA | 88.31 | IR | 100kA | SCCR | 5kA |
| <i>(Base unit only)</i> | | | | | |
| VOLTS | 460 | HZ | 60 | PH | 3 |
| ELECTRICAL DIAGRAM # | 2018 | | PATENTS | | |
| | | | | | S20038 |
| 300_0003C | | | | | |

WM4000 IDENTIFICATION PLATE

The serial number contains the year and month of manufacture and a sequence number. The revision number helps identify the exact design of the equipment. See the table for a description of the serial and revision numbers as shown in the example above.

| Model No. | Date Of Manufacture | | Machine No. | Revision |
|-----------|---------------------|-------|-------------|----------|
| | Year | Month | | |
| WM4000 | 01 | 03 | 002 | A1.00 |

SERIAL NUMBER DESCRIPTION

2.4 Specifications

Model: WM4000 Rev. A1.00+

Dimensions

Length (Bed Frame): 27'-3 1/4"
 Length (with Operator Station & 14" between): 33'-10"
 Length (with Operator Station and Hydraulic Unit): 36'-10"
 Width (Sawmill Only, Max Blade Guide Arm Position): 9'-5 3/4"
 Width (Sawmill w/Right-Hand Pantograph, Max Boom & Blade Guide
 Arm Position): 19'-6 1/2"
 Width (Sawmill w/Left-Hand Pantograph, Max Boom & Blade Guide
 Arm Position): 15'-11 1/4"
 Height (Ground To Mast): 9'-2 5/8"
 Height (Max Head Position):
 Height (Pantograph): 10'-11 1/2"
 Bed Height (Ground To Bed): 37 1/2"
 Blade Length: 196"

Weights:

Basic Unit: approx. 7000 lbs.
 Saw Head Only: 2000 lbs.
 Operator Station: 1665 lbs.
 A/C Option: 96 lbs.
 BX6 Bed Extension: 550 lbs.

Cutting Capacity:

Length: 21'-6"
 Length (with Board Removal): 20'-3"
 Length w/BX6: 27'-5"
 Length w/BX6 (with Board Removal): 26'-2"
 Length w/BX12: 33'-6"
 Length w/BX12 (with Board Removal): 32'-3"
 Diameter: 40"
 Weight: approx. 4400 lbs
 Max. Clamp Width (from stop block): 34"
 Min. Clamp Width (from stop block): 1"
 Max. Throat Width (guide to guide): 34"
 Max. Cant Width (outer guide to stop block): 31"
 Max. Cutting Depth @ 28" wide: 14"
 Min. Cut Height: 1"
 Max. Cut Height: 36"
 Throat Height: 15 1/4"

Blade Motor:

Horsepower Rating: 30
 Blade Braking: approx. 2.6 sec

Rates:

Normal Power Usage: 66 Amps, 35.90 kVa or 42.60 kWh
 Max. Forward (Not Cutting): 150 ft./min.
 Reverse: 300 ft./min.
 Saw Head Up (24"): 4.55 sec.
 Saw Head Down (24"): 4.55 sec.
 Clamp (full travel): 0.9 sec
 Log turner (turn 4200 lb. log 90°): approx. 2.3 sec.

Options:

Debarker: 074060
 Conveyor: CB6-3.2
 Rear Power Taper Set Roller: PTSR-A-4000
 Front and Rear Power Taper Set Roller: PTSR-FRA-4000
 A/C for Cab: A/C1

Electrical Requirements:

Electrical Service: 460V 3-Phase 100A
 Fused Disconnect: 100A
 Time Delay Fuse: 100A
 Cab Option (No A/C): 110V 1-Phase 15A Service
 Cab Option (w A/C): 110V 1-Phase 30A Service
 Suggested Wire Size (50' max.): 2AWG

Air Requirements:

Shop Air Supply: 110 psi@16.5 cfm

2.5 Warranty

Wood-Mizer® LLC
Limited Product Warranty

Wood-Mizer®

Wood-Mizer LLC (“Warrantor”), an Indiana corporation with its principal place of business at 8180 West Tenth Street, Indianapolis, IN 46214-2400 USA, warrants to the purchaser (“Purchaser”) that for the time periods specifically stated herein and subject to the terms, conditions and limitations stated herein, the equipment manufactured by the Warrantor will be free from defects in material and workmanship attributable to Warrantor so long as, during the warranty periods stated herein, the equipment is installed, operated and maintained in accordance with the instructions provided by Warrantor.

| PRODUCT | MODEL CLASS | LENGTH OF WARRANTY | | EFFECTIVE DATE |
|-------------------------------------|-------------------------------------|---|-----------------------|---|
| | | USA & CANADA | NON USA & CANADA | |
| Portable Sawmills, Resaws, Edgers | LT, LX, HR, EG | Two years | One year | Date of purchase |
| Portable Sawmills with Chassis | LT28, LT35, LT40, LT50, LT70, LX450 | Two years, excluding the chassis, which chassis shall have a five year warranty | One year | |
| Industrial Sawmills, Resaws, Edgers | WM, HR, EG, TVS, SVS, FS | One year | One year | Date of purchase or date of installation / training (if applicable), whichever occurs first, not to exceed 6 months from date of purchase |
| TITAN Industrial | WB, TV, HR, EG, EA, MR | One year | One year | |
| Material Handling | TWC, IC, TD, LD, GC, CR, CB, CC | One year | One year | |
| Blade Maintenance Equipment | BMS, BMT, BMST | One year | One year | Date of purchase |
| Options and Accessories | Various | One year ¹ | One year ¹ | |
| Moulders, Kilns | MP, SD, KD | One year | One year | |
| Pallet Dismantler | PD | One year | One year | |
| Log Splitter | FS | One year | One year | |
| Replacement Parts | Various | 90 days | 90 days | |

¹ Warranty on Options will match the warranty on the primary equipment when purchased on same invoice.

EXCLUSIONS FROM 90 DAY, LIMITED ONE YEAR AND TWO YEAR WARRANTY

Warrantor shall have **no** responsibility under this warranty for any wear components, including, but not limited to: belts, blade guides, blades, electric motor brushes, drum switches, filters, fuses, hoses, bearings (excluding cylindrical drive bearings), bushings, cable carriers, and spark plugs. All wear components are furnished **“as is”**, without any warranty from Warrantor. This limited warranty does not cover any defects caused by

misuse, negligence, alterations, damage due to overload, abnormal conditions, excessive operation, accident, or lack of performance of normal maintenance services.

Several components which are used in the manufacture of the equipment but not manufactured by Warrantor, such as cant hooks, power plants, laser sights, batteries, tires, and trailer axles have warranties provided by the original equipment manufacturer (written copies available upon request). Warrantor does not separately warrant such items. Components or equipment manufactured by third parties are not covered by this warranty. Warrantor, however, will provide reasonable assistance to the Purchaser to make claims against any warranties applicable to such component parts as provided by such original equipment manufacturers. Components or equipment manufactured by third parties are not covered by this Warranty.

FIVE YEAR LIMITED CHASSIS WARRANTY

The limited five year chassis warranty, described above, DOES NOT extend to (a) any damage stemming from accident, improper towing, overload, abuse, misuse, abnormal conditions, negligence, excessive operation, or lack of maintenance, (b) rust caused by exposure to corrosive atmospheric conditions, or (c) the sawmill head, carriage, axle, brakes, or any hydraulic or electrical components attached to the chassis.

WARRANTOR'S OBLIGATIONS AS TO DEFECTS

In the event that the equipment fails to perform due to defective materials or workmanship attributable to Warrantor under normal use and service within the established warranty period, Purchaser's sole and exclusive remedy and Warrantor's sole liability shall be to replace or repair, in Warrantor's sole and subjective discretion, any defective part at Warrantor's principal place of business without cost to the Purchaser if such defect exists. The determination of whether a product is defective shall be made by Warrantor in Warrantor's sole and subjective discretion. The Purchaser must notify Warrantor prior to shipping any defective part. Warrantor, at its sole discretion, may cover expenses incurred in shipping the defective part to Warrantor for evaluation; provided, however, that Warrantor will not be responsible for labor, travel time, mileage, removal, installation, and/or incidental or consequential damages. However, any part in excess of 140 pounds must be returned by the Purchaser to the Warrantor's nearest authorized facility at the Purchaser's expense, if return is requested by Warrantor. Warrantor shall have a reasonable time within which to repair or replace the defective part. If Warrantor determines that the product is not defective under the terms of this warranty in Warrantor's sole and subjective discretion, then Purchaser shall be responsible for any expenses incurred by Warrantor in returning the equipment to the Purchaser.

LIMITATIONS AND DISCLAIMERS OF OTHER WARRANTIES

EXCEPT FOR THE EXPRESS WARRANTY PROVISIONS STATED ABOVE, WARRANTOR DISCLAIMS ALL WARRANTIES, EXPRESS AND/OR IMPLIED, INCLUDING AND WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT AND TITLE. No representation or other affirmation of fact by representatives of Warrantor, whether verbal or in writing, including photographs, brochures, samples, models, or other sales aids, shall constitute a warranty, or any other basis, for any legal action against Warrantor. There are no other representations, promises, agreements, covenants, warranties, guarantees, stipulations or conditions, expressed or implied, by Warrantor, except as expressly set forth herein. THE PURCHASER AND ANY INTENDED USER OR BENEFICIARY OF THIS EQUIPMENT, SHALL NOT BE ENTITLED TO RECOVER ANY INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OR LOSSES, INCLUDING BUT NOT LIMITED TO, DAMAGES OF LOST PRODUCTION, LOST REVENUE, LOST PRODUCT, LOST PROFITS, LOST BUSINESS, LOSS OF USE, LOSS OF GOODWILL, OR BUSINESS INTERRUPTION, FROM WARRANTOR FOR ANY REASON WHATSOEVER INCLUDING, WITHOUT LIMITATION, WARRANTY OR DEFECT IN THE PRODUCT REGARDLESS OF THE SOLE, JOINT, AND/OR CONCURRENT NEGLIGENCE, BREACH OF CONTRACT, BREACH OF WARRANTY, STRICT LIABILITY IN TORT OR STATUTORY CLAIMS, OR OTHER LEGAL FAULT, OR RESPONSIBILITY OF EITHER WARRANTOR OR PURCHASER OR ITS EMPLOYEES OR AGENTS. Warrantor does not warrant that its equipment meets or complies with the requirements of any particular safety code or governmental requirements.

Defective items, replaced under the terms of this warranty, become the property of Warrantor.

DESIGN CHANGES

Warrantor reserves the right to change the design of its products from time to time without notice and without obligation to make corresponding changes in or to its products previously manufactured.

RIGHTS OF PURCHASERS

The validity and effect of this limited warranty, as well as its interpretation, operation and effect, shall be determined exclusively by the principles of law and equity of the State of Indiana, USA. This limited warranty gives Purchaser specific legal rights. Purchaser may also have other rights, which may vary from state to state. Some states may not allow limitations as to the duration of implied warranties or to the exclusion or limitation of incidental or consequential damages, therefore some of the limitations and exclusions detailed set forth above may not apply. In the event that any one or more of the provisions of this warranty shall be or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this warranty shall not be affected thereby.

INTERPRETATIONS

This Warranty constitutes the entire warranty agreement between Warrantor and Purchaser and supersedes any prior understandings or agreements pertaining to the same subject matter. This warranty cannot be amended, except in writing, which refers to this warranty that is signed by both Warrantor and Purchaser.

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SECTION 3 SETUP

3.1 Site Preparation



IMPORTANT! This information is provided so that you may have your site prepared for installation of your electric sawmill. In order to properly install your sawmill, you need to:

1. **Prepare a firm, level area where the sawmill can be anchored.** There should be enough room around the sawmill for operators, sawdust removal, log loading and board removal. A cement pad with a minimum thickness of 6" and rebar spacing of 24" is recommended. The cement pad should be rated to support 6350 lbs./sq.ft. at each sawmill foot position. 1/2" diameter anchor should be used to secure the equipment to the slab.

The design of your site layout should be determined at the time of purchase. Wood-Mizer can provide detailed plans based on the requirements of your operation and the equipment you plan to install.

The sawmill is designed for indoor operation and should be fully protected from outdoor elements.

2. **Have a qualified electrician install the power supply before receipt of your sawmill.** The power supply must meet the enclosed specifications concerning wire size, fused disconnect, and voltage. The electrical installation must also meet local codes.

See Table 3-1. Install a fused disconnect switch within sight of the machine. Typical minimum switch, fuse, and wire sizes are shown. All electrical installation must meet local electrical codes. Fuses are sized for short-circuit protection only. The motor is configured with internal thermostats for overload protection. If an overload condition does occur, the thermostats shut the motor down and the motor cannot be restarted until it cools to a safe operating temperature.

| 3-Phase Volts | Fuse Disconnect | Time Delay Fuse | Suggested Wire Size |
|------------------|--------------------|-----------------------|------------------------|
| 460 VAC | 100 Amps | 70 Amps | 4AWG up to 50' |

TABLE 3-1

3. **Have a qualified electrician present when the sawmill is to be installed.** All relevant motor specifications and wiring information is provided. When scheduling an electrician for the day of installation, please confirm that they have enough of the proper size cable (wiring), as shown above. Many electricians may not stock this cable, which could seriously delay installation and training.

See **Table 3-2**. This table lists the 30 horsepower motor specifications for your reference.

| 30hp Electric Motor Specifications | |
|---|------------|
| Horsepower | 30 |
| RPM | 1765 |
| Volts | 460 |
| Amps | 39 |
| SF | 125 |
| SF Amps | 49 |
| NOM EFF | 92.4 |
| Frame | 286T |
| Design | B & C |
| AMB | 40° C |
| INS | F |
| PH | 3 |
| ENCL | TEFC |
| Code | G |
| Duty | Continuous |

TABLE 3-2

3.2 Operator Station Installation

The operator station is equipped with forklift pockets. Use a forklift rated for at least 8,000 lbs. Insert the forks into the pockets and secure with the pocket bolts.

Place the operator station in position. Anchoring the operator station is optional. If the operator station is to be anchored, it is recommended it be anchored after placement of the sawmill. This will allow for repositioning of the operator station relative to the sawmill for your desired operator position. Use 1/2" anchor bolts and nuts at each of the four foot locations to anchor the operator station to the floor if desired.

Install the stair/rail weldment to the station deck using the provided 3/8-16 x 4" hex head bolts, flat washers and hex nylon lock nuts.

See Figure 3-1.

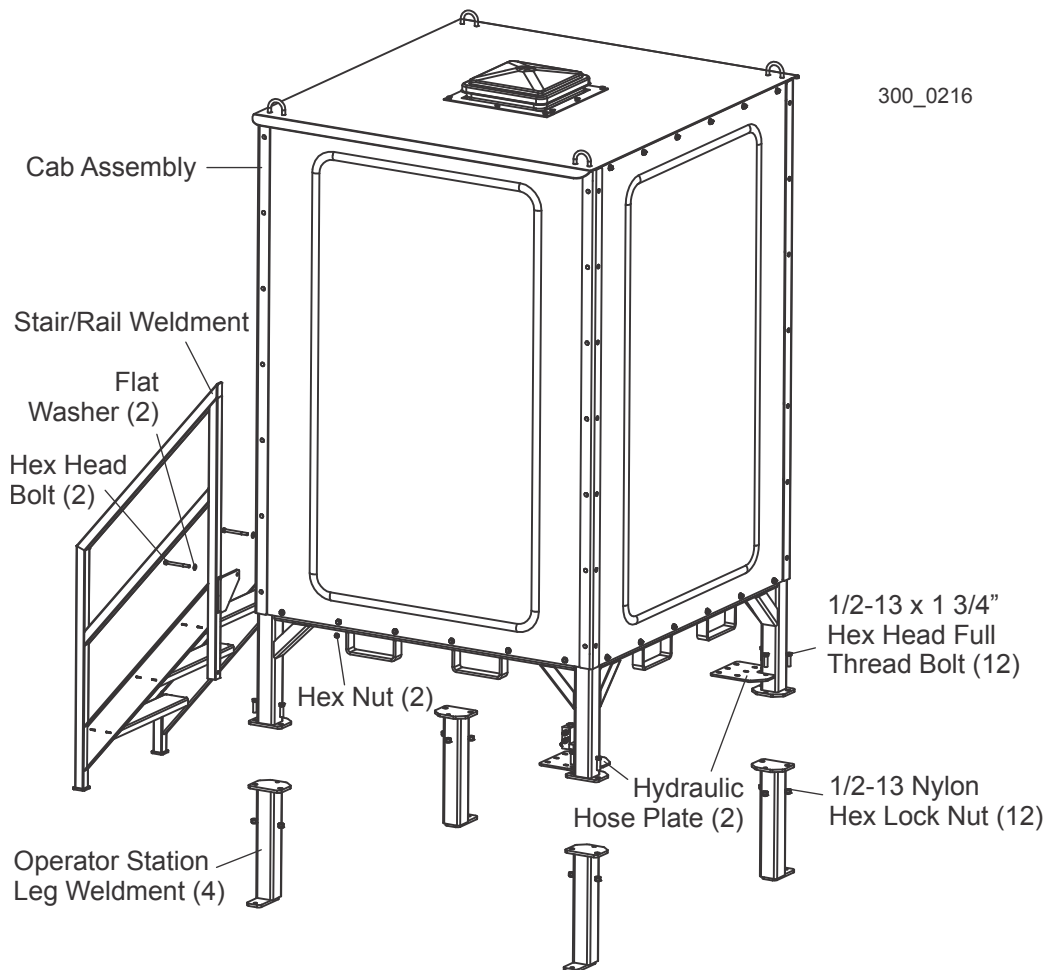


FIG. 3-1

3.3 Sawmill Installation

Position the sawmill approximately 12" from the operator station (if sawmill is equipped with a bed extension option, place the sawmill 6'-10" (BX6) from the operator station). Check the position of the operator station in relation to the sawmill. Sit in the operator seat and check the view of the log clamp and side supports. The operator station may be moved in the horizontal direction slightly to obtain the desired view of the sawmill.

See Figure 3-2.

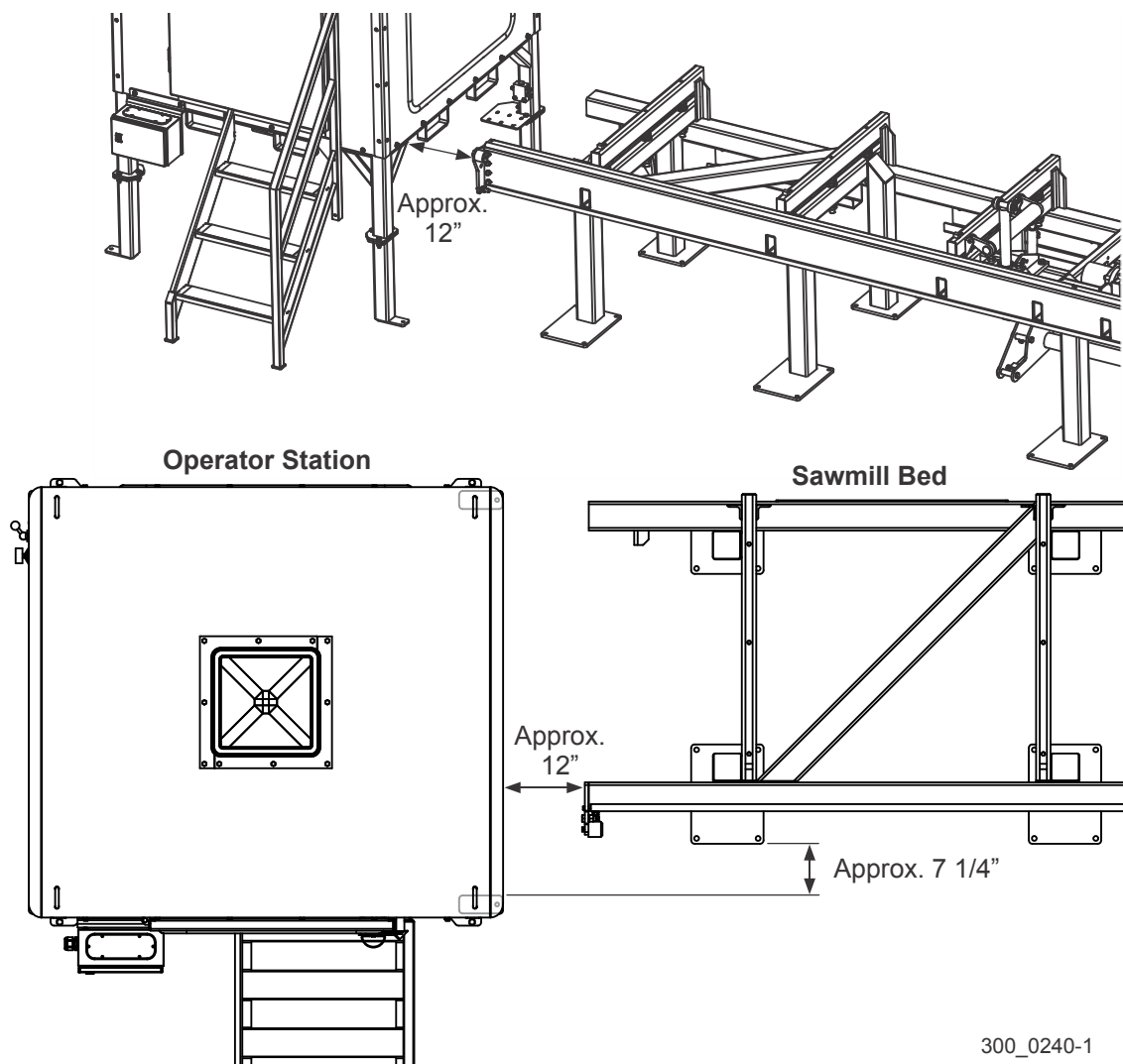


FIG. 3-2 WM4000

Anchor the sawmill to the floor with 1/2" anchor bolts and nuts. At some foot locations, you may not be able to drill all four anchor bolt holes. Use at least two holes at each foot location.

See Figure 3-3. The overall dimensions of the WM4000 sawmill bed with the hydraulic log clamp are shown below.

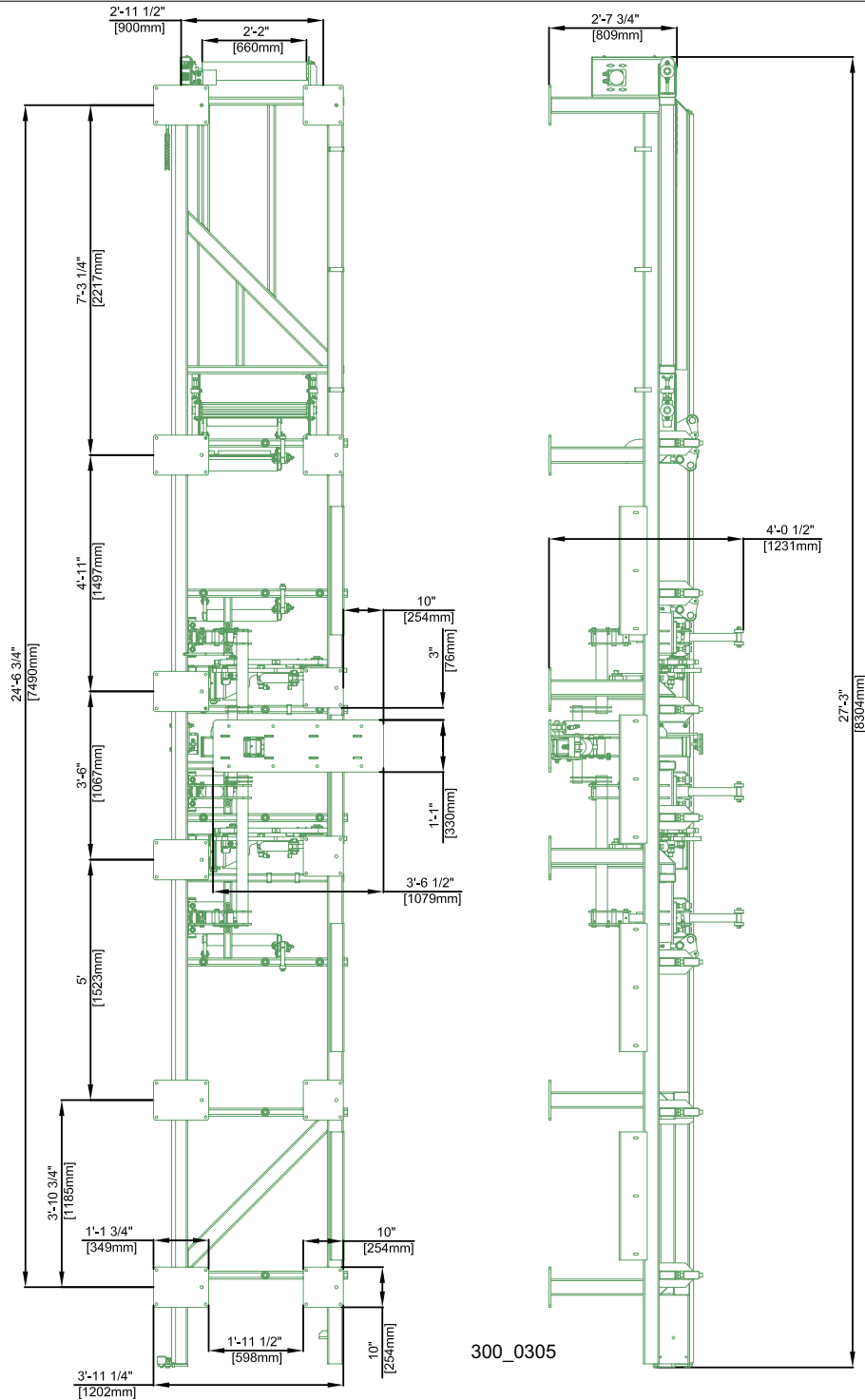


FIG. 3-3 WM4000

3 Setup

Sawmill Installation

Remove the two fork tubes from the top of the sawmill bed. Remove the saw head rest located under the outer side of the saw head and the two rail rod clamp assemblies from the track rails located on both sides of the saw head.

See Figure 3-4.

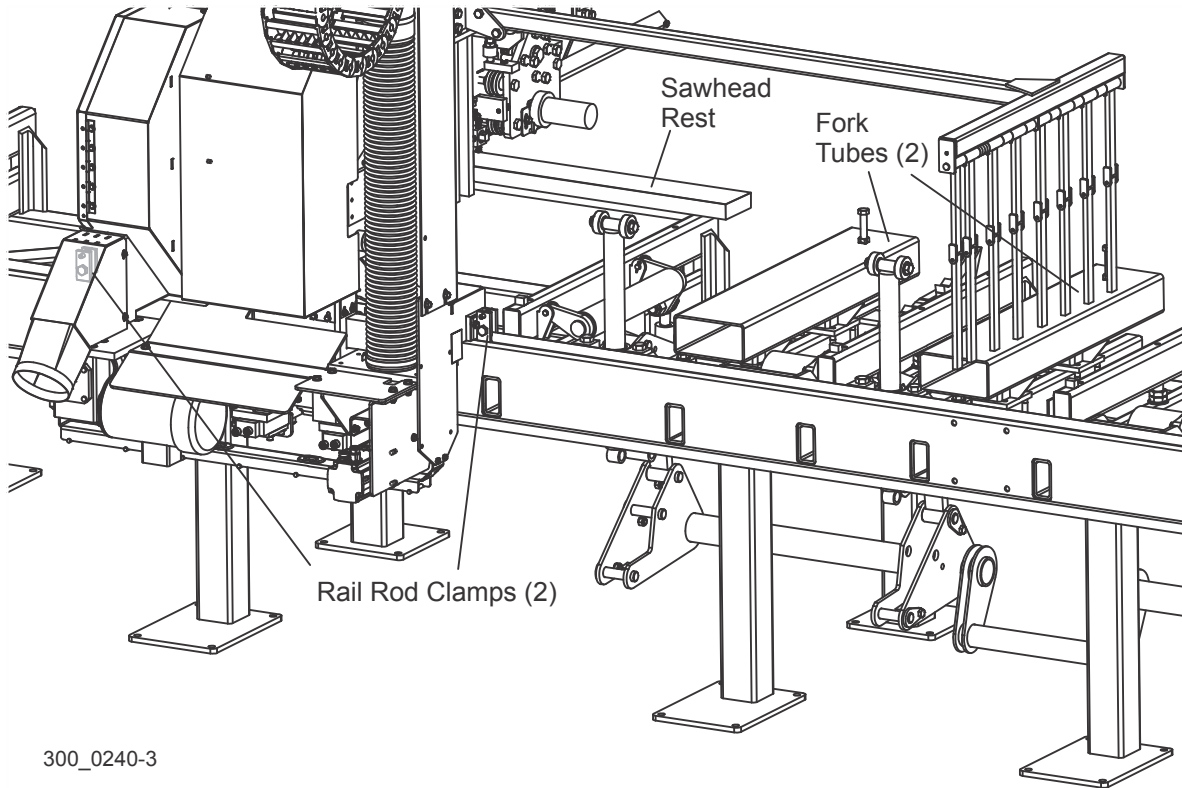


FIG. 3-4 WM4000

3.4 Bed Extension Installation (Optional)

3.4.1 Extension Frame Installation (BX6 & BX12)

1. Disconnect the feed chain from the feed stop bracket at the front end of the sawmill frame. Break apart the master link to disconnect the chain from the bolt.

See Figure 3-5.

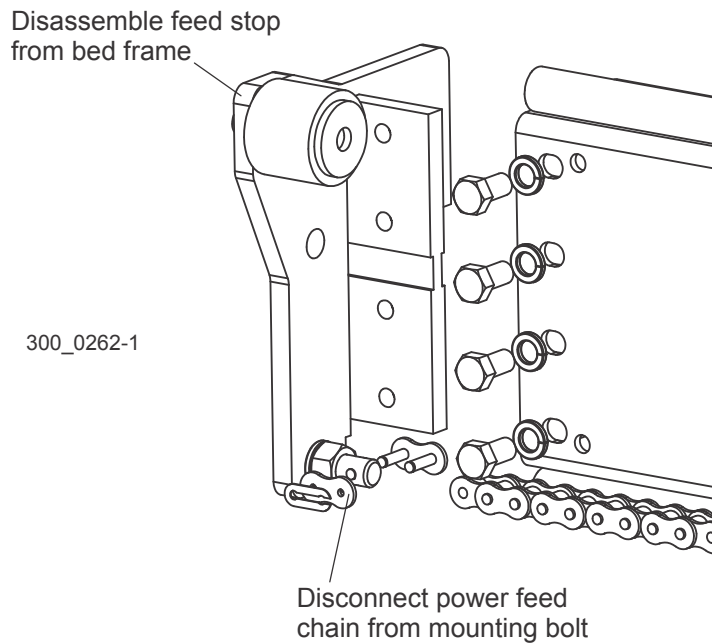


FIG. 3-5

2. Remove the bolts and hardware holding the feed stop bracket to the sawmill frame. Remove the entire assembly from the sawmill frame. Use the same bolts and hardware to remount the feed stop bracket assembly to the end of the extension frame.

3

Setup

Extension Frame Installation (BX6 & BX12)

See Figure 3-6.

3. Remove the four mounting bolts from the connecting assembly. Install the adjustment bolt and jam nut to the connecting assembly and into the connection plate. Turn the adjusting bolt counterclockwise until it bottoms against the jam nut to extend the assembly as far as possible. Install the assembly to the bed extension frame tube and secure with two of the mounting bolts, flat washers and nylon lock nuts. Insert a connecting pin into the top and bottom rails of the extension.

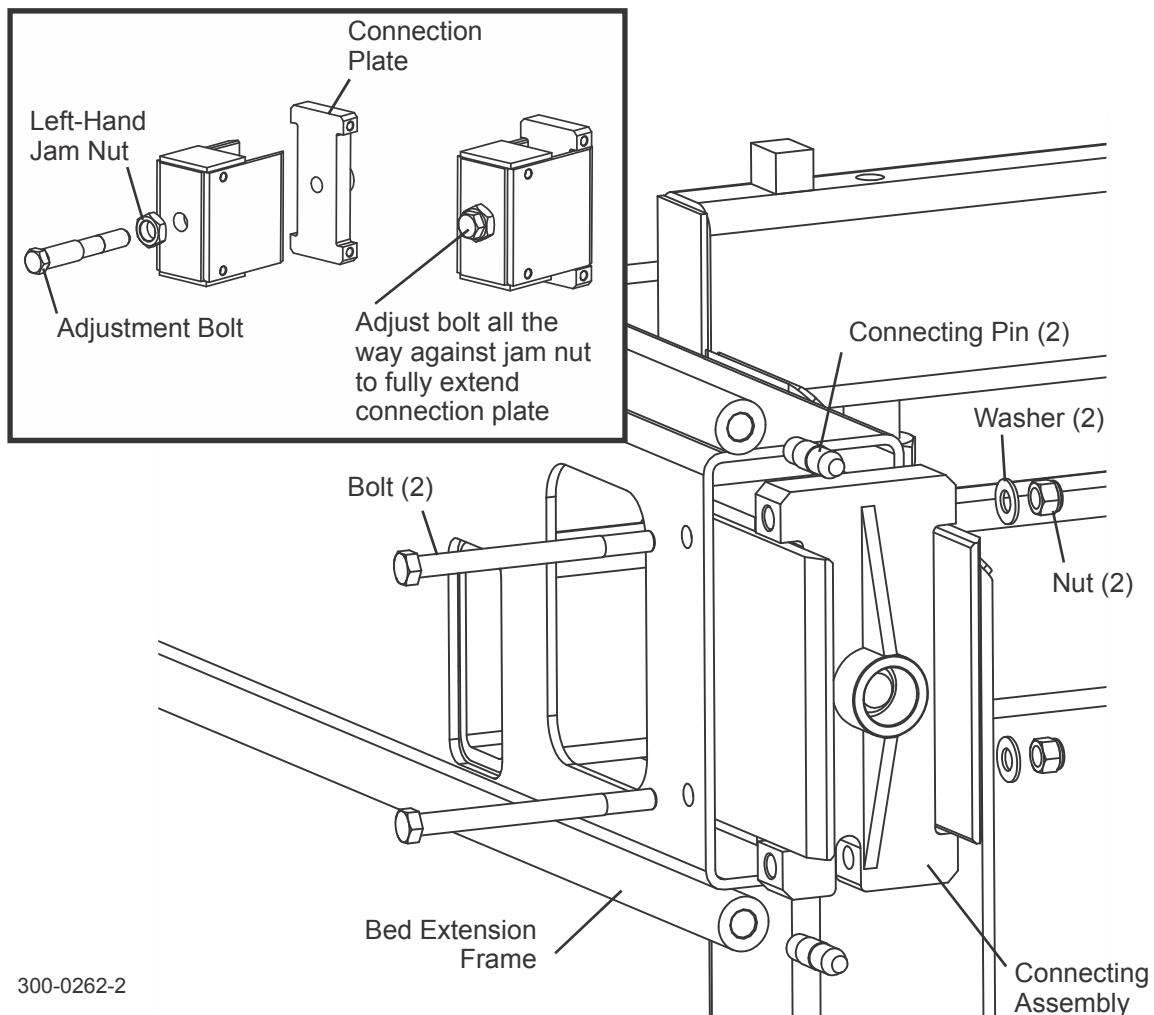


FIG. 3-6

See Figure 3-7.

- Slide the extension frame and sawmill frame together and align the connecting pins to the holes in the sawmill track rails. Shim under the feet of the extension and/or sawmill so the pins align with the holes if necessary. Push the frames together until the mounting holes in the connecting assembly align with the holes in the sawmill frame tube. Secure with the remaining two mounting bolts, flat washers and lock nuts.

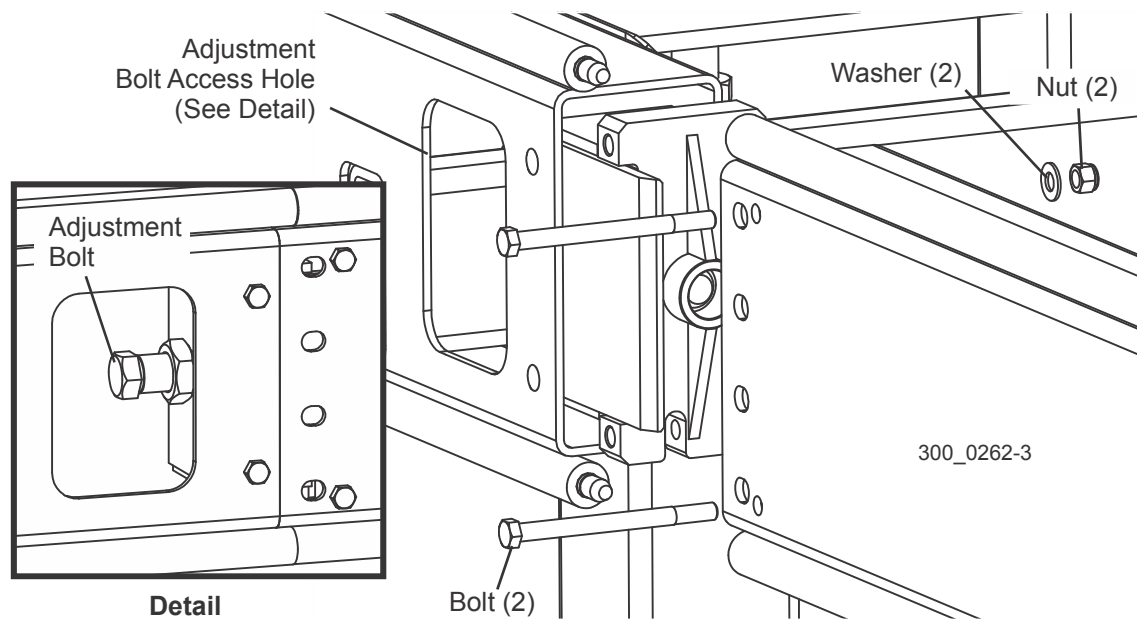


FIG. 3-7

Turn the adjustment bolt clockwise to draw the extension and sawmill frames together until the track rails are touching snugly. Tighten the adjustment bolt jam nut.

3

Setup

Extension Frame Installation (BX6 & BX12)

See Figure 3-8.

5. Install the threaded rod to the connecting plates located on the bed extension and sawmill bed frames. Use four 3/4-16 hex nuts and 3/4" flat washers to secure the threaded rod to the plates.
6. Turn the hex nuts clockwise to draw the extension and sawmill frames together. Place the appropriate combination of shims between the bed extension and sawmill bed frames to fill any gap between the two.

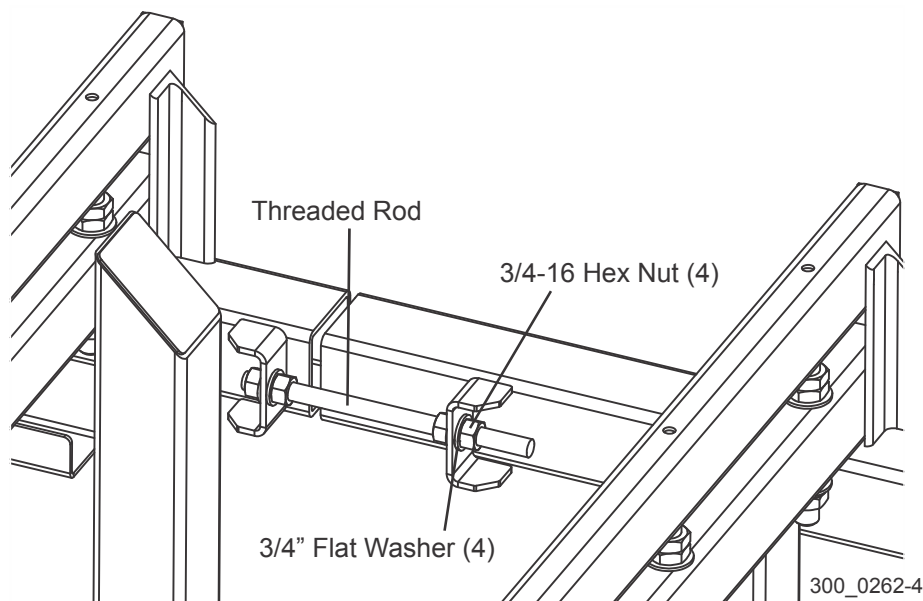


FIG. 3-8

7. Attach the supplied length(s) of feed chain to the existing feed chain with the master link(s) provided. Connect the feed chain to the feed stop bracket at the end of the extension frame. Adjust the feed chain tensioner so that the chain is positioned 12 1/2" - 13 1/2" from the top track rail at its lowest point. Make sure the feed chain is not twisted or kinked.
8. Place two equal height objects on top of the track rail (wrench sockets work well). Pull a string tight over the objects and clamp so there is no sag in the string. Measure from the string to the track at one end, the middle, and the other end of the track. The track should be 1/16 to 1/8" (1.5 to 3.0 mm) higher in the middle than at the ends. This will compensate for any sag that occurs as the cutting head reaches the middle of the track. If more bow in the middle is needed, shim the middle track-mounted legs. If the middle is bowed up too much, shim the track-mounted legs at each end of the frame. Shim under any feet that do not touch the ground.

BX6 Only: [See Section 4.4.6](#) to finish the bed extension setup in the control box.

3.4.2 Power Taper Set Roller Installation (BX12 Only)

1. Install the power taper set roller supplied with the bed extension to the first bed rail on the WM4000 sawmill bed as shown below. Use the supplied hex head bolts and nylon hex lock nuts to secure the roller to the sawmill bed rail.

See Figure 3-9.

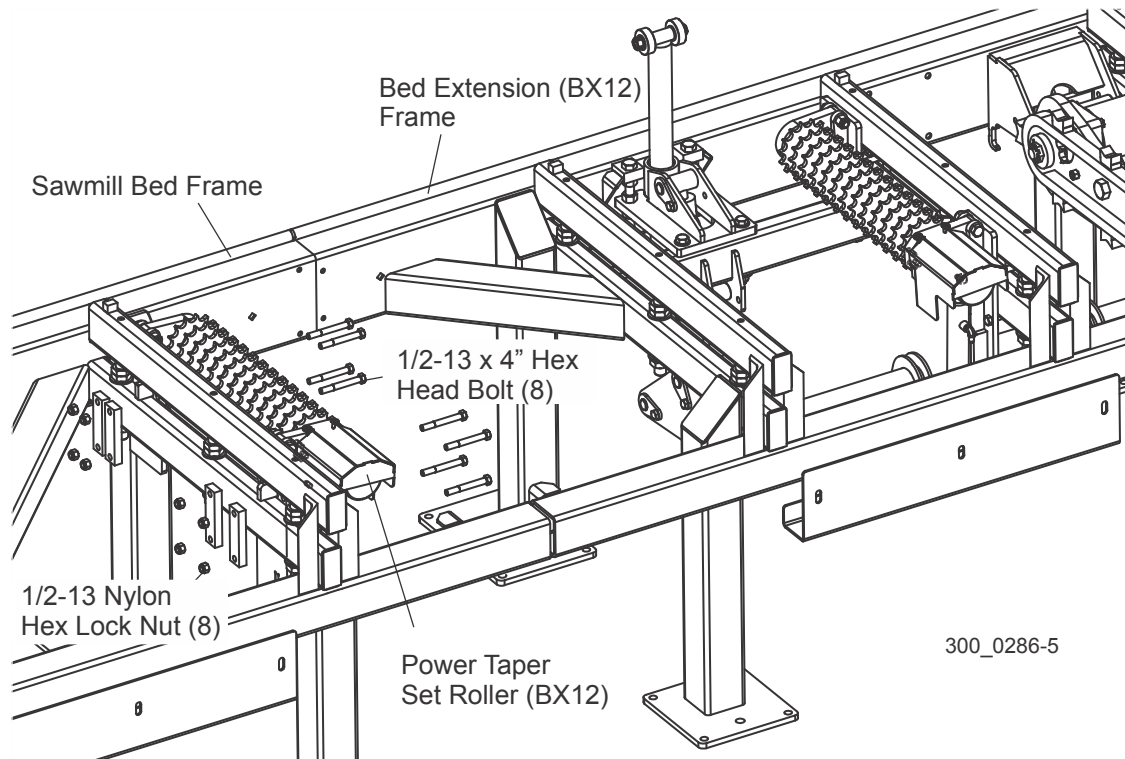


FIG. 3-9

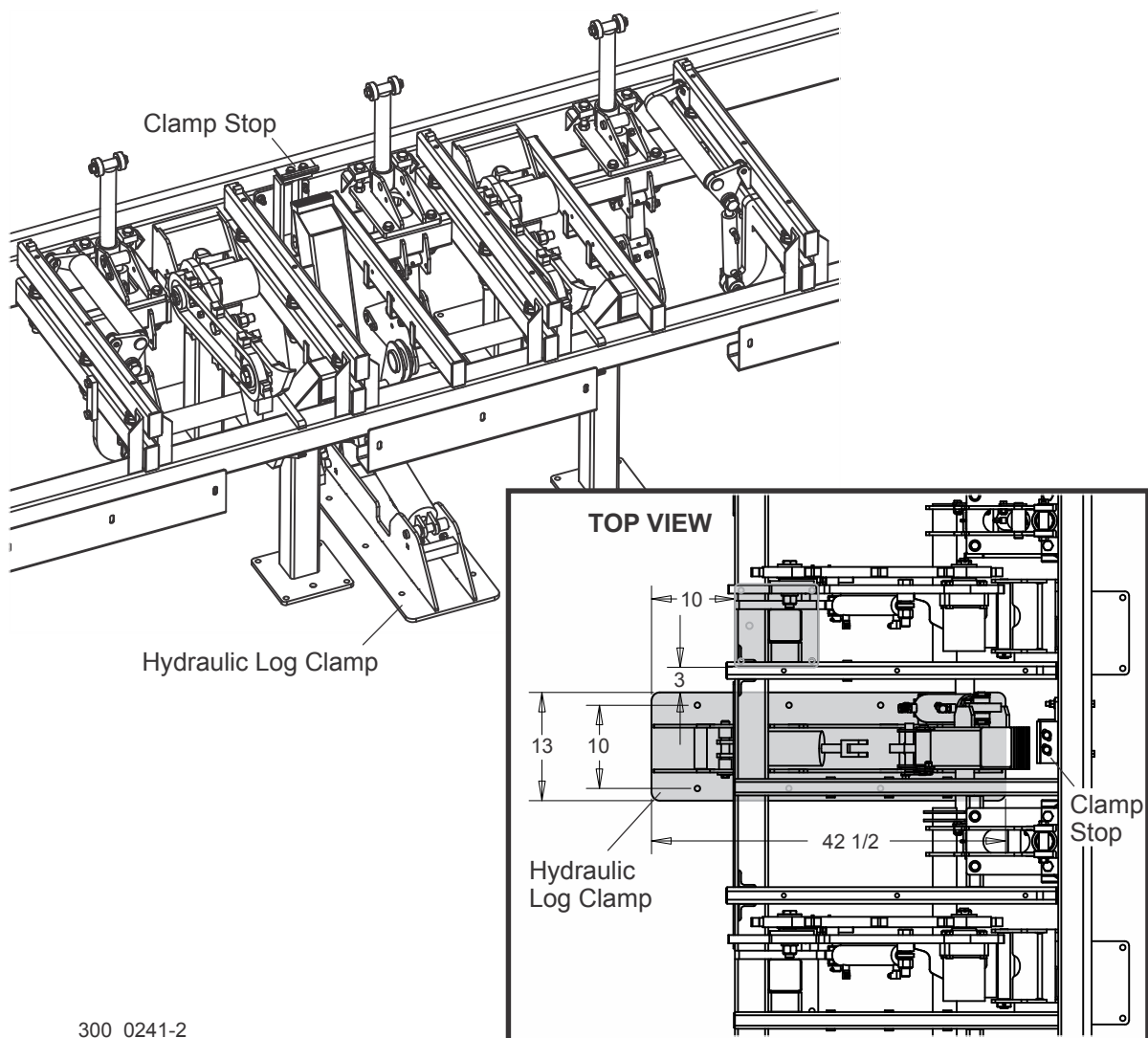
[See Section 3.9.1](#) for the BX12 bed extension hydraulic installation.

3.5 Hydraulic Log Clamp Installation

3.5.1 Hydraulic Log Clamp Installation (Sawmill Bed)

Install the hydraulic log clamp to the sawmill bed as shown below.

See Figure 3-10.



300_0241-2

FIG. 3-10

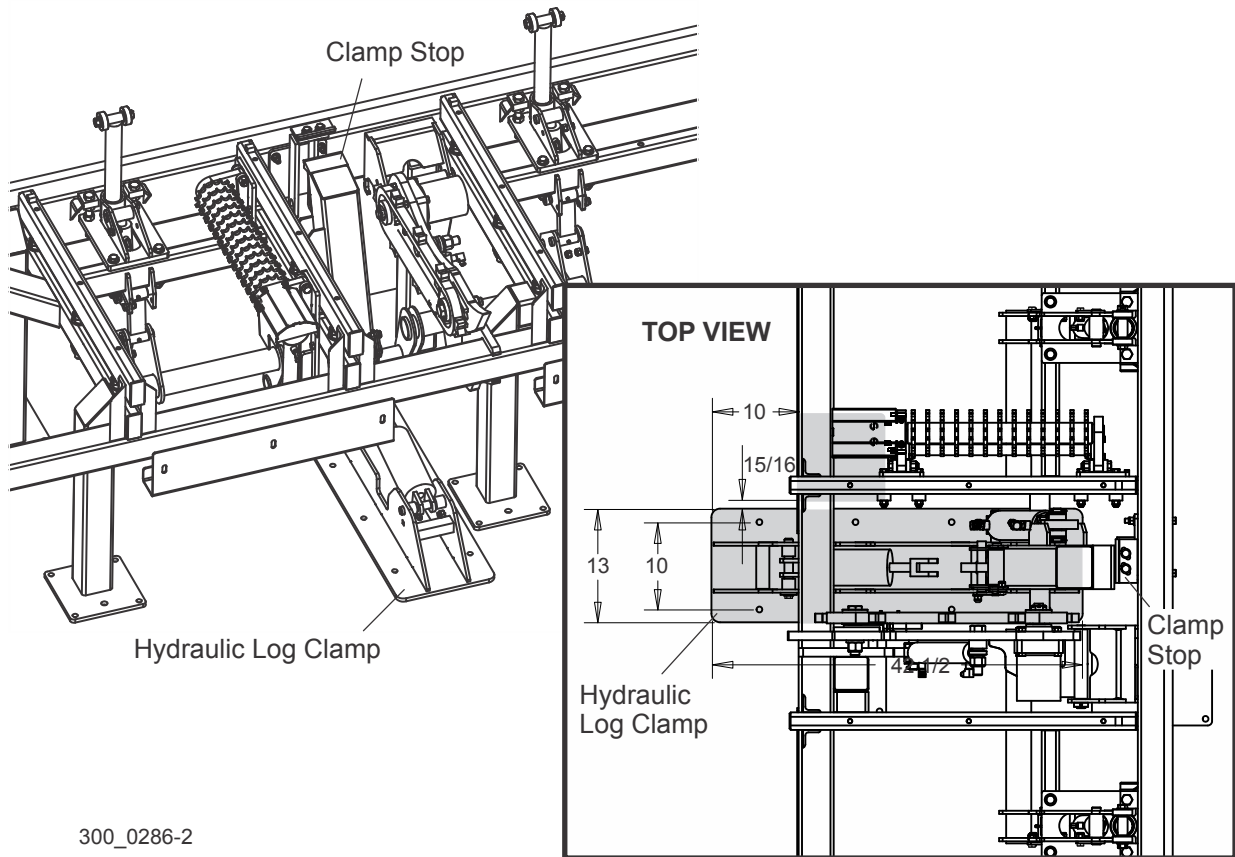
Anchor the hydraulic log clamp to the floor with 1/2" anchor bolts and nuts.

[See Section 3.9](#) for the hydraulic log clamp hose connections.

3.5.2 Hydraulic Log Clamp Installation (Optional BX12 Bed Extension Only)

Install the optional bed extension hydraulic log clamp to the BX12 bed extension frame as shown below.

See Figure 3-11.



300_0286-2

FIG. 3-11

Anchor the hydraulic log clamp to the floor with 1/2" anchor bolts and nuts.

[See Section 8.1.4](#) for BX12 bed extension hydraulic schematic.

3.6 Pantograph Cable Boom

IMPORTANT! Make sure there is enough room around the sawmill for the pantograph movement after the pantograph assembly installation is complete.

See **Figure 3-12**. Place the pantograph in position. For WM4000 sawmills without the bed extension option, select one of the right-hand or left-hand alternate positions for the pantograph main tube installation. (**NOTE:** The assembled pantograph is shown below.)

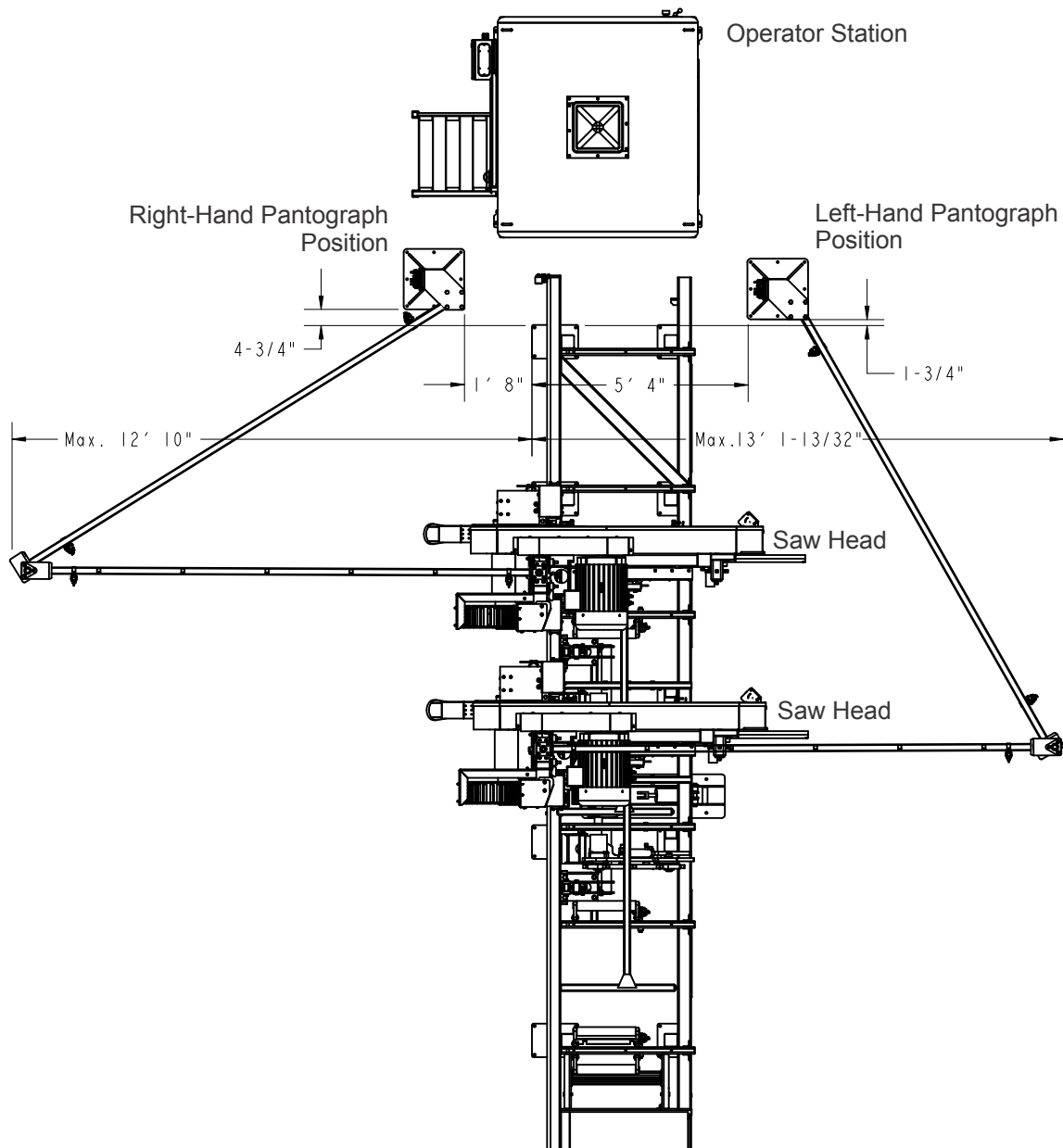


FIG. 3-12 WM4000 WITHOUT BED EXTENSION

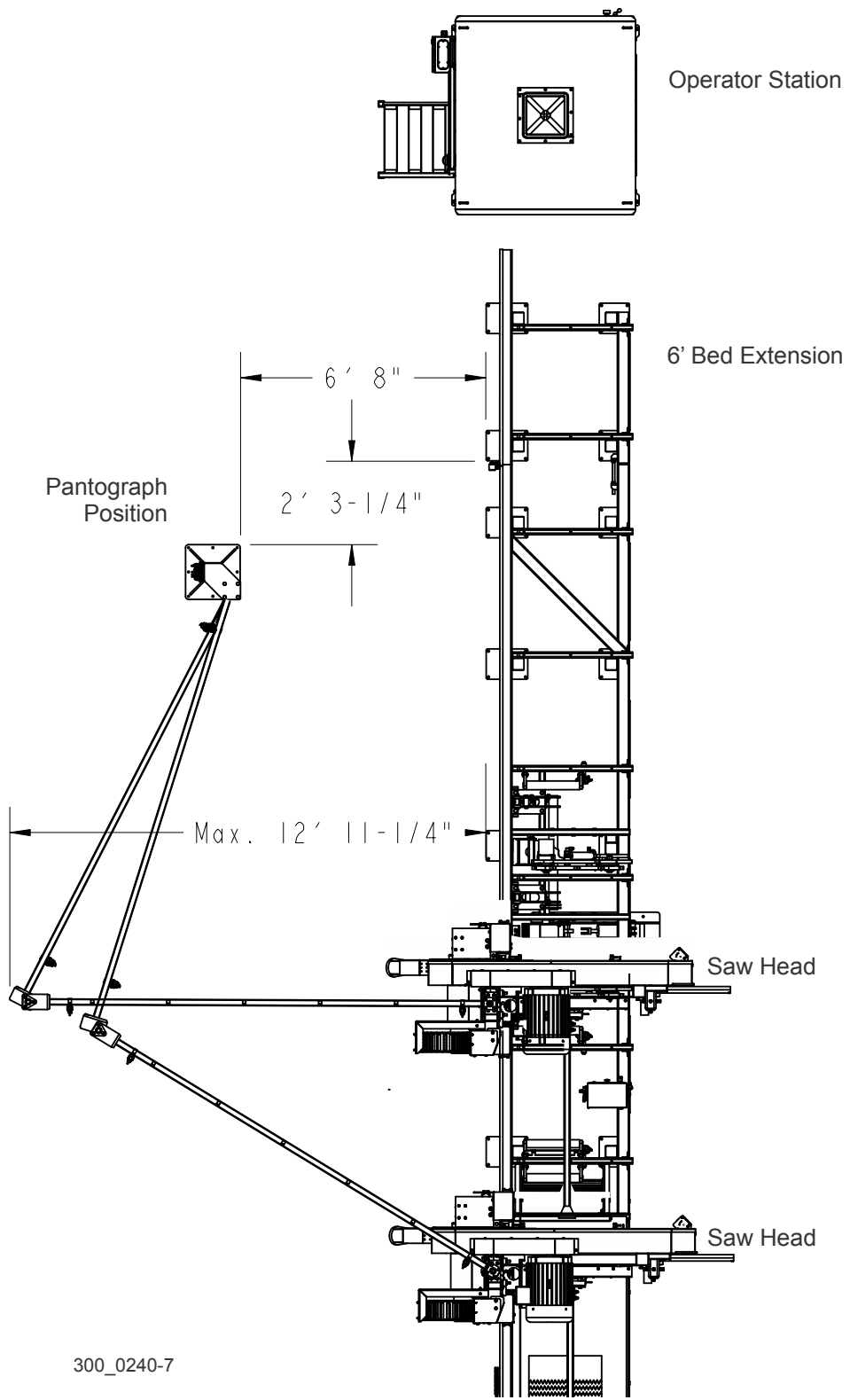
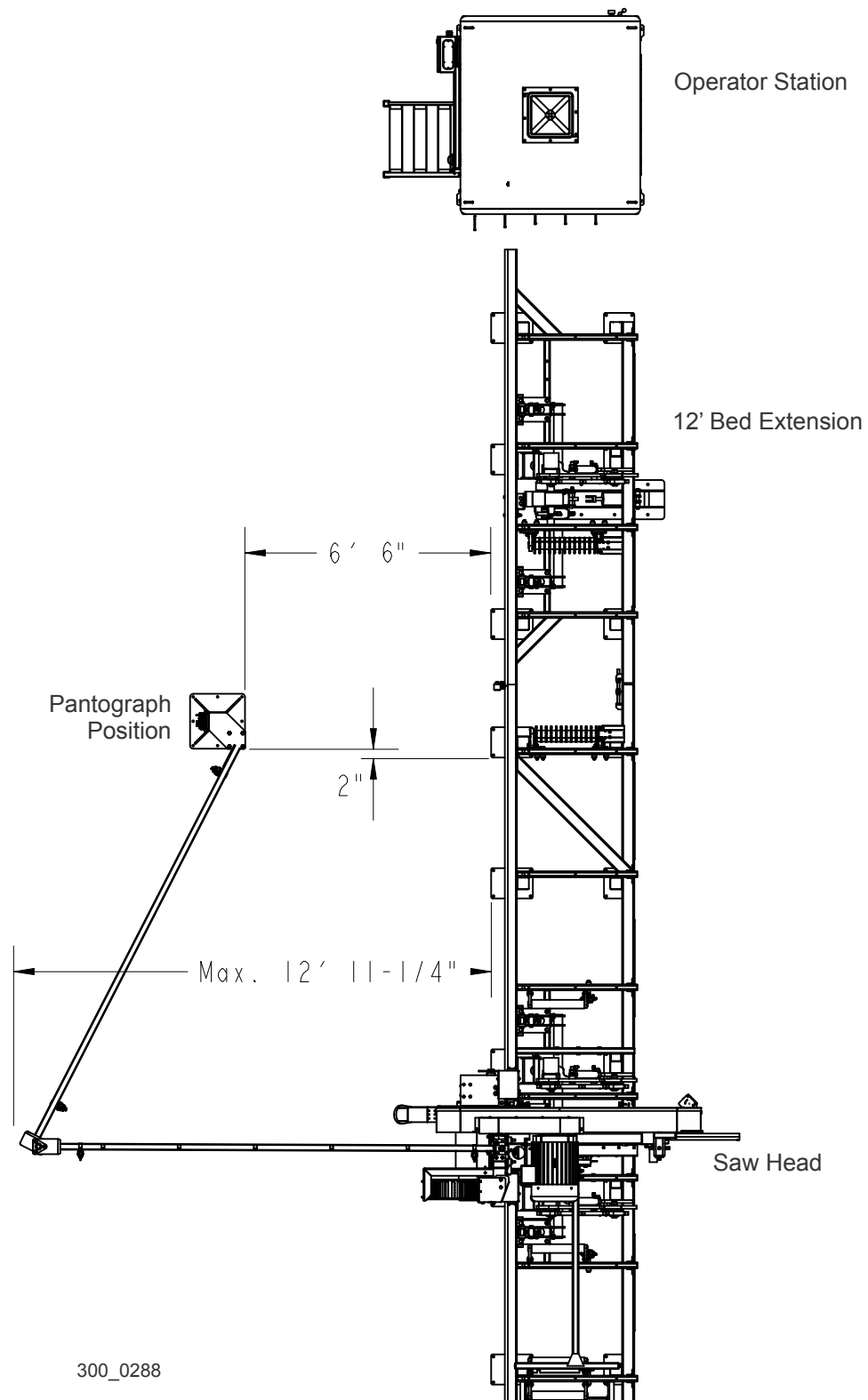


FIG. 3-12 WM4000 WITH 6' BED EXTENSION

3 Setup
Pantograph Cable Boom



300_0288

FIG. 3-12 WM4000 WITH 12' BED EXTENSION

2. Secure the pantograph main tube weldment to the ground with eight anchor bolts. A cement pad with 1/2" diameter anchor bolts is recommended.
3. Install the pantograph frame weldment to the main tube. Install the two provided flange bearings to the upper and lower pivot ends on the frame weldment. Use the provided 5/8-11 x 2 1/2" hex head bolts and 5/8-11 nylon lock nuts to secure the frame weldment to the main tube.

See Figure 3-13.

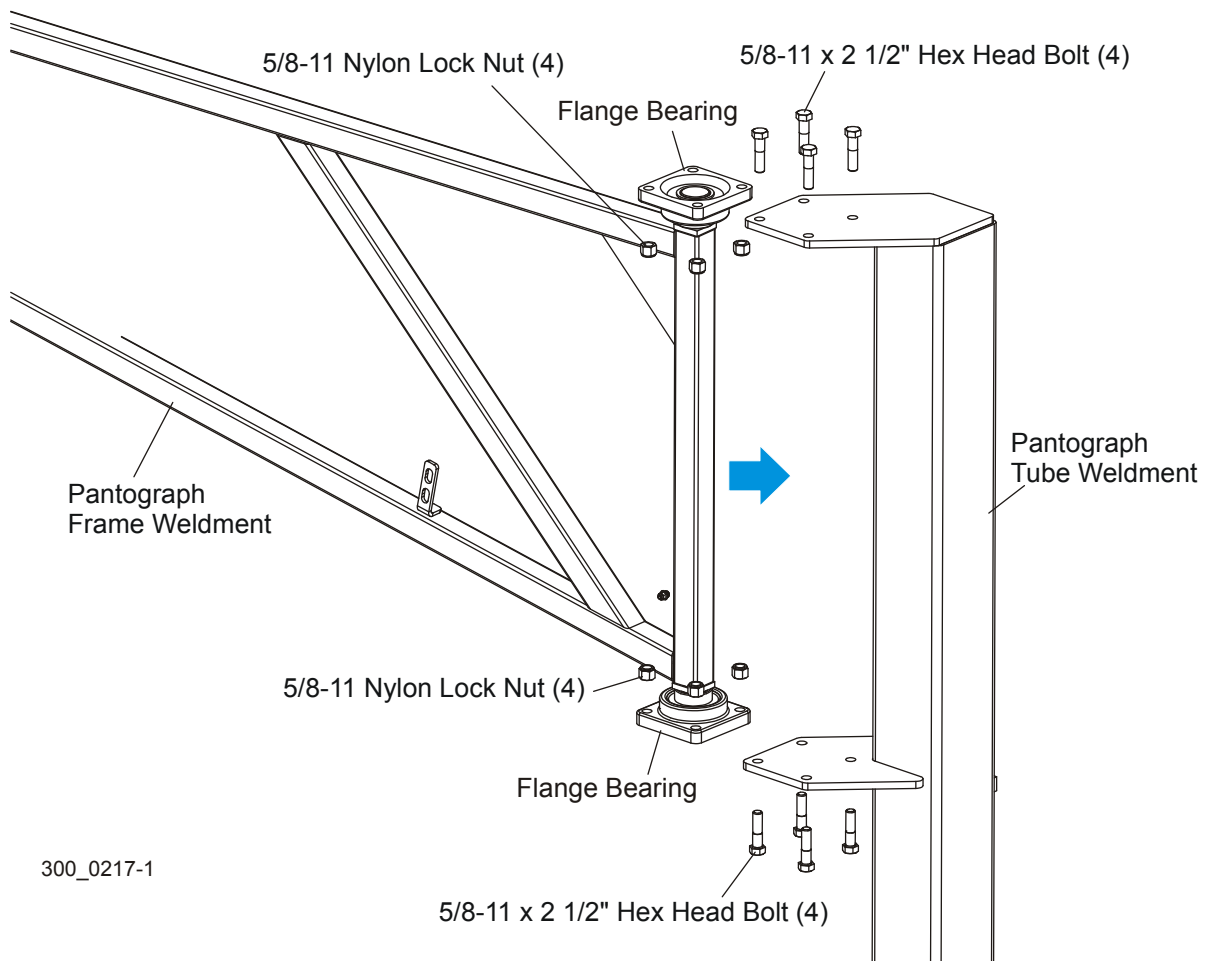


FIG. 3-13

3 Setup

Pantograph Cable Boom

4. Install the connector weldment to the end of the frame weldment as shown below. Use the provided parts to make the required connection.

See Figure 3-14.

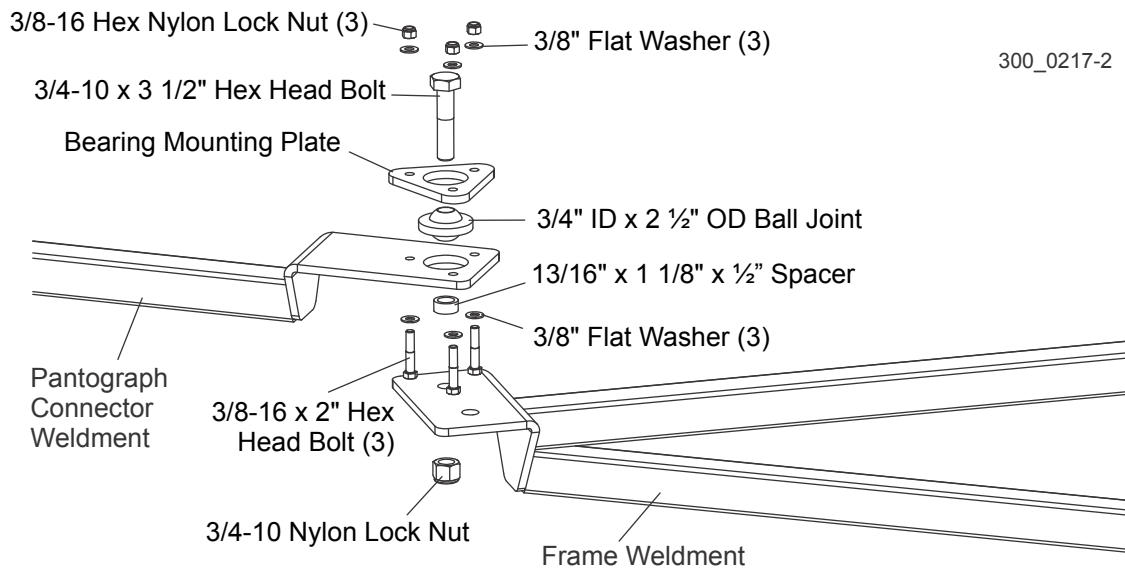
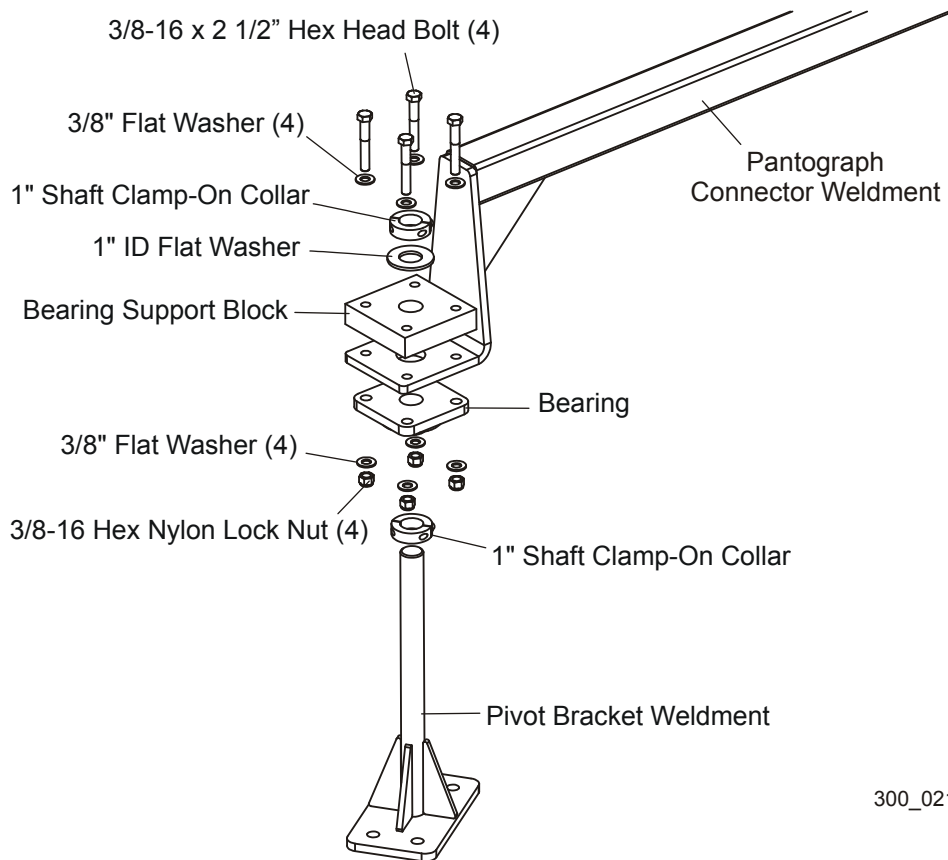


FIG. 3-14

5. Install the pantograph pivot bracket to the end of the connector weldment. Assemble the provided parts as shown below.

See Figure 3-15.



300_0217-3

FIG. 3-15

3

Setup

Pantograph Cable Boom

6. Move the pantograph connector weldment so that the pivot bracket is located directly above the sawmill mast. Remove the four bolts and lock washers securing the top bellow mount plate to the sawmill mast assembly. Use the provided 1/2-13 x 1 1/2" hex head bolts and the existing lock washers to secure the pivot bracket to the mast.

See Figure 3-16.

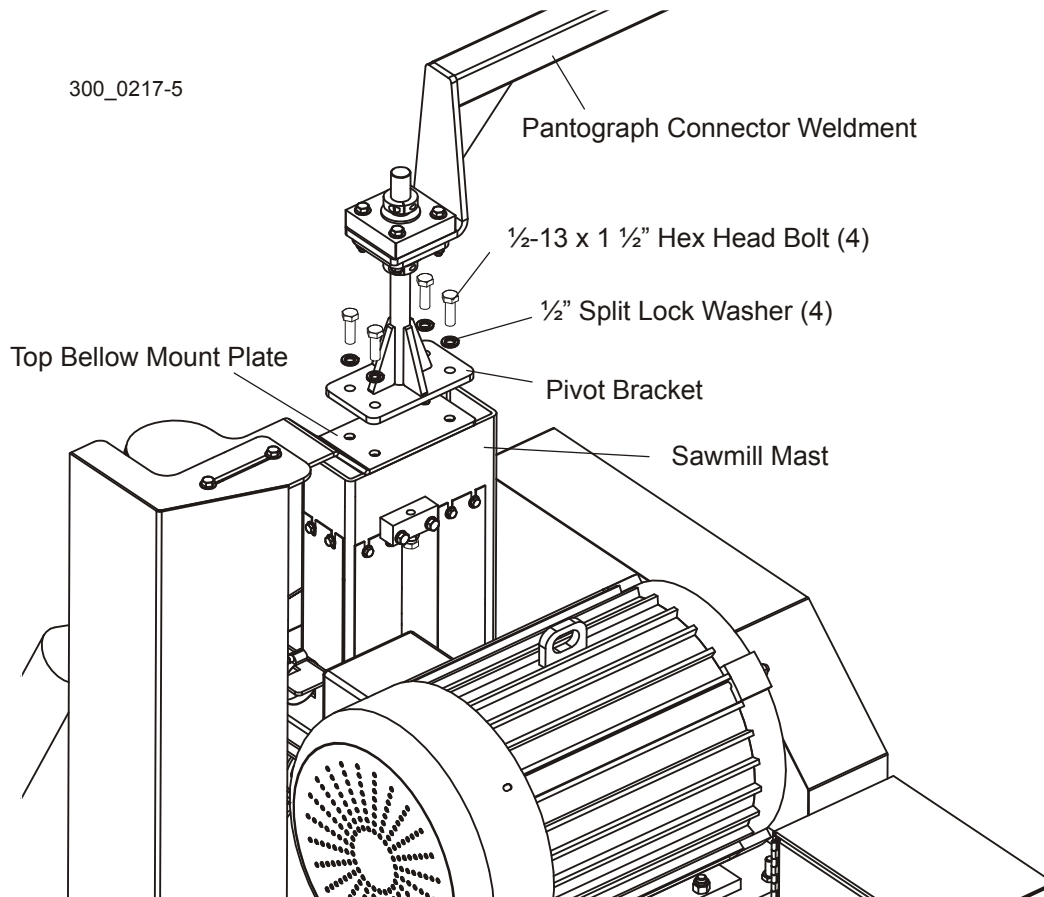


FIG. 3-16

See Figure 3-17. Install the provided strain relief assemblies to the pantograph assembly.

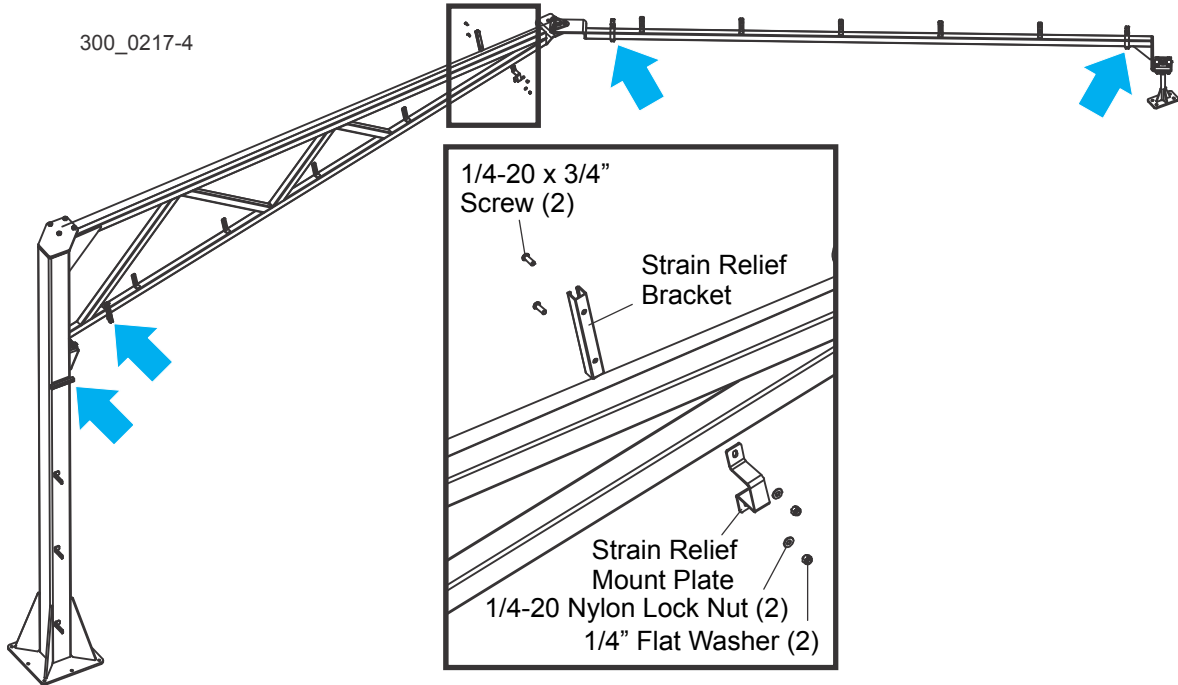


FIG. 3-17

7. Install the provided strain relief components to the strain relief brackets and route all the cables and lines through the strain relief assemblies. Tighten the strain relief screws to secure the cables and lines in place.

See Figure 3-18.

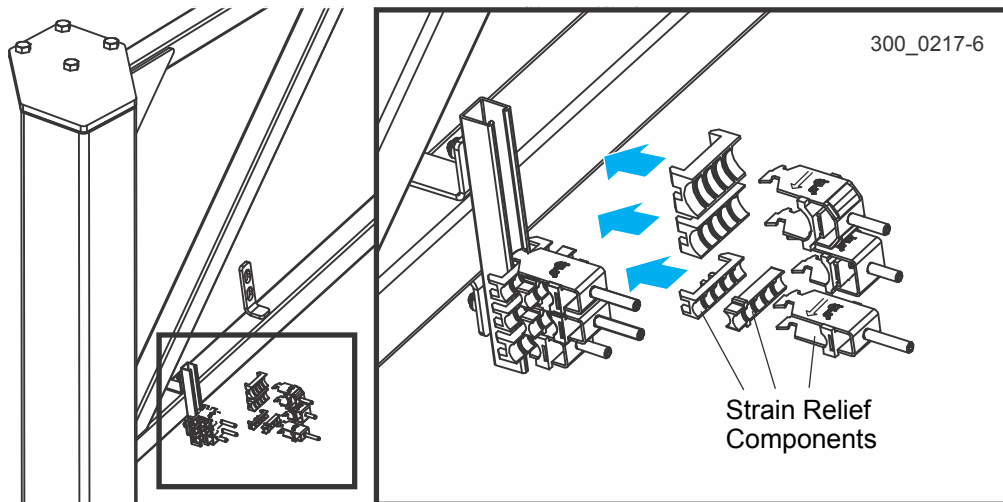


FIG. 3-18

3 Setup

Pantograph Cable Boom

See Figure 3-19. The strain relief cable and line locations are shown below.

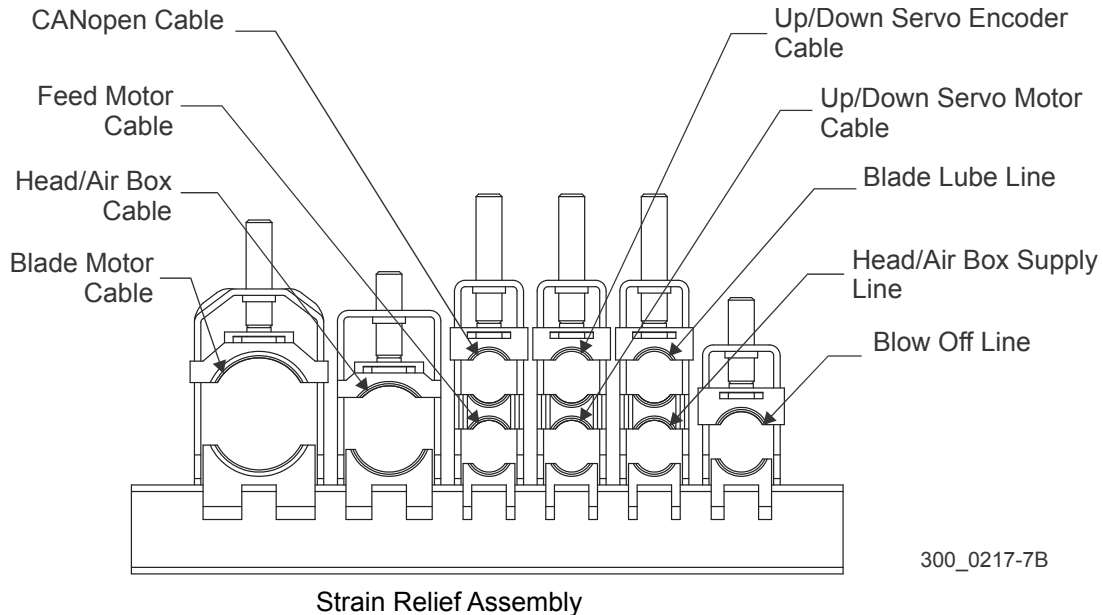


FIG. 3-19

8. Use the provided tie wraps to secure the cables and lines to the pantograph frame weldment.

IMPORTANT! Make sure the cables and lines are looped at each end of the pantograph weldment to avoid damage when operating the sawmill. Make a larger loop between the pantograph assembly and the saw head for the saw head up/down movement. When pantograph electrical installation is finished, move the saw head to test the pantograph movement. Readjust the loop sizes as necessary.

3.7 Lube Installation

3.7.1 Standard Lube System

NOTE: If your WM4000 is equipped with the optional Pressure Lube System, [See Section 3.7.2.](#)

The blade lubrication system consists of a 55-gallon drum, filter, pump and all necessary fittings and hoses. A 5-gallon auxiliary tank is included that allows you to add vegetable oil to the lube water during operation. Using vegetable oil in the lube increases blade life and performance.

See Figure 3-20. The auxiliary tank can be mounted to the back of the operator's station using the hardware provided:

Use the hex head bolts, flat washers and nylon lock nuts to mount the tank tray to the operator's station wall.

The lube pump may be relocated to the auxiliary tank tray. Four 1" bolts, flat washers and lock nuts are provided for this purpose.

The lube system can also be positioned in a remote location up to 90' away from the saw-mill. If a remote position is desired, use your own hardware to mount the auxiliary tank on a wall approximately 20" above the drum and mount the pump to the tray.

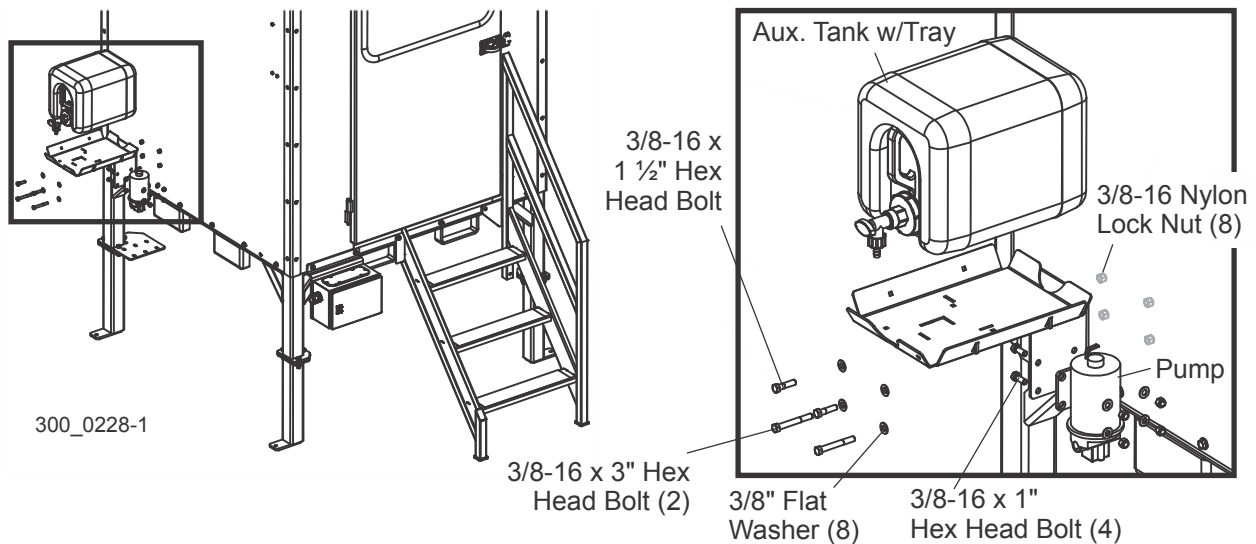


FIG. 3-20

3

Setup

Standard Lube System

See Figure 3-21. Connect the large hose from the filter to the large fitting on the pump and secure with the provided hose clamp. Connect the small hose from the valve to the small 'T' fitting on the pump. Push the fitting collar in, insert the hose and release the collar. Connect the electric cable to the pump harness, route it to the electrical cabinet at the operator station and connect the wires. Connect the lube hose from the sawmill blade guides to the 'T' fitting on the pump.

Remove the fill cap from the drum and fill with water. Replace the fill cap.

Fill the auxiliary tank with any inexpensive cooking/vegetable oil. Wood-Mizer has found soybean oil to be inexpensive and performs well. In cold temperatures, vegetable oil tends to gel. If temperatures are cold enough to cause the oil to thicken, dilute the oil at a ratio of 50:1 with a pour point depressant such as EverFlow #107671A.

Open the shut-off valve on the auxiliary tank all the way. Open the oil flow control valve 1/4-turn. Use the lube control valve to control volume of water/oil solution to the blade guides. Experiment with different valve settings to achieve the best performance depending on species being cut. Oil usage should be approximately 2-4 qts. per 8 hour shift.

When finished sawing, close the shut-off valve on the auxiliary tank and run the blade for 30 seconds with water only to flush the system and prevent oil from gumming the nozzles when not operating.

Immediately fix any leaks and wipe up any oil spills. Oil will collect sawdust and will be difficult to cleanup after it gels.

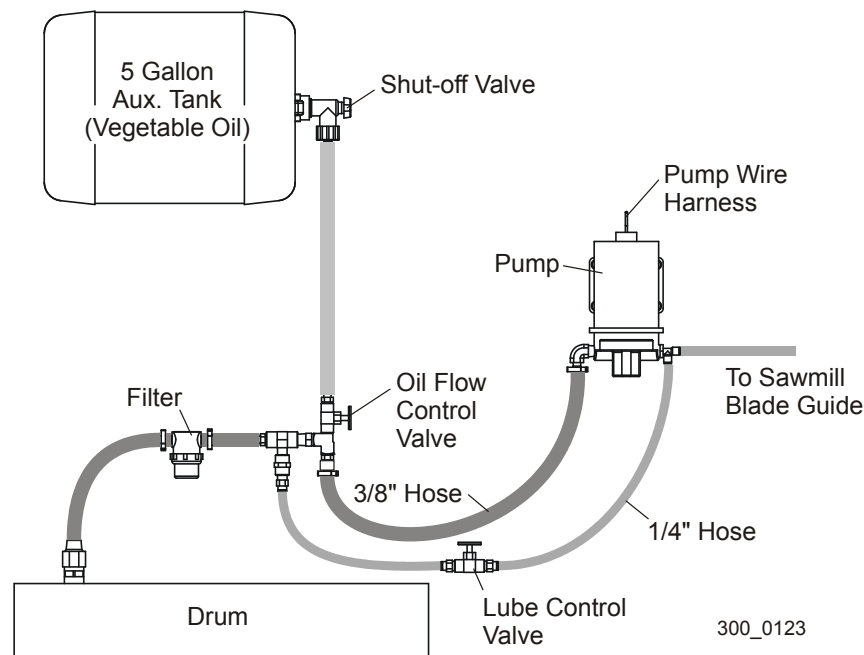


FIG. 3-21

3.7.2 Optional Pressure Lube System

NOTE: If your WM4000 is equipped with the standard Lube System, [See Section 3.7.1.](#)

The optional pressure lube system consists of a unit mounted at the back of the operator station where a water supply line can be connected. A 2-gallon reservoir is included that allows you to add vegetable oil to the lube water during operation. Using vegetable oil in the lube increases blade life and performance.

See Figure 3-22. Connect a water supply hose to the water line fitting. Connect the 1/4" hose from the sawmill blade guide to the 1/4" 'T' fitting below the solenoid. Connect the 1/2" hose from the blow-off assembly to the 1/2" 'T' fitting at the top of the reservoir. Route the cable from the solenoid valve to the electrical cabinet at the operator station and connect the wires.

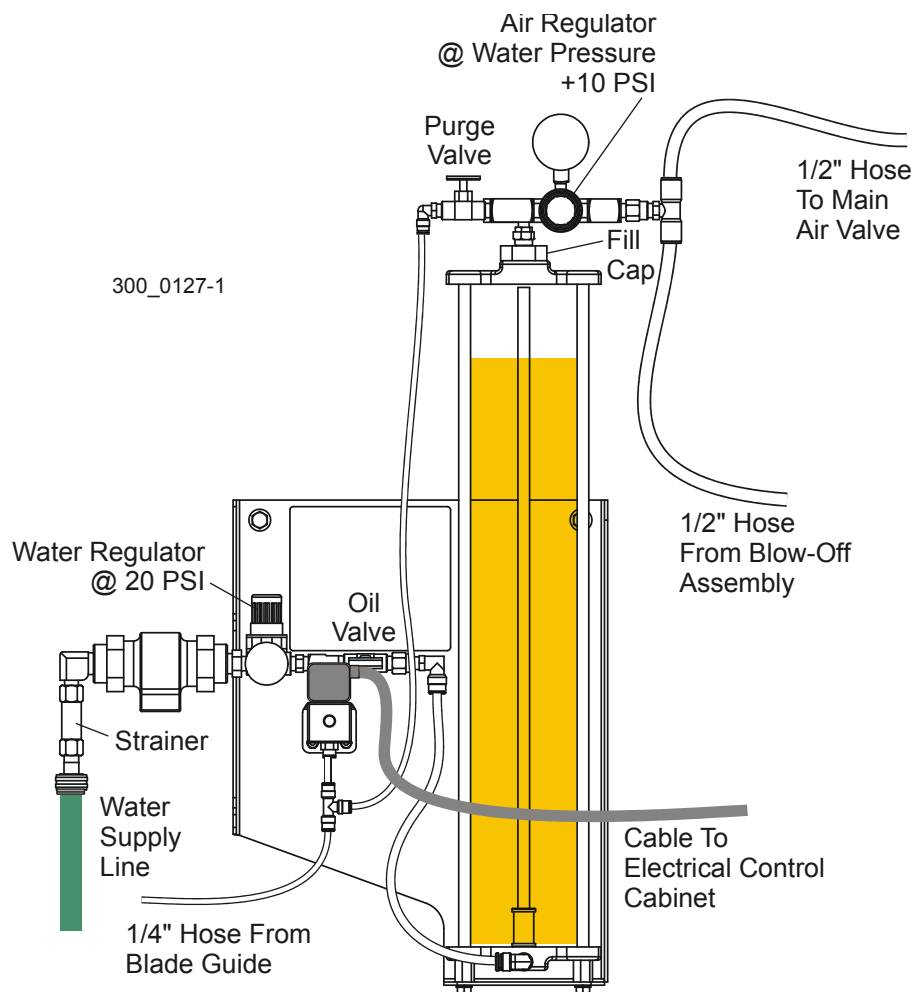


FIG. 3-22

3

Setup

Optional Pressure Lube System

Be sure the main air valve is closed and open the purge valve to relieve any pressure in the tank. Close the purge valve and open the fill cap. Fill the reservoir tank with any inexpensive cooking/vegetable oil. Wood-Mizer has found soybean oil to be inexpensive and performs well. In cold temperatures, vegetable oil tends to gel. If temperatures are cold enough to cause the oil to thicken, dilute the oil at a ratio of 50:1 with a pour point depressant such as EverFlow #107671A.

Turn on the water and air supply. The water regulator valve should be set at 20 PSI and can be adjusted up to 35 PSI if necessary due to water pressure. Set the air regulator valve 10 PSI higher than the water valve. Be sure the purge valve is closed during operation. Open the oil valve 1/4" turn.

Experiment with different valve settings to achieve the best performance depending on species being cut. Oil usage should be approximately 2-4 qts. per 8 hour shift.

When finished sawing, close the oil valve and open the purge valve. Run the blade for 30 seconds with water only to flush the system and prevent oil from gumming the nozzles when not operating.

Immediately fix any leaks and wipe up any oil spills. Oil will collect sawdust and will be difficult to cleanup after it gels.

Periodically clean the water strainer. With the water supply off, unscrew the strainer housing, clean the strainer and reassemble.

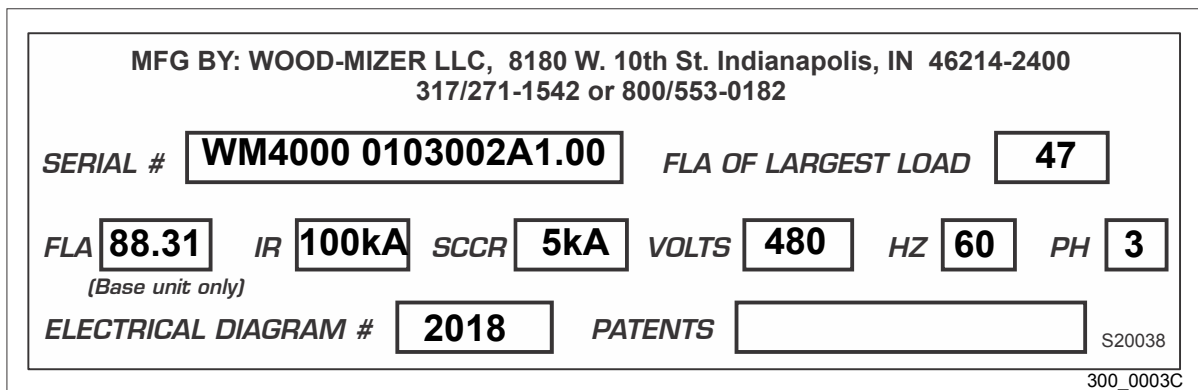
3.8 Electrical Installation



DANGER! Make sure all electrical installation, service and/or maintenance work is performed by a qualified electrician and is in accordance with applicable electrical codes.

Electrical Requirements

The WM4000 sawmill identification plate including the required electrical information is shown below:



WM4000 IDENTIFICATION PLATE

IMPORTANT! The WM4000 sawmill is wired for use with a 480 volt power supply. To operate the sawmill with 240V, 400V or 600V power supplies an additional transformer is required. See the table below for transformers available from Wood-Mizer. All transformers are manufactured by Square D.

See Table 3-1.

| Conversion From/To | 240 to 480 volts | 400 to 480 volts | 600 to 480 volts |
|---------------------|------------------|------------------|------------------|
| Wood-Mizer Part No. | 068057 | 068055 | 078214 |

TABLE 3-1

IMPORTANT! Wood-Mizer also offers two phase generators: a phase generator without a motor starter (Part No. RPCNC40-230) and a phase generator with a motor starter (Part No. RPCNC40-230WS). These are the only supported phase generators as standard phase generators have known issues with Variable Frequency Drives. The 068057 transformer is required with the phase generator as the generator is 240VAC and has to be stepped up to 480VAC for the mill.

Installation

Position the main control box next to the operator station. Make sure there is enough room around the control box to open the box door and make all the necessary electrical connections described below.

See Figure 3-1.

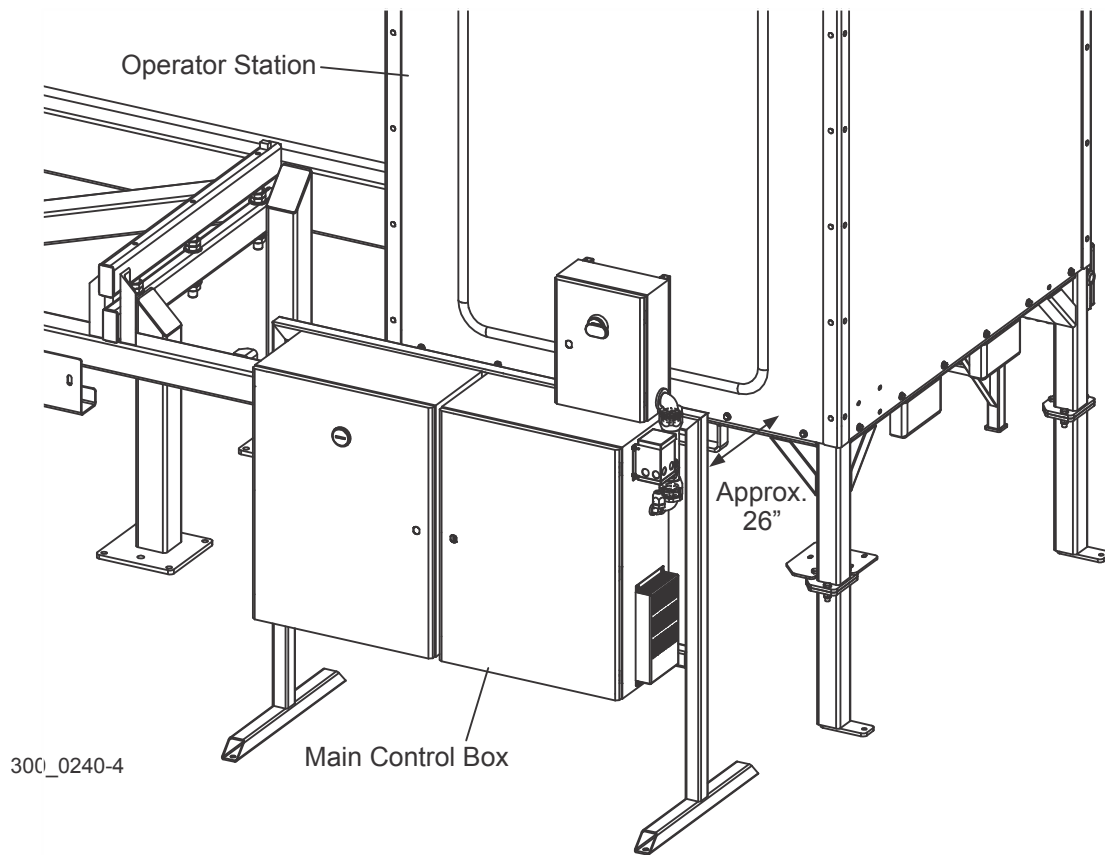


FIG. 3-1

Anchor the main control box to the floor with 1/2" anchor bolts and nuts.

See **Figure 3-2**. Route the incoming power supply from the disconnect switch to the disconnect box. One recommended method is to drop conduit from the ceiling down to the hole in the right side of the disconnect box. Install an elbow connector to secure the conduit to the box. Connect the power lines to terminals L1, L2 and L3 on the disconnect labeled Q1. Connect the ground wire to the ground stud located at the corner of the box.

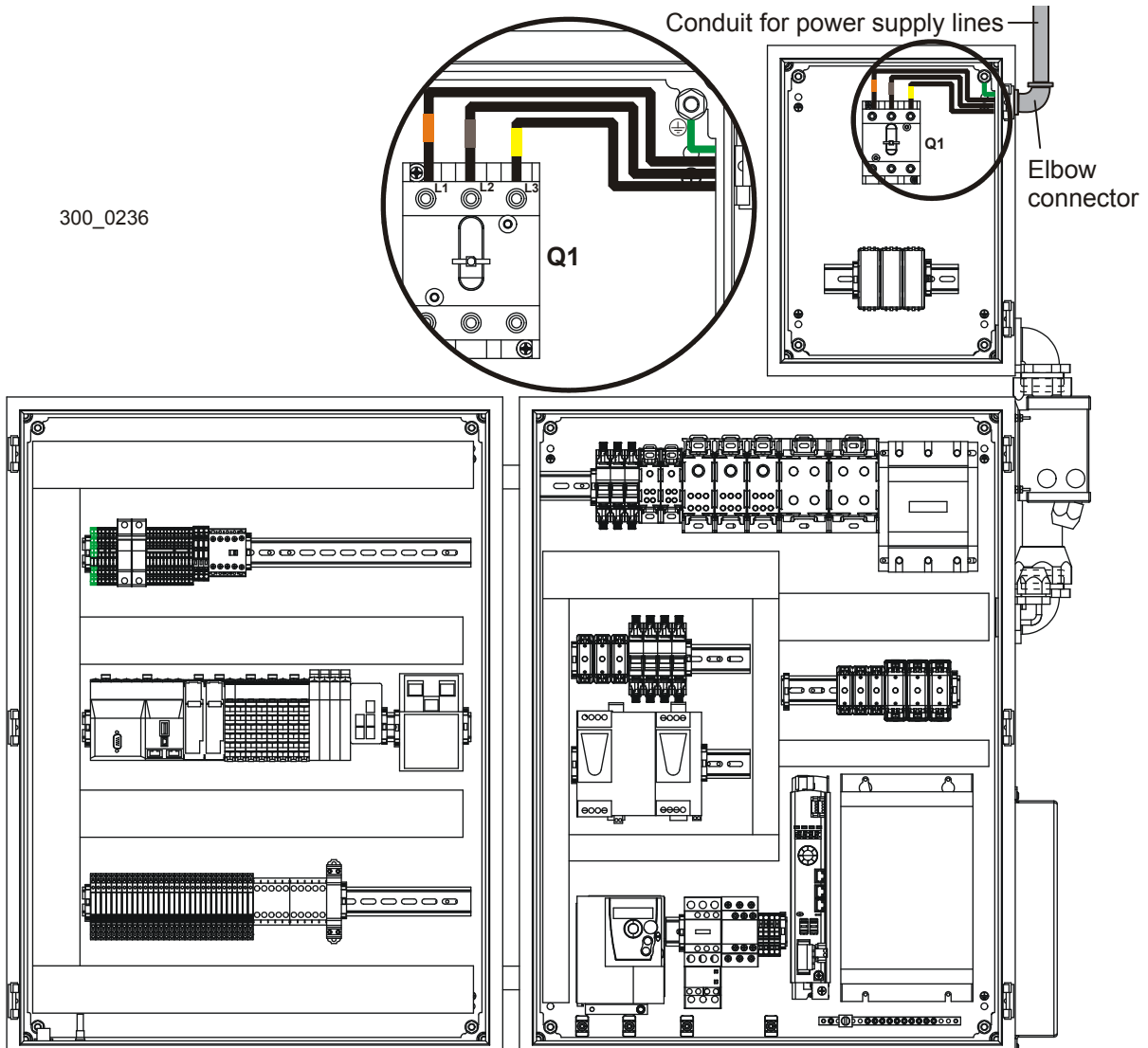


FIG. 3-2

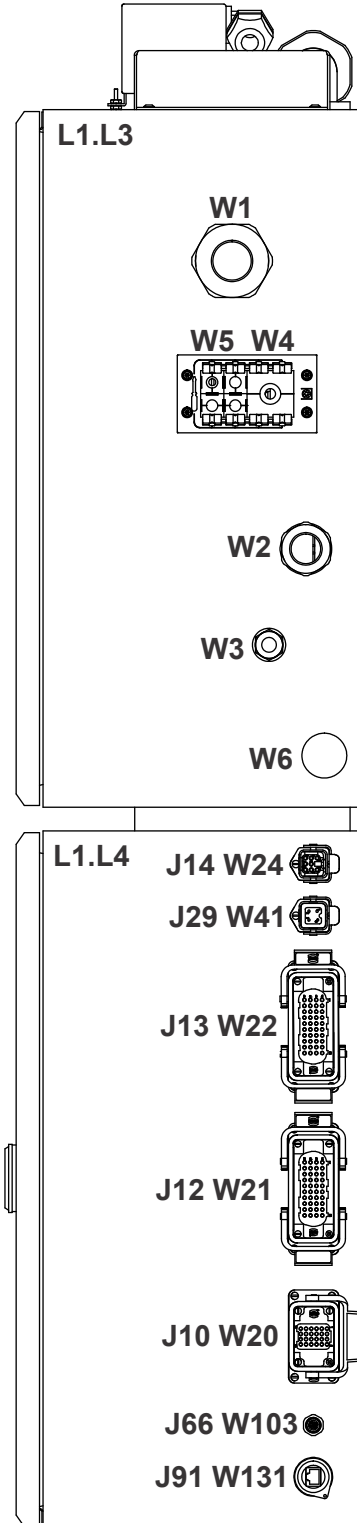
3 Setup Installation

See Table 3-1. Locate and identify each cable as shown in the table below.

| Cable | Function | Box Entry Location | Wire Number | Wire Color/Identifier | Termination Location (-Component ID.Terminal ID) (Terminal Strip ID-Terminal Block ID:Terminal ID) (-Component ID: Connector ID.Terminal ID) |
|-------|---------------------------|--------------------|-------------|-----------------------|---|
| W1 | Blade Motor | L1.L3 | GND | Green/Yellow | -SSD1:GND (Ground Bar) |
| | | | 403 | Black U/L1/C/L+ | -SSD1:T2 |
| | | | 404 | Black V/L2 | -SSD1:T1 |
| | | | 405 | Black W/L3/D/L- | -SSD1:T3 |
| | | | 55B | Black 4 | X2-1:2 |
| | | | 4013 | Black 5 | X2-2:2 |
| W2 | Hydraulic Pump Motor | L1.L3 | GND | Green/Yellow | X3-1:4 (Ground Bar) |
| | | | 412 | 1 | -OL2:2/T1 |
| | | | 413 | 2 | -OL2:4/T2 |
| | | | 414 | 3 | -OL2:6/T3 |
| W3 | Feed Motor | L1.L3 | GND | Green/Yellow | -VFD1:GND |
| | | | 426 | Black U/L1/C/L+ | -VFD1:V/T2 |
| | | | 427 | Black V/L2 | -VFD1:U/T1 |
| | | | 428 | Black W/L3/D/L- | -VFD1:W/T3 |
| W4 | Up/Down Servo Motor | L1.L3 | GND | Green/Yellow | -SD1:CN10.GND |
| | | | 445 | Black L1 | -SD1:CN10.U |
| | | | 446 | Black L2 | -SD1:CN10.V |
| | | | 447 | Black L3 | -SD1:CN10.W |
| | | | 24 | White | -SD1:CN11.BR+ |
| | | | 25 | Gray | -SD1:CN11.BR- |
| W5 | Up/Down Servo Encoder | L1.L3 | -- | -- | -SD1:CN3 |
| W20 | Head | L1.L4 | -- | -- | -J10 |
| W21 | Hydraulic Unit Control | L1.L4 | -- | -- | -J12 |
| W22 | Operator Station Junction | L1.L4 | -- | -- | -J13 |
| W41 | Lube Pump Motor | L1.L4 | -- | -- | -J29 |
| W103 | Feed Encoder CANopen | L1.L4 | -- | -- | -J66 |
| W131 | HMI Ethernet | L1.L4 | -- | -- | -J91 |

TABLE 3-1

See **Figure 3-3**. Insert or connect each cable to the appropriate entry point or connector in the main control as show below.



300_0237

FIG. 3-3 MAIN CONTROL BOX (BOTTOM VIEW)

3 Setup Installation

See Figure 3-4. Route each cable to the appropriate component or connector as described in the following instructions (high and low voltage boxes are shown below).

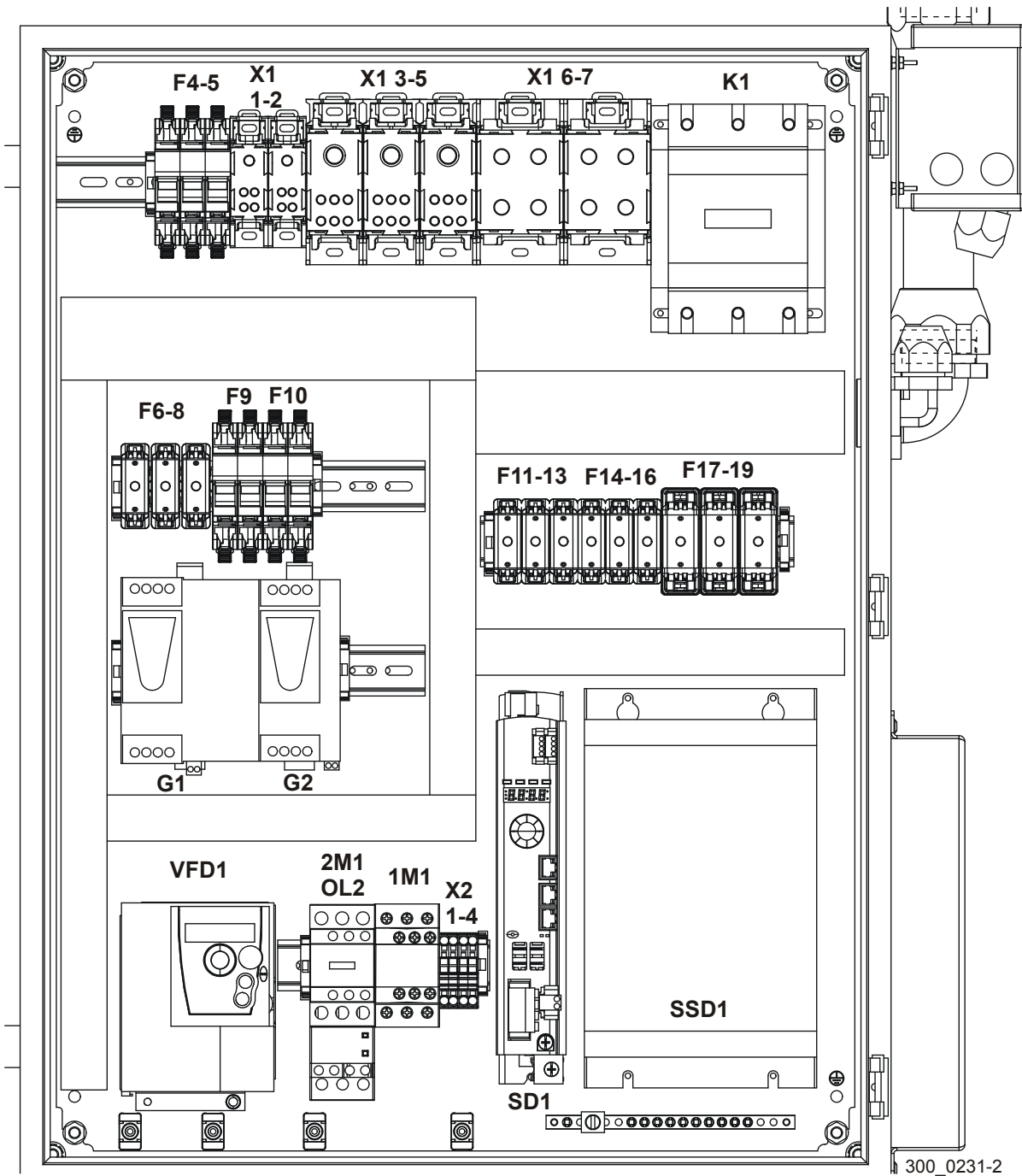


FIG. 3-4 HIGH VOLTAGE BOX (MAIN CONTROL)

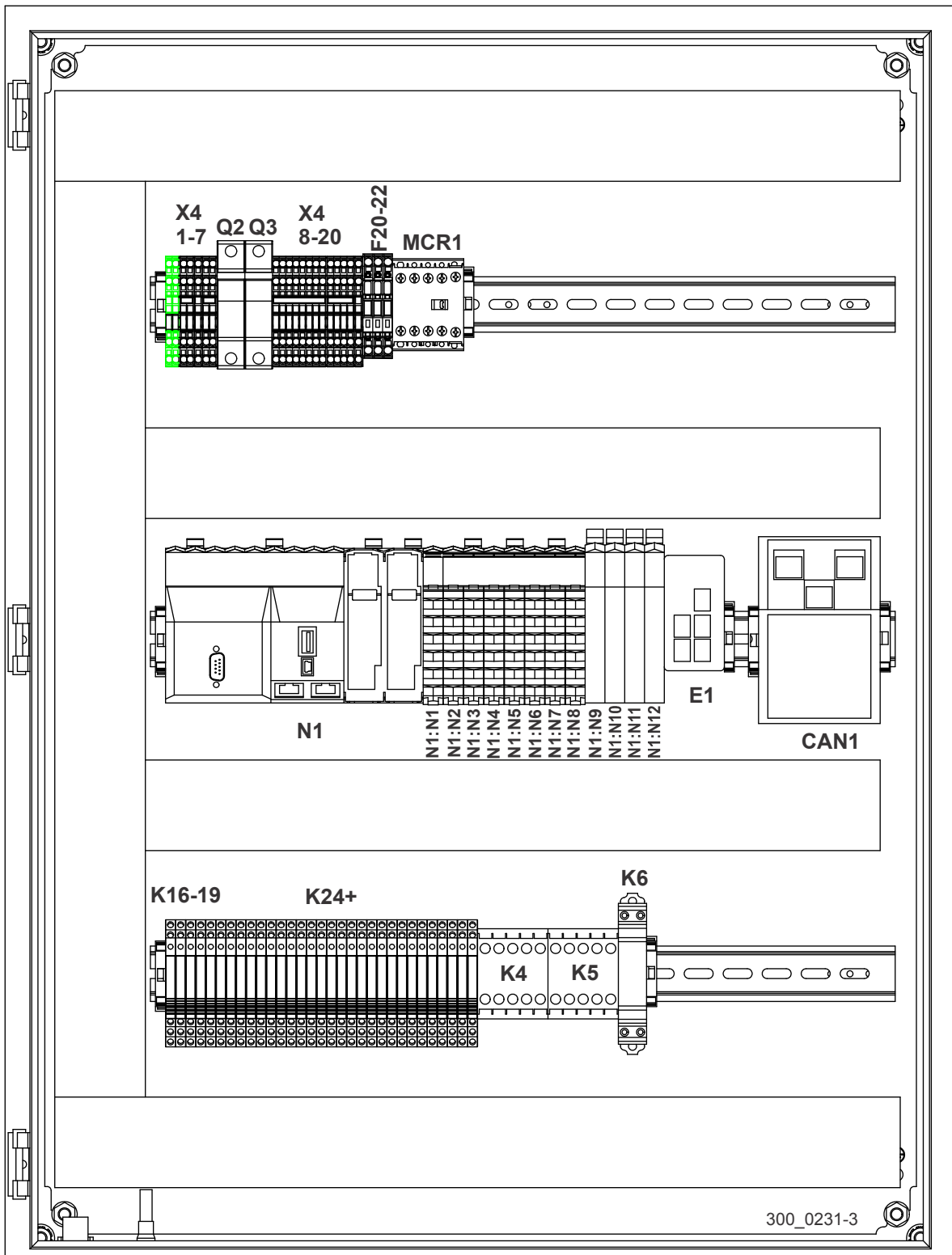


FIG. 3-4 LOW VOLTAGE BOX (MAIN CONTROL)

3

Setup

Blade Motor Cable (W1)

3.8.1 Blade Motor Cable (W1)

See **Figure 3-5**. Route the blade motor cable (W1) through the connector W1 located at the bottom of the high voltage box and secure as necessary. At drive SSD1, connect wire #403 to terminal SSD1:T2, wire #404 to terminal SSD1:T1 and wire #405 to terminal SSD1:T3. At terminal block X2, connect wire #55B to terminal X2-1:2 and wire #4013 to terminal X2-2:2. Connect the ground wire to the grounding bar and secure with a screw.

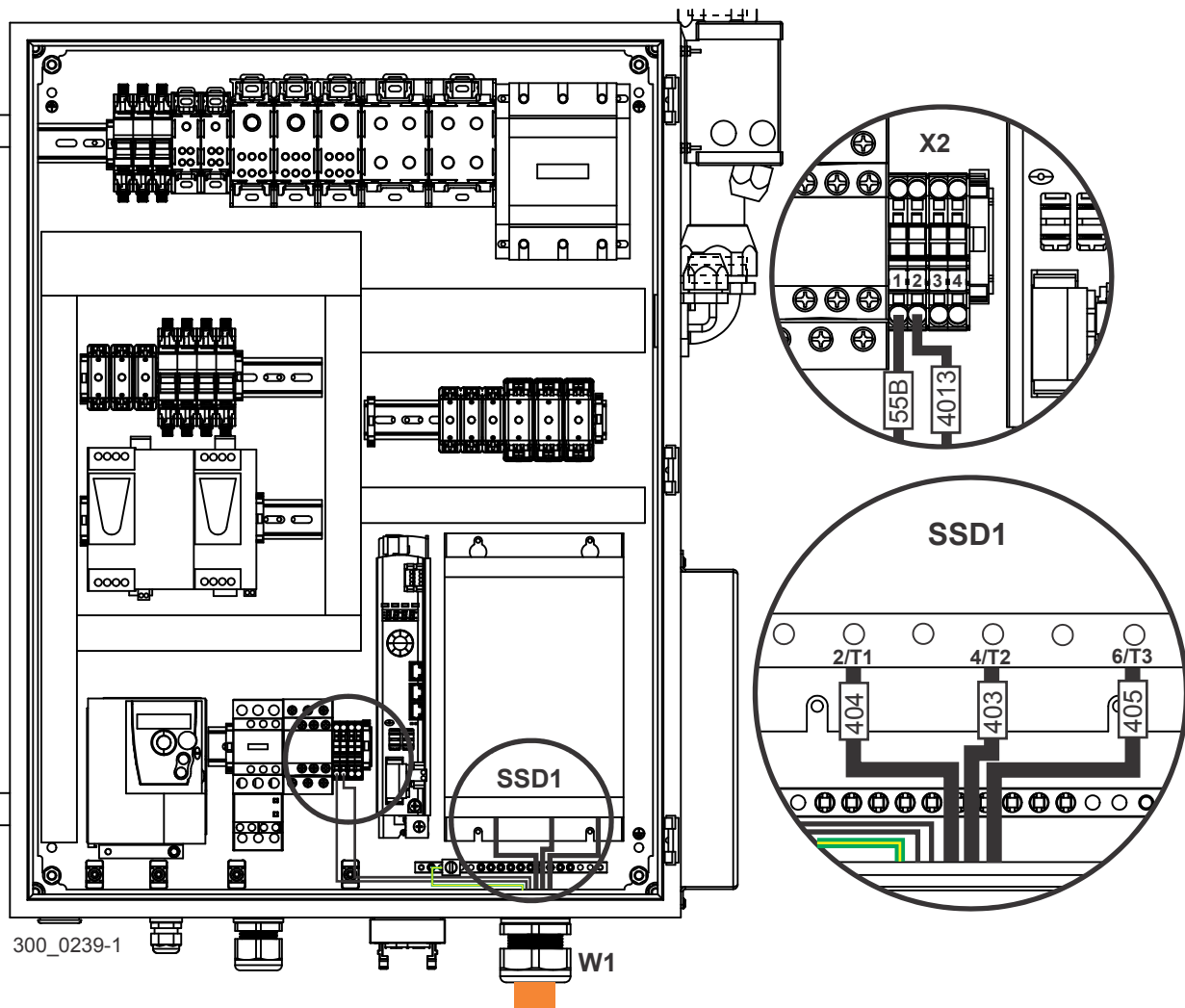


FIG. 3-5 HIGH VOLTAGE BOX

3.8.2 Hydraulic Pump Motor (W2)

See **Figure 3-6**. Route the hydraulic pump motor cable (W2) through the connector W2 located at the bottom of the high voltage box and secure as necessary. At overload OL2, connect wire #412 to terminal OL2:2/T1, wire #413 to terminal OL2:4/T2, and wire #414 to terminal OL2:6/T3. Connect the ground wire to terminal X3-1:4 of terminal block X3 (ground bar) and secure with a screw.

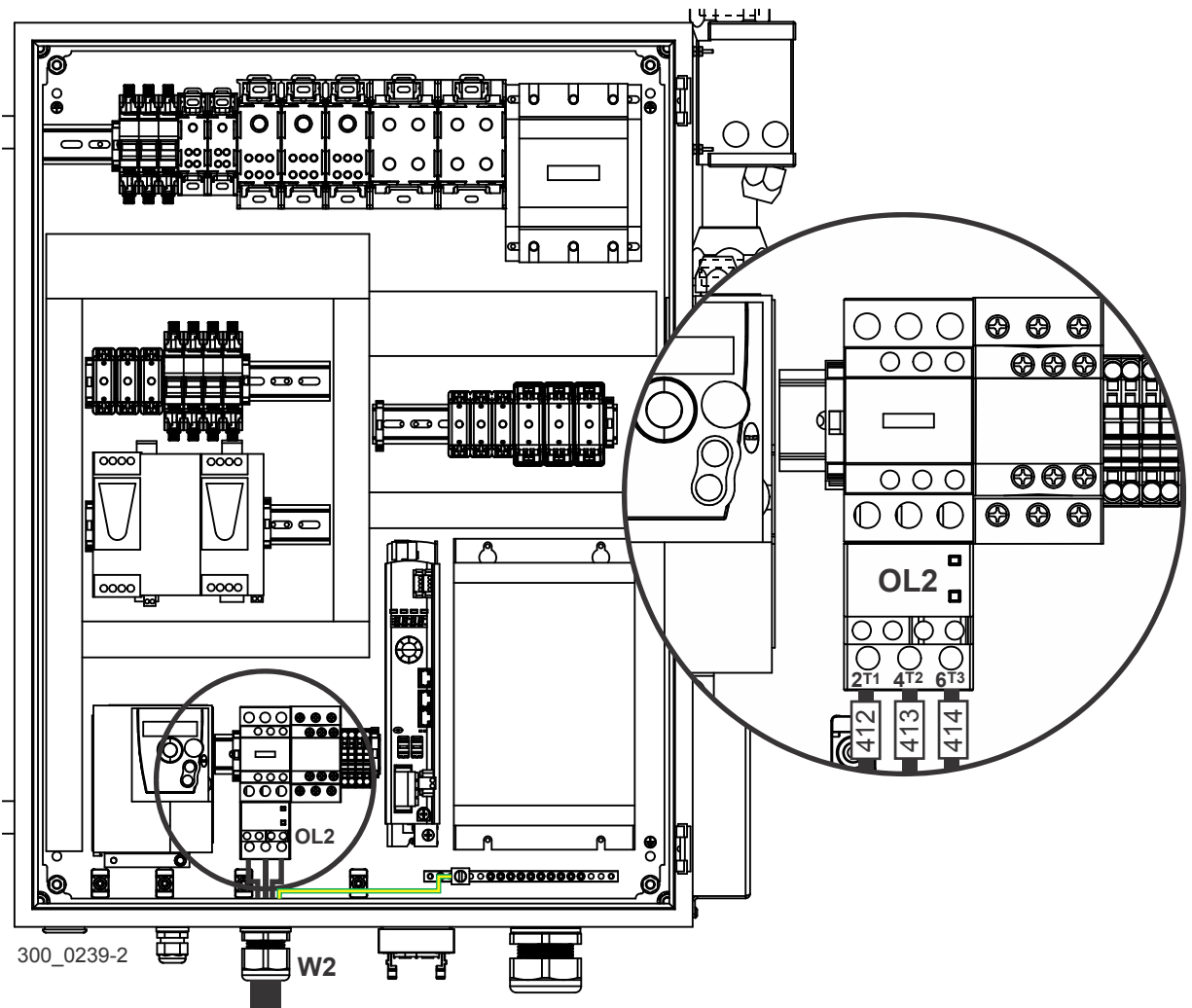


FIG. 3-6 HIGH VOLTAGE BOX

3

Setup

Feed Motor Cable (W3)

3.8.3 Feed Motor Cable (W3)

See Figure 3-7. Route the feed motor cable (W3) through the connector W3 located at the bottom of the high voltage box and secure as necessary. At feed drive VFD1, connect wire #426 to terminal VFD1:V/T2, wire #427 to terminal VFD1:U/T1 and wire #428 to terminal VFD1:W/T3. Connect the ground wire to terminal VFD1:GND.

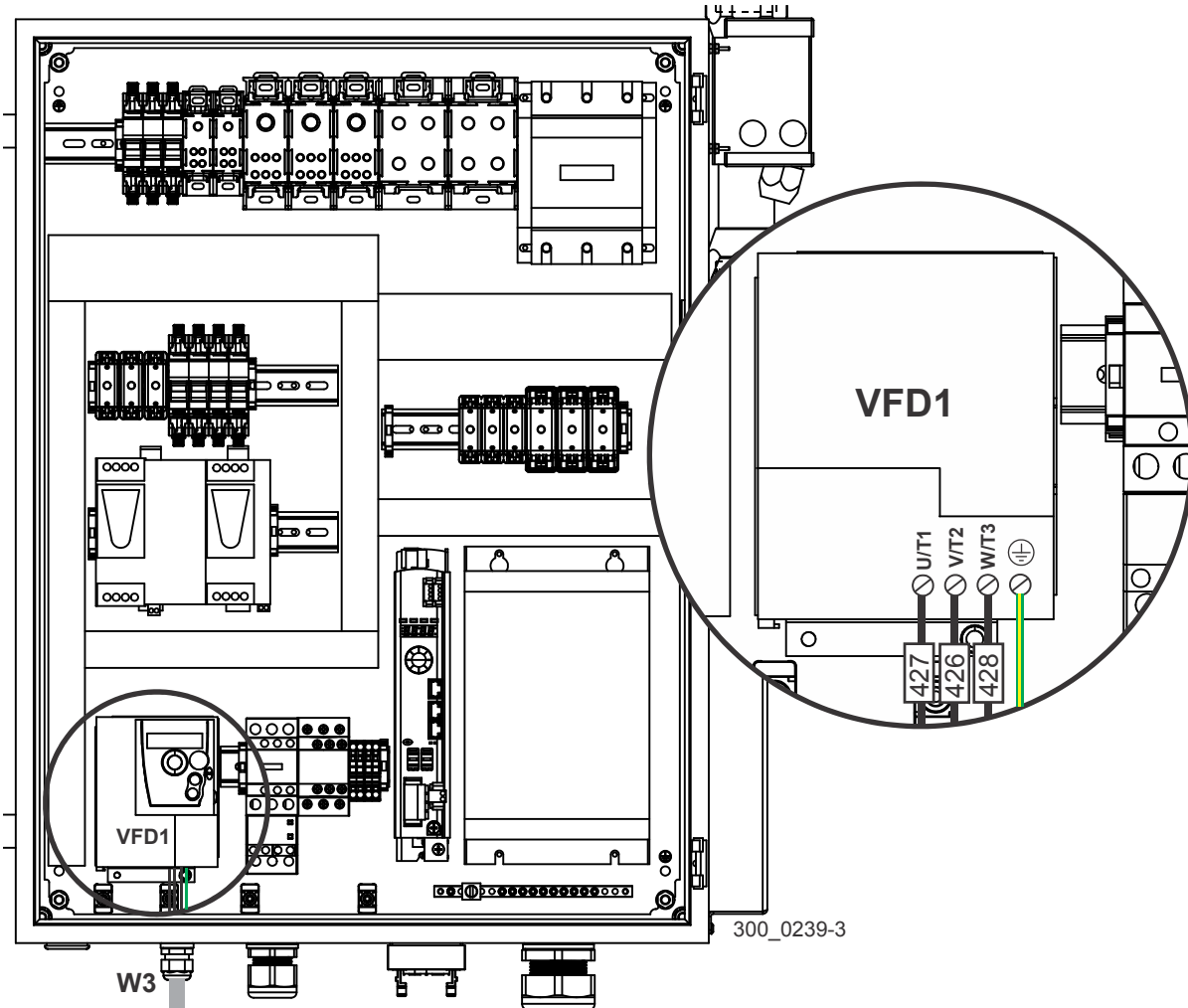


FIG. 3-7 HIGH VOLTAGE BOX

3.8.4 Up/Down Servo Motor Cable (W4)

See **Figure 3-8**. Route the up/down servo motor cable (W4) through the connector labeled W4 located at the bottom of the high voltage box. At up/down drive SD1, connect wire #445 to terminal SD1:CN10.U, wire #446 to terminal SD1:CN10.V, wire #447 to terminal SD1:CN10.W, wire #24 to terminal SD1:CN11.BR+, and wire #25 to terminal SD1:CN11.BR-. Connect the ground wire to terminal SD1:CN10.GND.

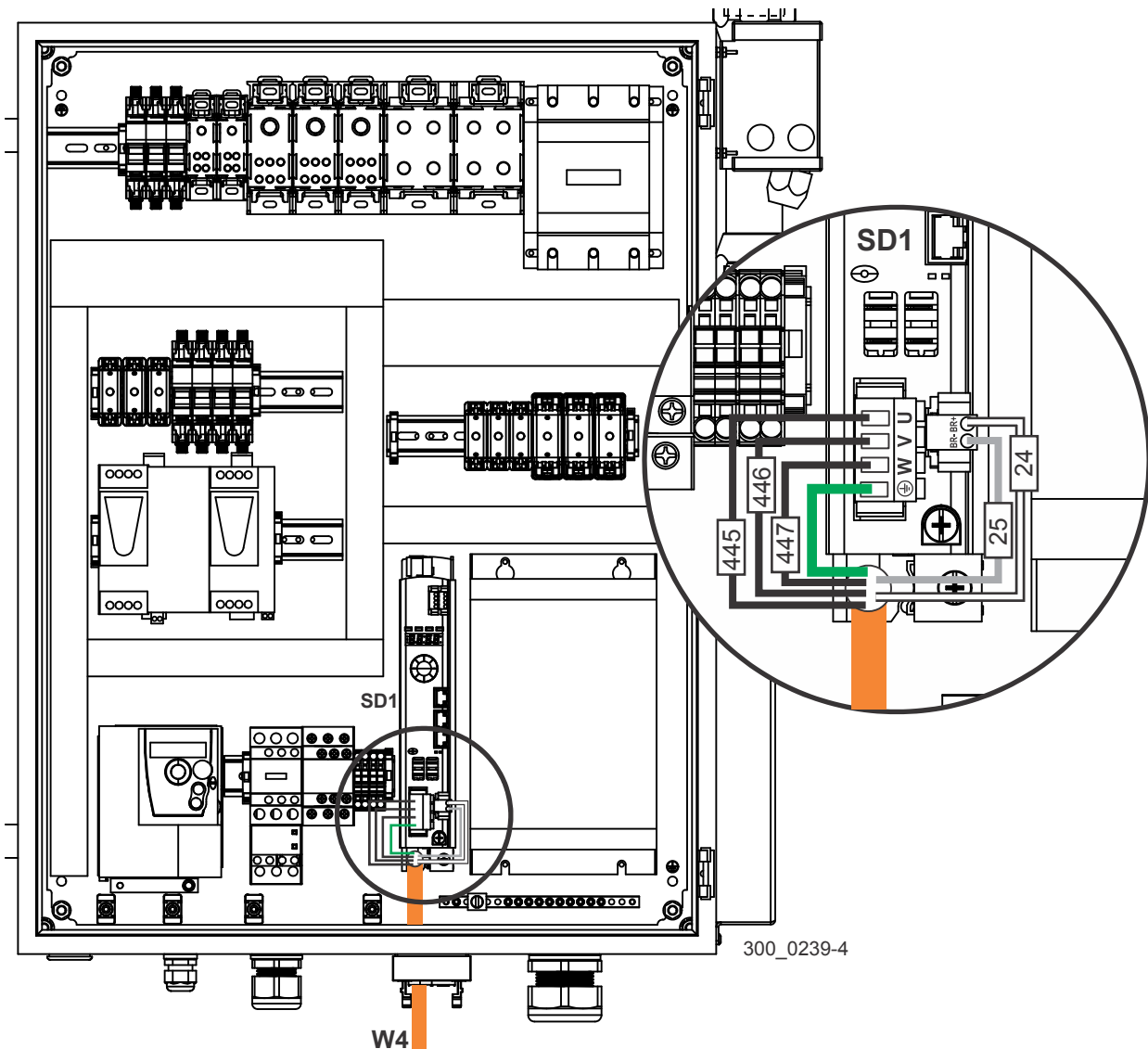


FIG. 3-8 HIGH VOLTAGE BOX

3

Setup

Up/Down Servo Encoder Cable (W5)

3.8.5 Up/Down Servo Encoder Cable (W5)

See Figure 3-9. Route the up/down servo motor cable (W5) through the connector labeled W5 located at the bottom of the high voltage box. Connect the cable to terminal SD1:CN3 of the up/down drive SD1.

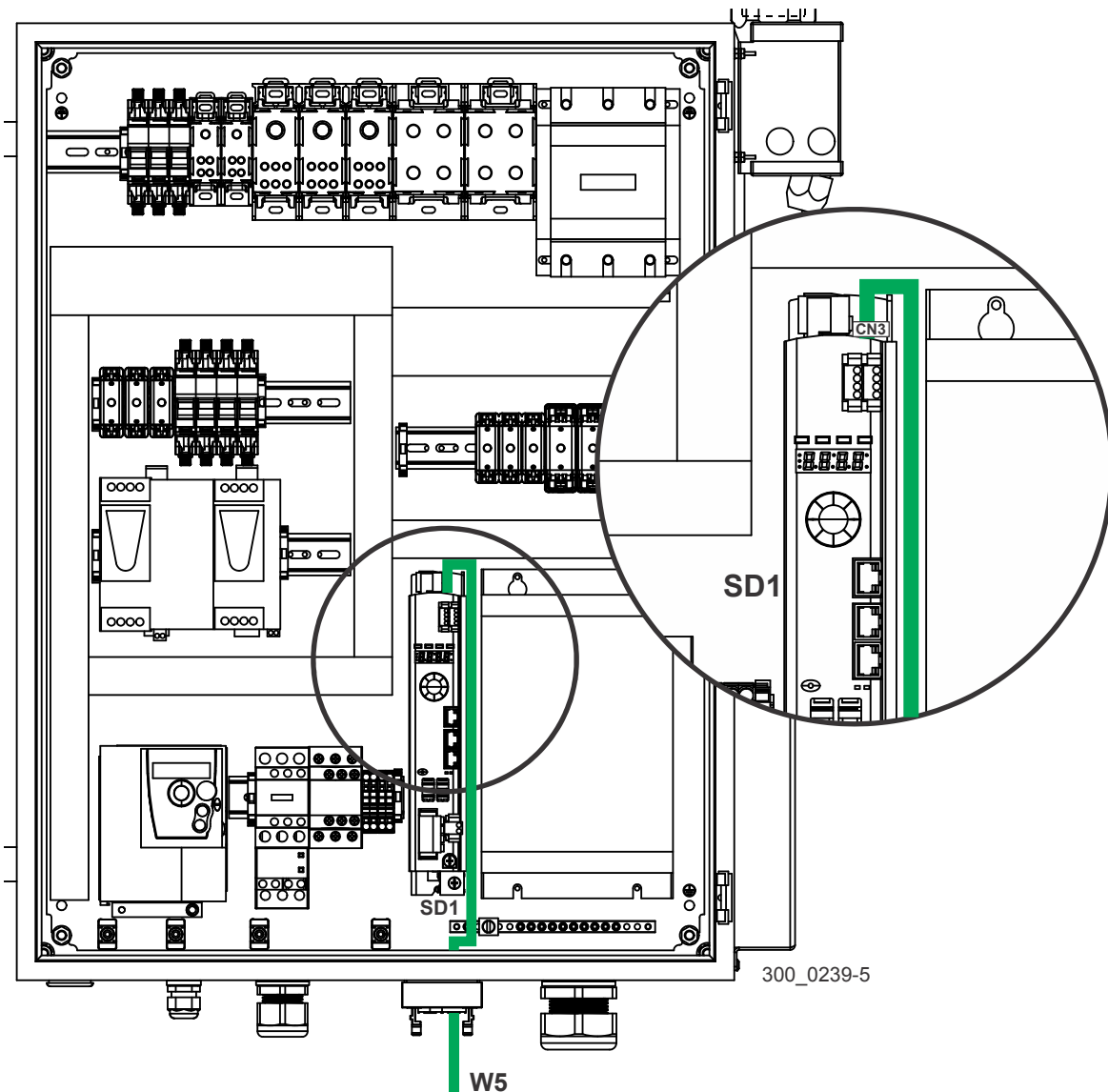


FIG. 3-9 HIGH VOLTAGE BOX

3.8.6 Low Voltage Box Cables (W20-22, W41, W103 and W131)

See **Figure 3-10**. At the low voltage box, connect the head cable (W20) to the connector labeled J10 W20 at the bottom of the box. Connect the hydraulic unit control cable (W21) to the connector labeled J12 W21. Connect the operator station junction cable (W22) to the connector labeled J13 W22. Connect the lube pump motor cable (W41) to the connector labeled J29 W41. Connect the feed encoder CANopen cable (W103) to the connector labeled J66 W103. Connect the HMI Ethernet cable (W131) to the connector labeled J91 W131.

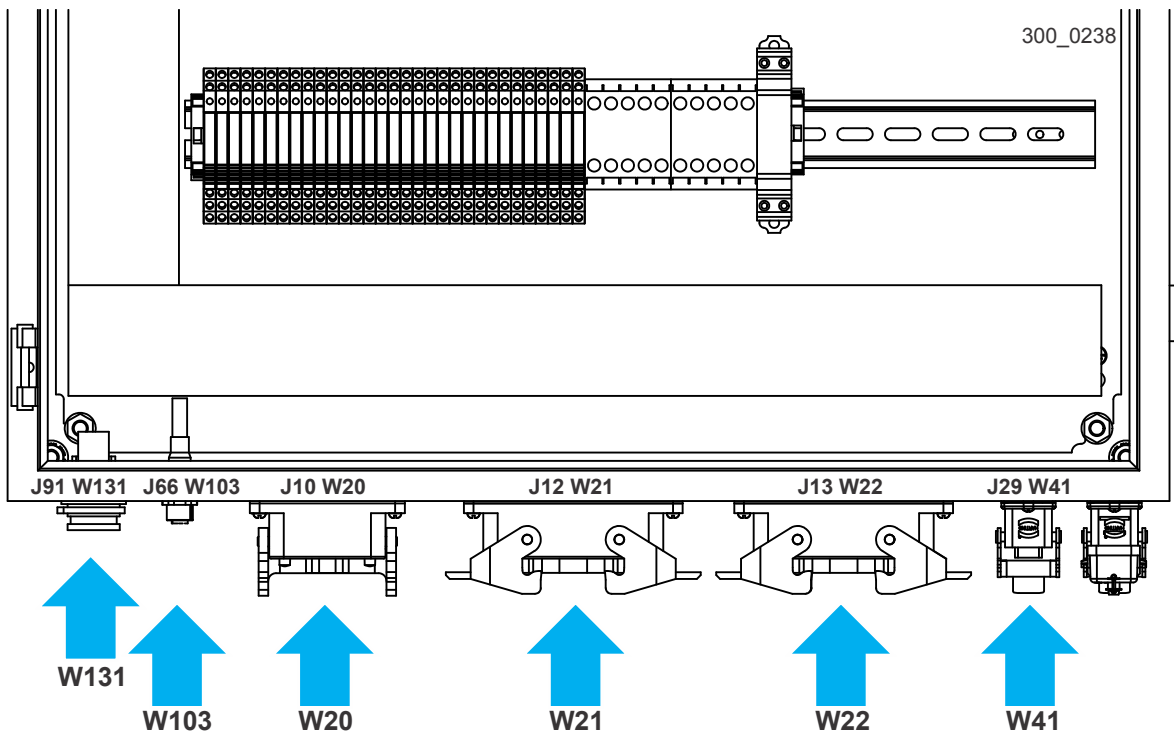


FIG. 3-10 LOW VOLTAGE BOX

3.9 Hydraulic Installation

Position the hydraulic power unit approximately 12" away from the operator station as shown below.

See Figure 3-11.

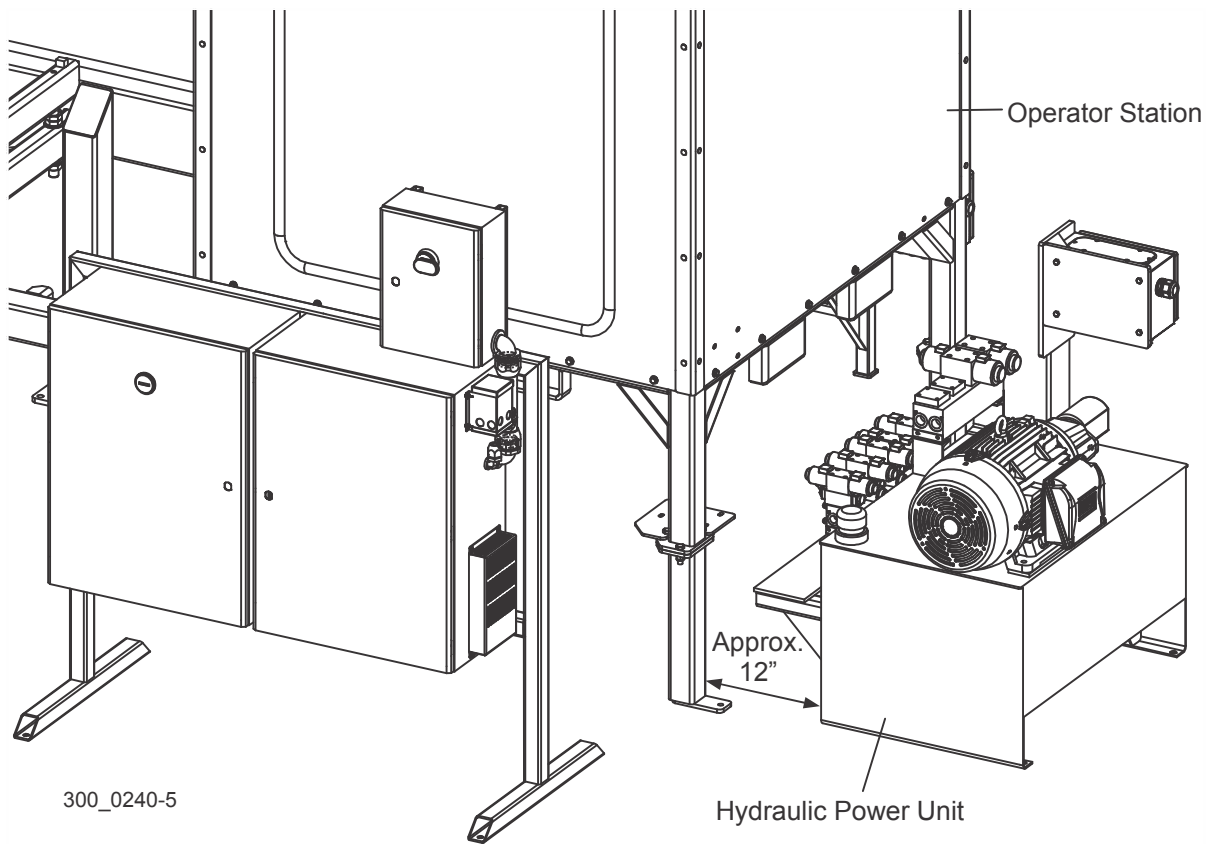


FIG. 3-11

Anchor the hydraulic power unit to the floor with 1/2" anchor bolts and nuts.

See Figure 3-12. Remove the plugs from the hydraulic power unit fittings and identify the color-coded hoses extending from the sawmill frame. Remove the plugs from the hoses and connect each hose to the appropriate fitting on the hydraulic power unit.

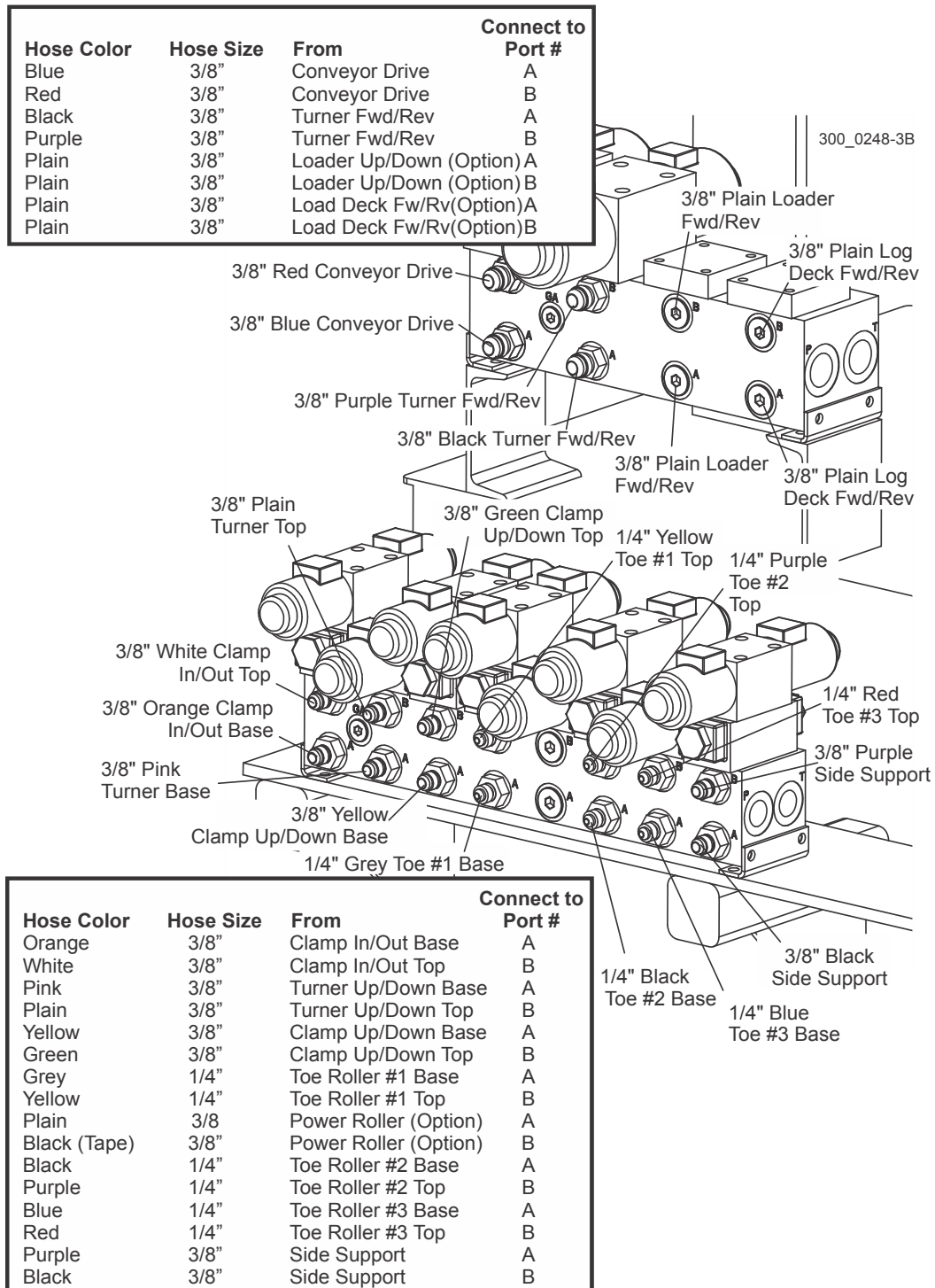


FIG. 3-12

3

Setup

Hydraulic Installation

See **Figure 3-13**. Locate the turner down flow divider installed to the operator station leg and remove the plugs. Locate the two short hoses extending from the sawmill frame. Remove the plugs from the hoses and connect the hoses to the fittings on the turner down flow divider. (**NOTE:** Any of the two hoses can be connected to either the top or the bottom fitting on the divider). Locate the short hose extending from the hydraulic power unit. Remove the plug from the hose and connect the hose to the fitting on the turner down flow divider.

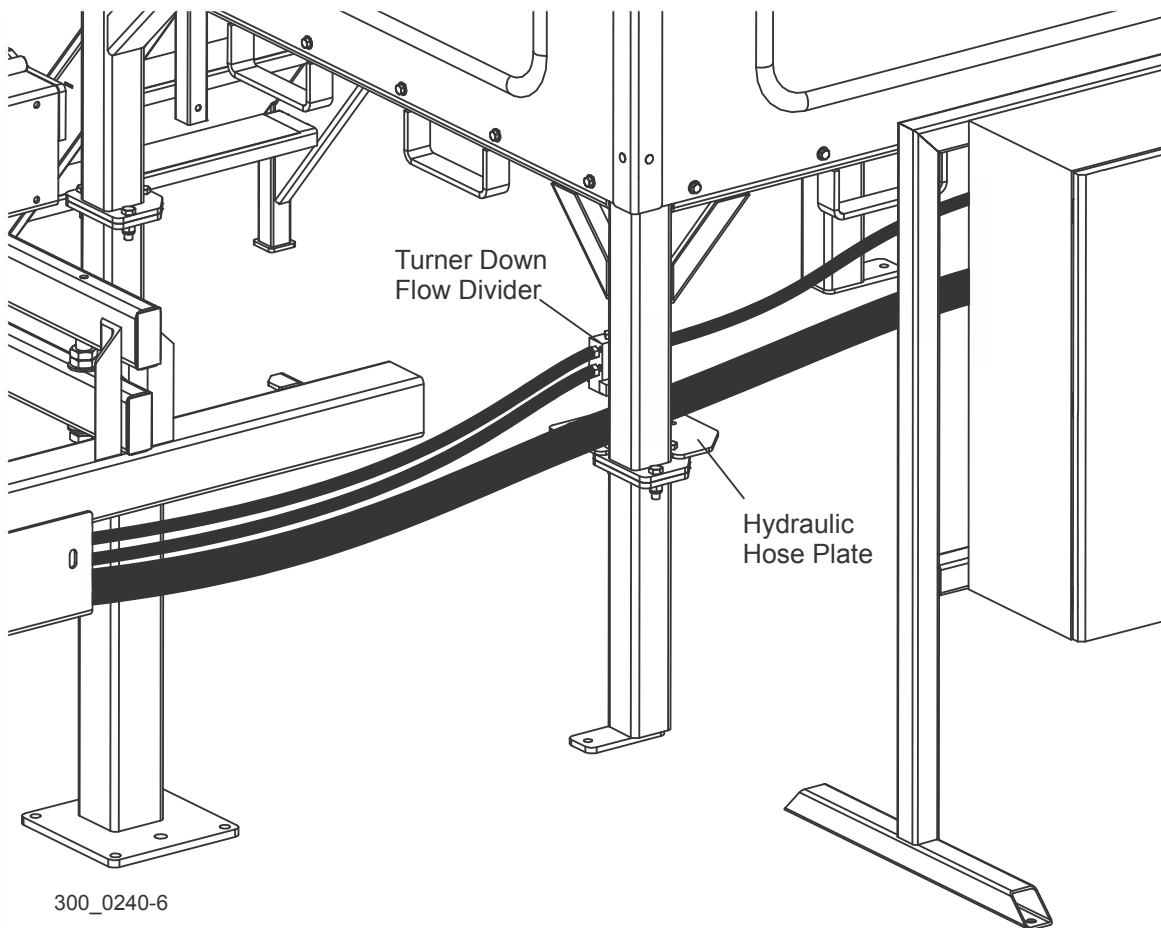


FIG. 3-13

Use the provided tie wraps to secure the hydraulic hoses to the hydraulic hose plates located on the operator station.

See Figure 3-14. Locate the four color-coded hoses secured to the hydraulic hoses next to the hydraulic log clamp. Remove the plugs from the hoses and connect each hose to the appropriate fitting on the hydraulic log clamp.

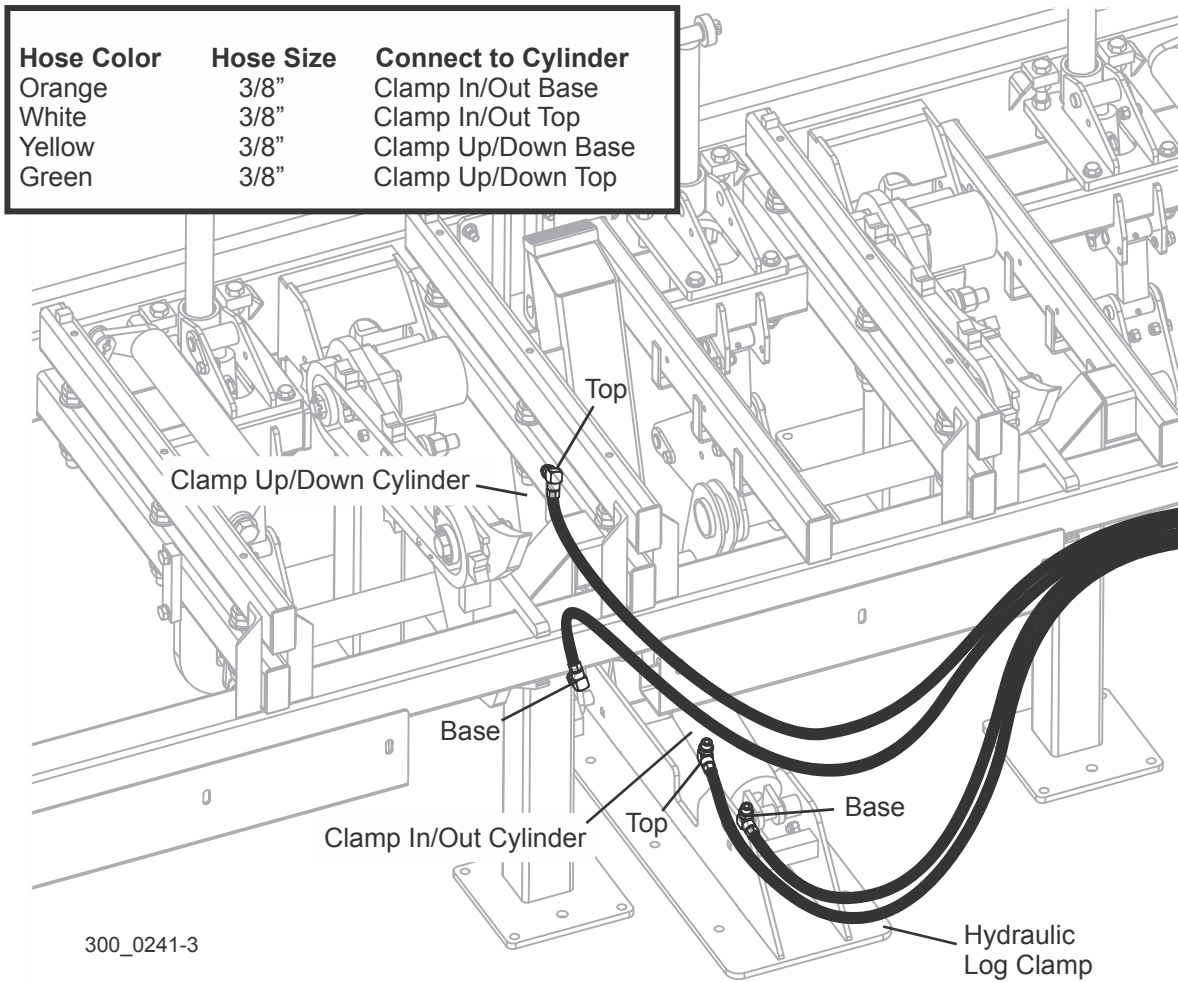


FIG. 3-14

[See SECTION 8 Hydraulic Information](#) for hydraulic schematics and components.



IMPORTANT! Close the hydraulic power unit pressure gauge valve to isolate the pressure gauge from the hydraulic circuit during normal machine operation. **NOTE:** The pressure gauge is used for troubleshooting purposes only.

3 Setup

Hydraulic Installation (Optional BX12 Bed Extension Only)

3.9.1 Hydraulic Installation (Optional BX12 Bed Extension Only)

Install the bed extension hydraulic control box and valve assembly to the operator station as shown below. Use the existing and provided hex head bolts, flat washers and hex nuts to secure the assemblies to the operator station.

See Figure 3-15.

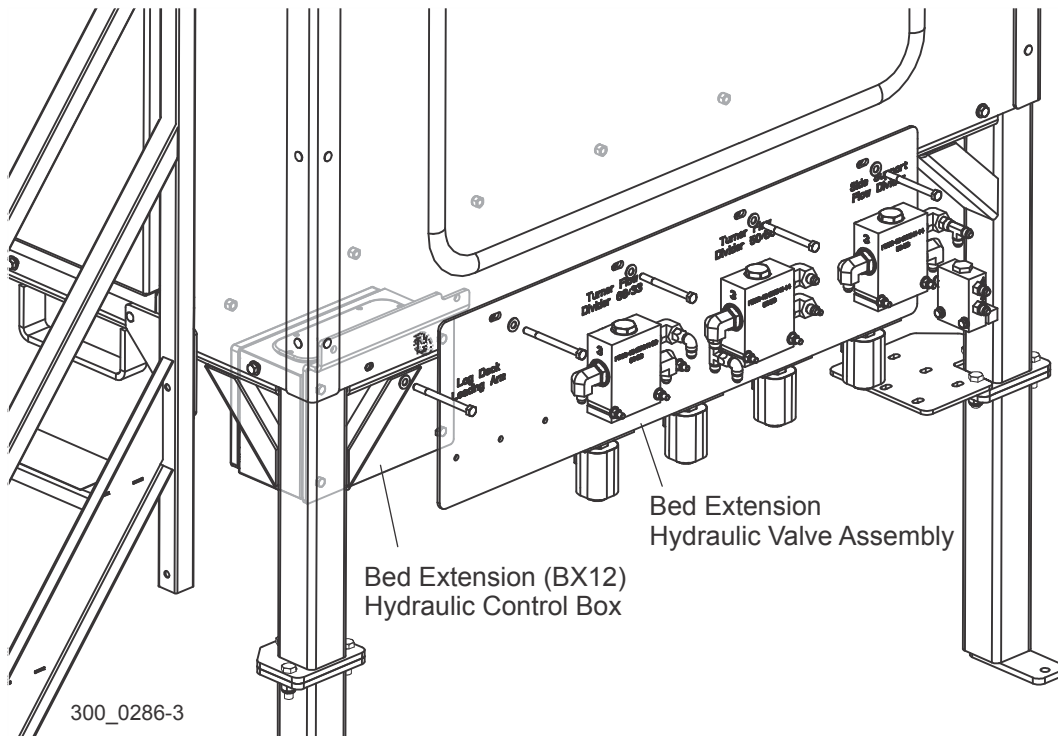


FIG. 3-15

Install the bed extension directional valve assembly to the hydraulic power unit as shown below.

See Figure 3-16.

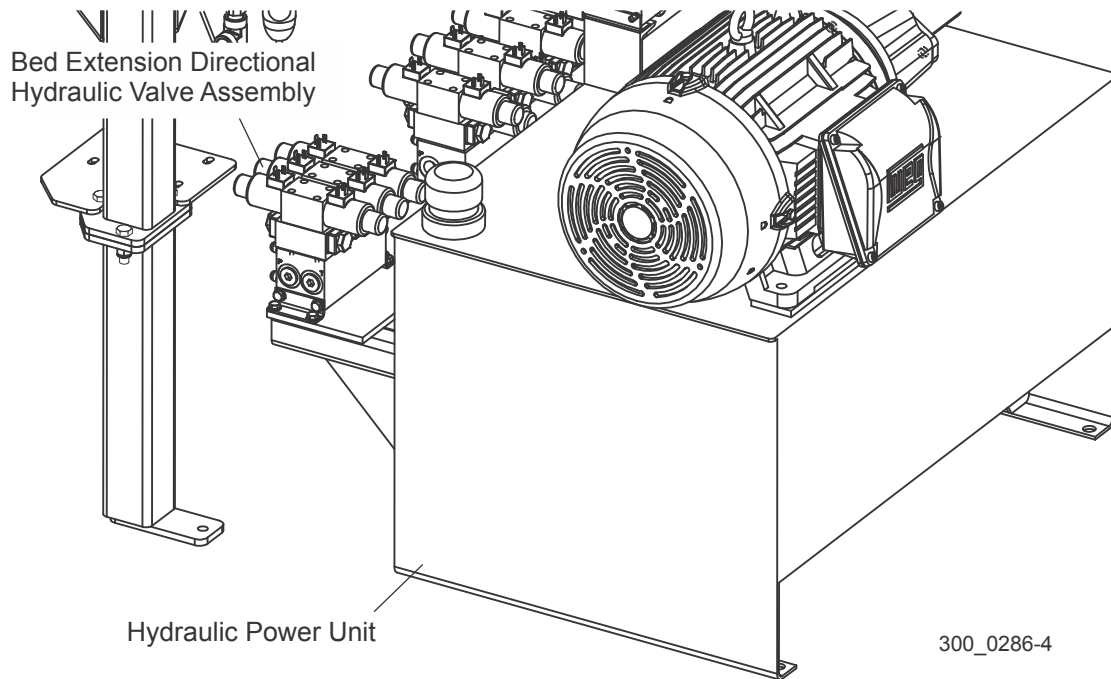


FIG. 3-16

Connect the bed extension hydraulic hoses to the bed extension hydraulic components and valve assemblies ([See Section 8.1.4](#) for BX12 bed extension hydraulic schematic).

[See Section 4.4.4](#) and [See Section 4.4.6](#) to enable the BX12 bed extension option and the bed extension hydraulic system in the control box.

3.10 Air Installation

See **Figure 3-17**. Locate the air service assembly at the rear of the operator station. Install a 1/2" NPT quick disconnect fitting to the fitting supplied in the air valve. Connect the incoming air supply line (minimum 1/2" air hose) to the quick disconnect fitting. Connect the two air lines from the sawmill to the tube fittings supplied on either side of the air regulator/filter. Install the line labeled "Blow-Off Supply" to the fitting to the left of the air valve and regulator. Install the line labeled "Tension Air Supply" to the elbow fitting on the regulator. To install each line, push the fitting collar in, insert the hose and release the collar.

NOTE: If the sawmill is equipped with the optional Pressure Lube System, connect the 1/2" Blow-Off Supply line to the lube system fitting and connect the 1/2" hose from the lube system to the fitting to the left of the air valve ([See Section 3.6.2](#)).

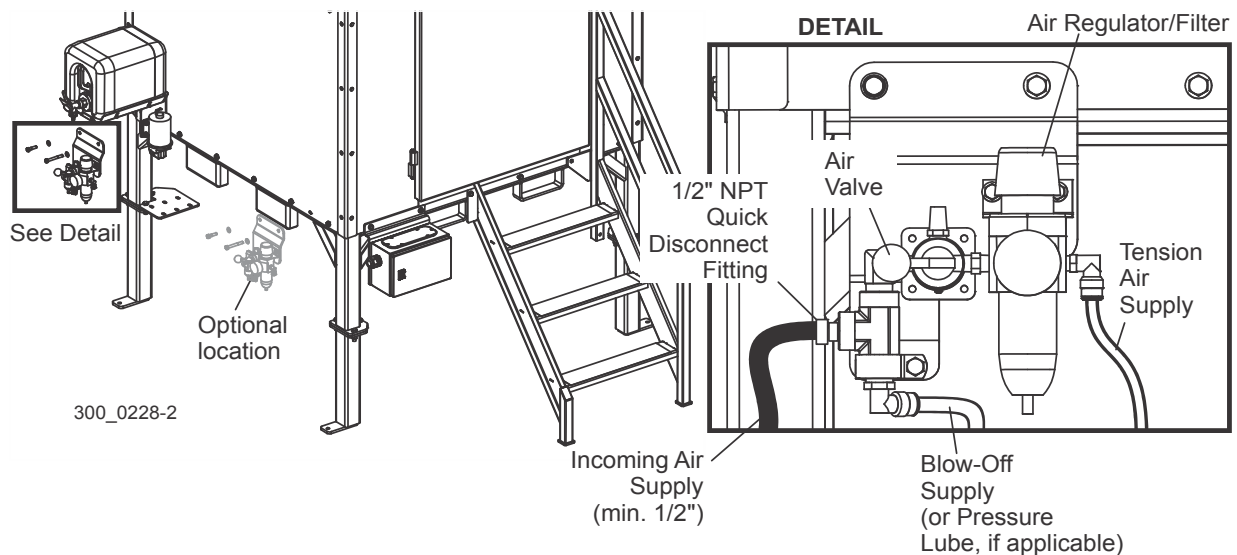


FIG. 3-17 WM4000

3.11 Sawmill Installation Setup

Once the sawmill is in place and anchored to the floor, you are ready to setup the sawmill for operation. The first step should be aligning the sawmill bed sub-frame. A transit maybe used for this procedure, however a laser-style level is recommended because it is easier and more accurate.

NOTE: This procedure is intended to be performed by factory personnel during initial installation using the appropriate equipment. Refer to the alignment section for subsequent adjustments to sawmill ([See SECTION 7 Alignment](#)).

3.11.1 Level Sub-Frame

Set the laser level at a location so the beam is positioned five inches above the top track rail. Move the saw head so it is positioned over the log clamp tube at the middle of the bed frame.



CAUTION! Avoid raising or lowering the saw head against the upper or lower travel limits until after the transducer has been properly adjusted ([See Section 3.11.1](#)). Failure to do so may result in damage to the machine.

Measure the distance from the top track rail to the laser beam at four locations along the tube. Once you have four measurements, determine a target dimension that splits the difference of the four dimensions taken.

See Table 3-2. Suppose the four dimensions from track rail to the laser beam are as shown below. The 1/4" dimension should be the target as this will require the least adjustment at each location.

| Front | Front Middle | Rear Middle | Rear | Target |
|-------|--------------|-------------|------|--------|
| 1/4" | 0" | 1/2" | 1/4" | 1/4" |

TABLE 3-2

3

Setup

Level Sub-Frame

See Figure 3-18. To level the main bed tube, measure the distance from the top track rail to the laser beam at one of the leg locations. Move the saw head if necessary to remove weight from the leg. Use the shims to raise or lower the appropriate leg until the target dimension is obtained ($\pm 1/16''$). Repeat at each leg location along the length of the main bed tube.

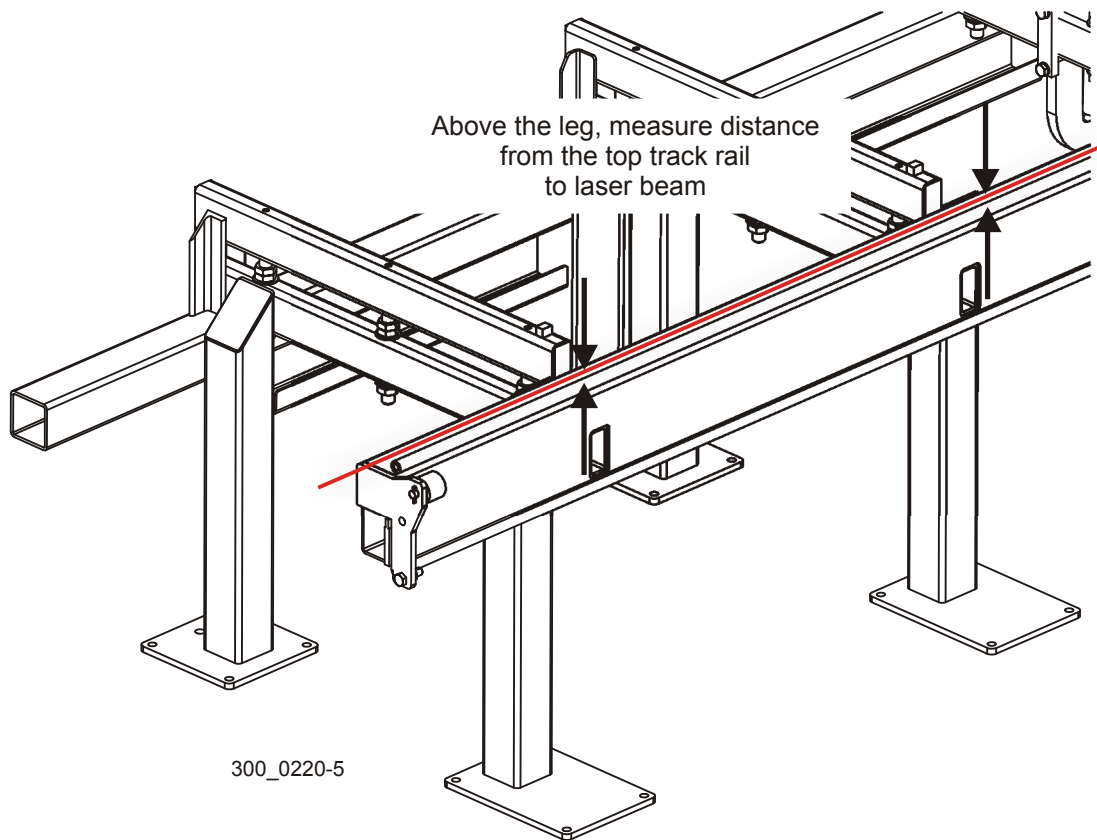


FIG. 3-18

After all of the legs have been adjusted, move the saw head back to the rear of the bed (furthest from operator station). Measure the distance from the top track rail to the laser beam at the log clamp tube location. If the measurement is more than $1/16''$ more or less than the target dimension determined above, shim one of the two middle inside legs to push or pull the tube until it is level.

See Figure 3-19. To level the bed sub-frame in the other direction, place two pieces of straight tubing between the front two bed rail supports. Measure from the front end of each tube to the laser beam. Shim the outer front leg to level the bed so both measurements to the tubes are the same ($\pm 1/16''$). Repeat at the other end of the tubes using the second outer leg to adjust. Move the straight tubes to the rear two bed rail supports and adjust the two outer rear legs until the bed is level ($\pm 1/16''$).

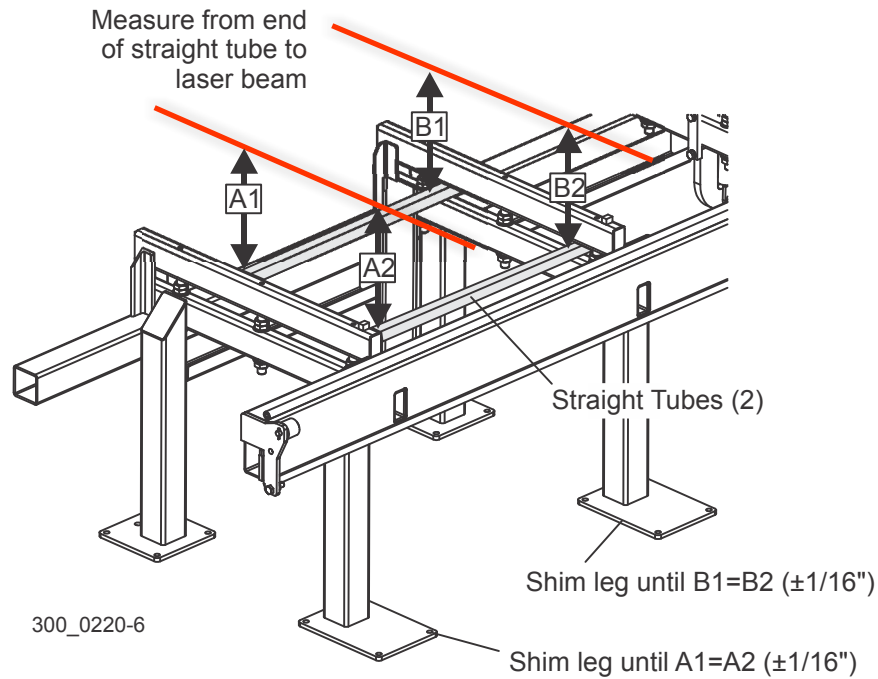



FIG. 3-19

3 Setup

Level Saw Head

3.11.2 Level Saw Head

Install a blade around the blade wheels. Tension and track the blade. Move the saw carriage so the blade is positioned over the log clamp tube. Adjust the blade guide arm all the way out.

 **WARNING!** DO NOT use blades with stress cracks. Blades with stress cracks can shatter causing bodily injury and/or machine damage.

Adjust the blade guides so they do not touch the blade in any way.

See Figure 3-20. Standard Roller/Block Guides: Turn blade guide assembly bolt (A) clockwise to move the guide roller up off the blade. Loosen screws (F) and (G) and move the guide assembly back away from blade.

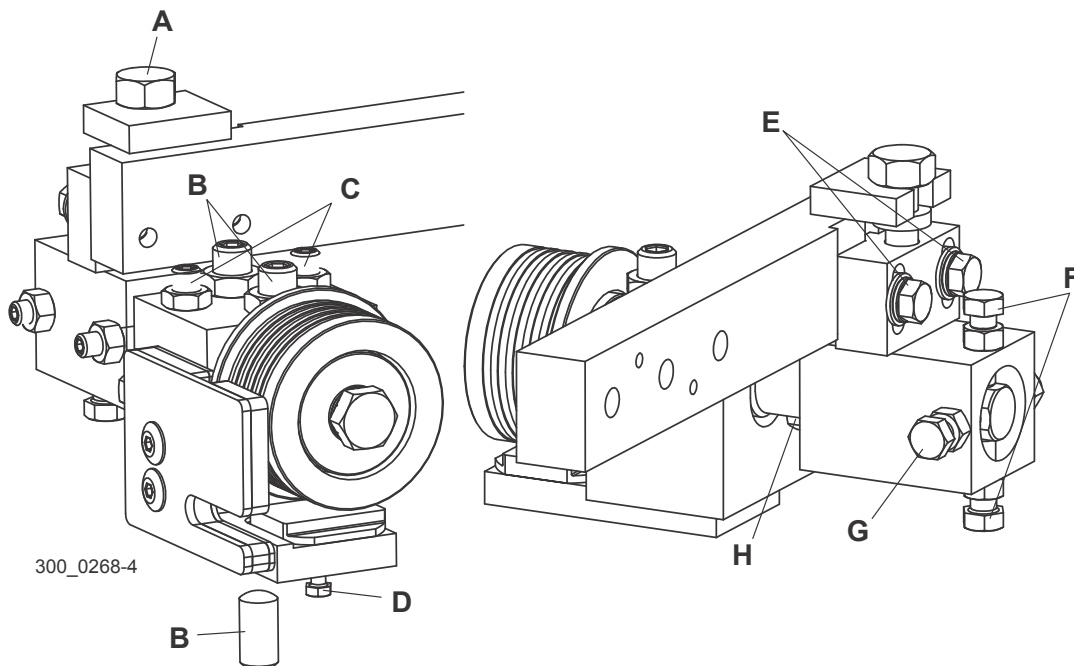


FIG. 3-20

See Figure 3-21. Raise the saw head until the blade is approximately 15” above the clamp tube. Hang a tape rule from the blade near the inner blade guide assembly. Make sure the tape does not contact an upward set tooth. Check the measurement from the blade to the laser beam. Move the tape rule near the outer blade guide assembly and measure to the laser beam. The two measurements should be equal. If necessary, adjust the lower track rollers to tilt the saw head so the blade is parallel to the laser beam.

To tilt the outer side of the saw head down toward the bed, loosen the adjustment bolts. Turn each adjustment bolt equally, one revolution at a time and remeasure the distance from the blade to the laser beam. Once the blade is parallel to the laser beam, tighten the stop bolts until they stop against the roller mount block.

To tilt the outer side of the saw head up, loosen the stop bolts and tighten the adjustment bolts. Turn each adjustment bolt equally, one revolution at a time and remeasure the distance from the blade to the laser beam. Once the blade is parallel to the laser beam, tighten the stop bolts until they stop against the roller mount block.

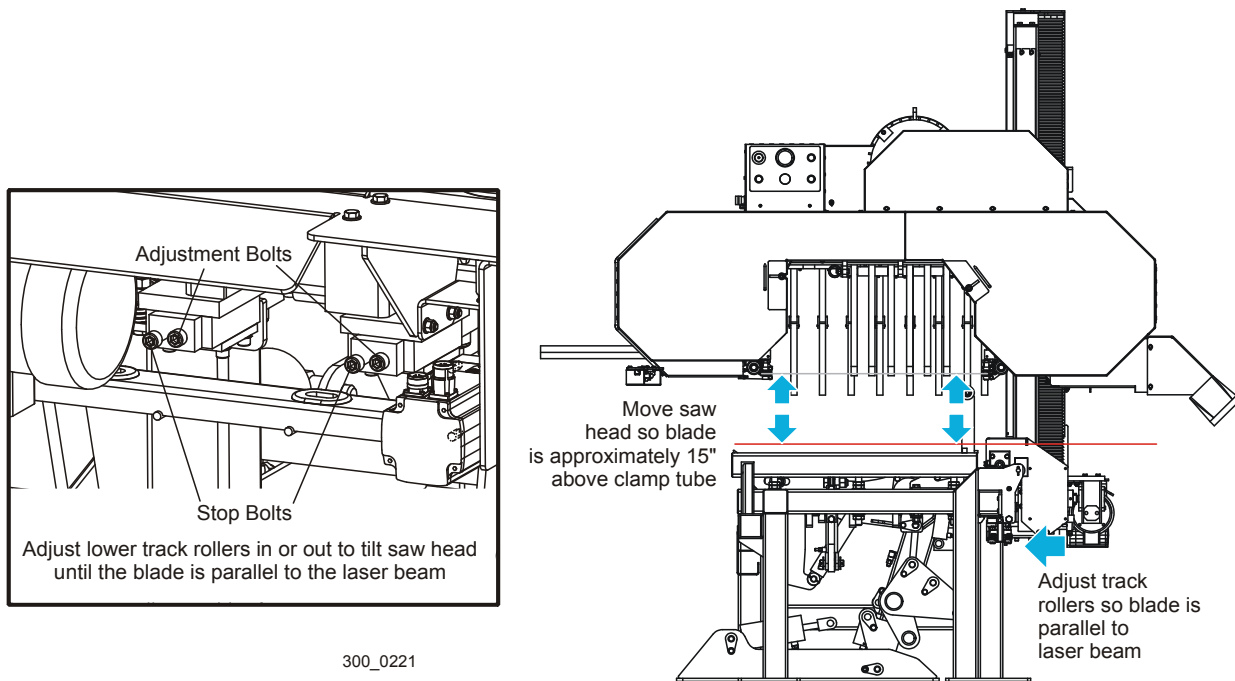


FIG. 3-21

3 Setup

Level Saw Head

See **Figure 3-22**. Now that the blade is parallel to the laser beam at the clamp location, check the alignment at each leg location along the main frame tube. Move the saw head to the first leg location and measure from the blade to the laser beam at both blade guide assemblies. If the measurements are not the same, shim the outer leg until the blade is parallel to the laser beam. Repeat adjustment at each leg location down the length of the frame tube. Return to the first leg, recheck the blade alignment, fine-tune if necessary.

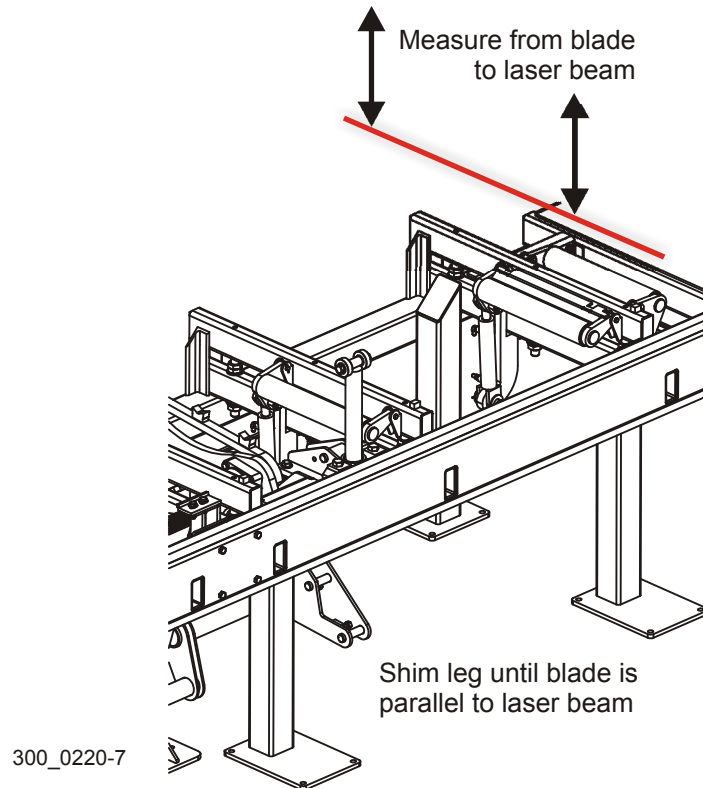


FIG. 3-22

3.11.3 Level Bed Rails

See Figure 3-23. Adjust the bed rails to 1/2" below the log clamp stop. Measure the distance from the laser beam to the clamp stop (i.e. 5"). Measure the distance from the first bed rail to the laser beam at both ends of the bed rail. If necessary, loosen the bed rail adjustment nuts and turn the adjustment nuts to raise or lower the end of the bed rail so it is 1/2" below the clamp stop (i.e. 5 1/2" [$\pm 1/16$ "]). Retighten the bed rail adjustment nuts. Repeat adjustment as necessary at each bed rail.

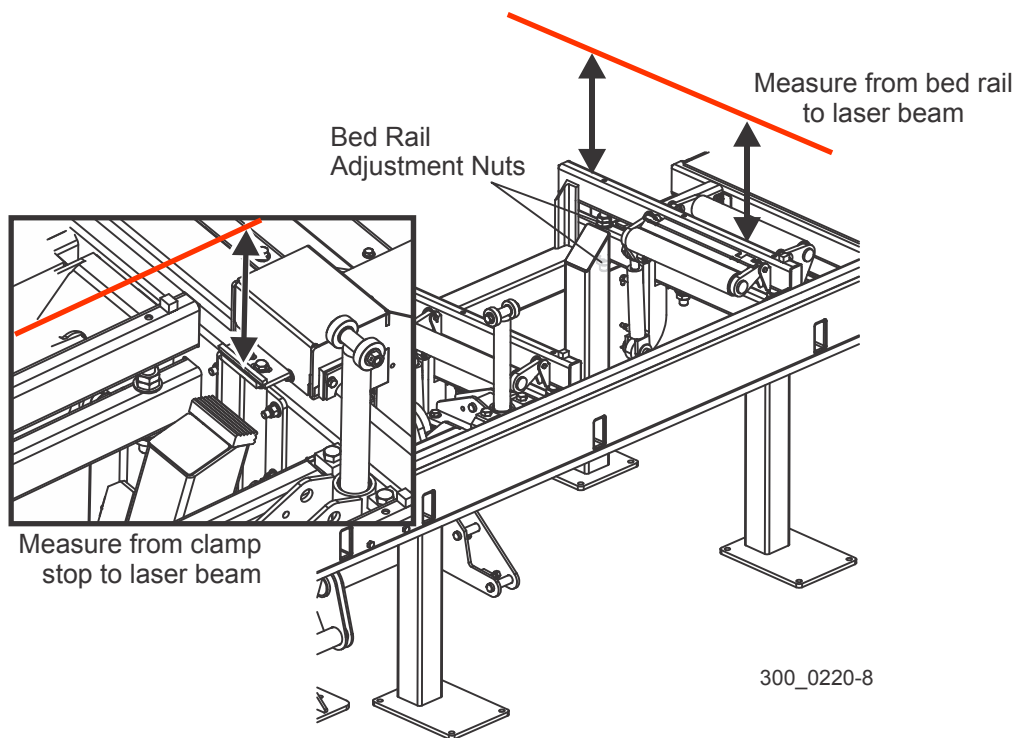


FIG. 3-23

Move the saw head so the blade is positioned over the first bed rail. Open the blade guide arm all the way open. Measure from the bottom of the blade to the bed rail at each end of the rail. If the two measurements differ by more than 1/16", recheck the measurement from the bed rail to the laser beam and adjust the bed rail as necessary. Move the saw head to each bed rail and repeat procedure until all bed rails are parallel to the blade and laser beam within 1/16".

3

Setup

Level Blade Guide Arm

3.11.4 Level Blade Guide Arm

See **Figure 3-24**. Adjust the blade guide arm all the way in. Measure from the bottom of the arm to the laser beam at both ends of the arm. The two measurements at each end of the arm should be the same within $1/32$ ". To adjust the vertical tilt of the arm, adjust the bolts (C & D) on the blade guide arm mounting plate. Loosen the jam nuts. Adjust bolt (C) up and bolt (D) down to tilt the arm up. Adjust bolt (D) up and bolt (C) in to move the arm toward the blade. Recheck the distance from the arm to the laser beam at both ends of the arm. Readjust if necessary. Tighten the jam nuts.

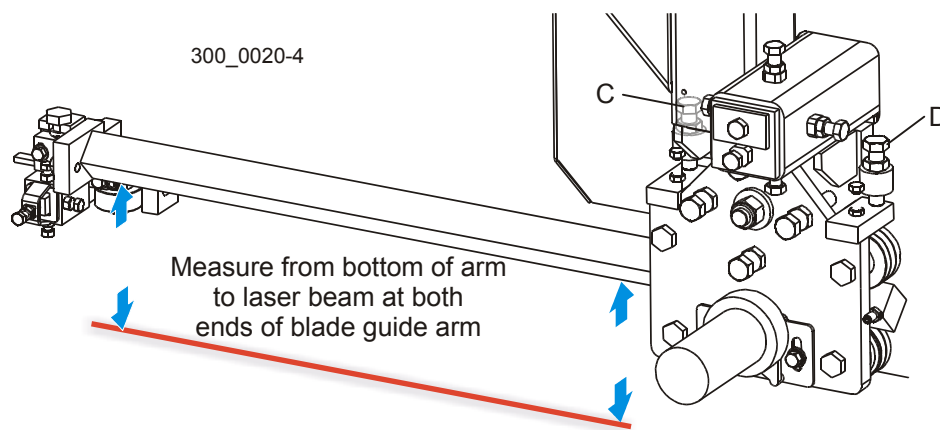


FIG. 3-24

Adjust the blade guides for sawing.

See Figure 3-25. Standard Roller/Block Guides: Move the guide assembly forward until the roller flange is 1/16"-1/8" from the back edge of the blade and tighten clamp bolts (F) and (G). Turn blade guide assembly bolt (A) counterclockwise to lower the guide roller until it deflects the blade down 1/4". Adjust the blade guide screws (B) to raise or lower bottom block to **.008" - .010" from bottom of blade**. Repeat for other blade guide assembly.

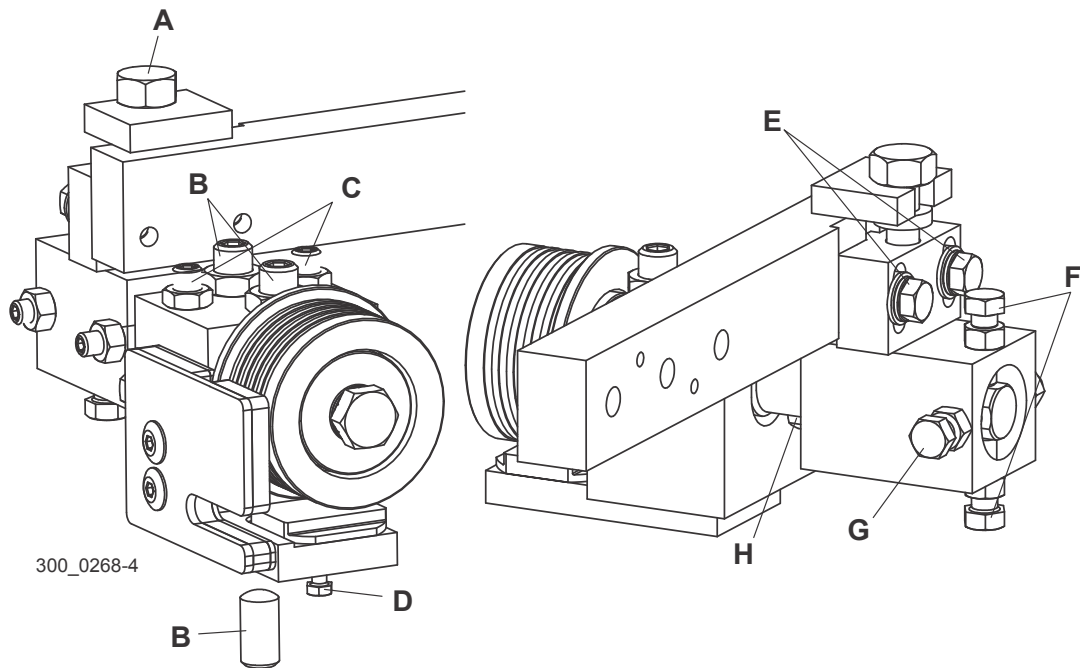


FIG. 3-25

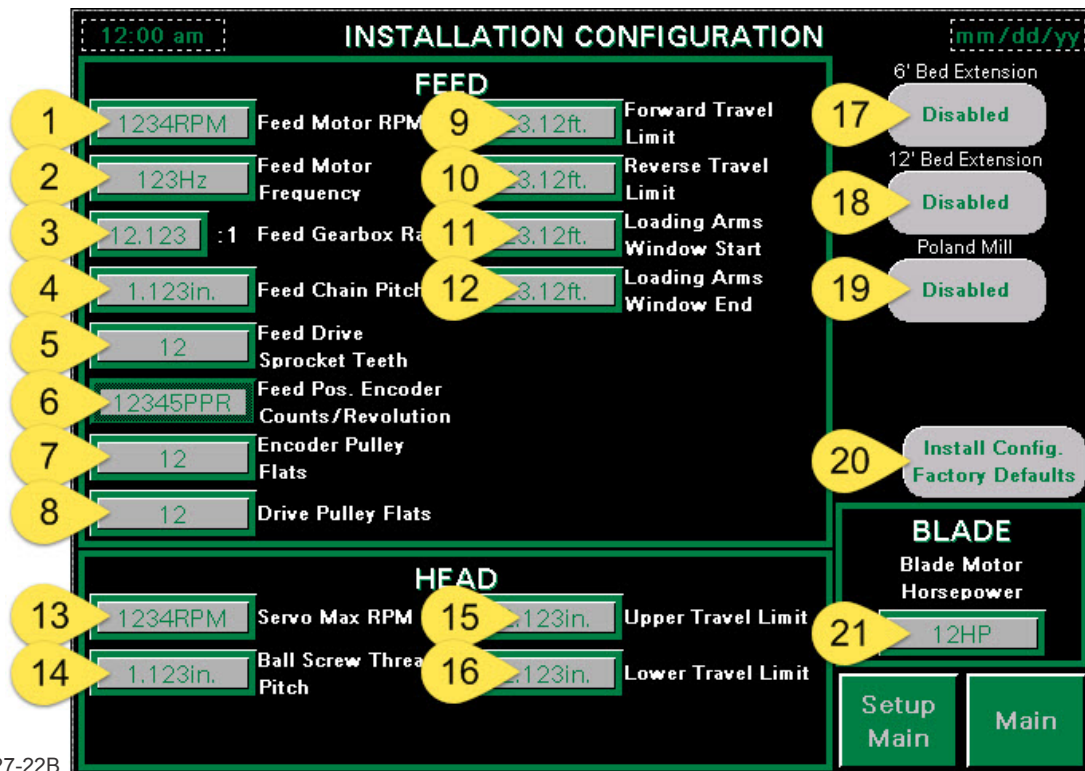
3.12 Initial Sawmill Setup

After the sawmill is installed and ready to operate, it should be properly setup. Push the control power-on green START button to activate the machine and perform the setup procedures described below to prepare the sawmill for operation.

3.12.1 Installation Configuration

From the Main Screen, press the Setup button, then press the Install Config. button to access the Installation Configuration screen shown below.

See Figure 3-26.



300_0227-22B

FIG. 3-26

The Installation Configuration screen settings will normally not need to be changed. All the defaults are set for a standard machine.

1. Feed Motor RPM - The Rotations Per Minute of the Feed Motor. This is used to be able to calculate the proper frequency to send to the Variable Frequency Drive to achieve an accurate speed in ft/min or m/min.
2. Feed Motor Frequency - The standard frequency of the Feed Motor. This is used to be

able to calculate the proper frequency to send to the Variable Frequency Drive to achieve and accurate speed in ft/min or m/min.

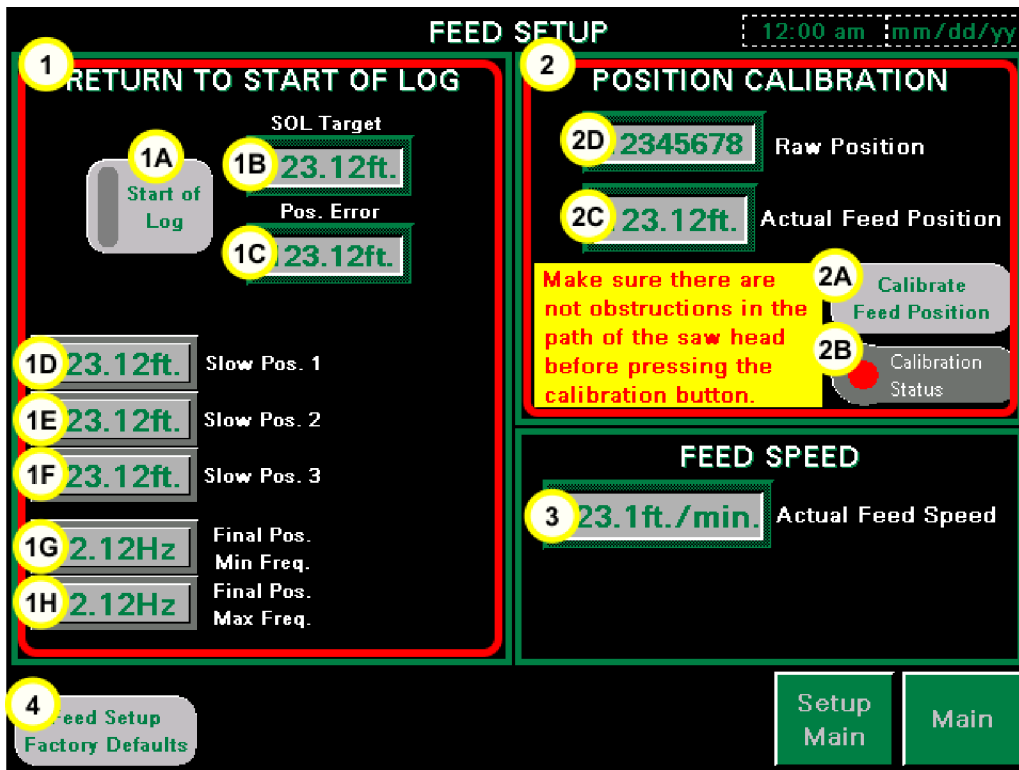
3. **Feed Gearbox Ratio** - The gear ratio of the gearbox the feed motor is attached to. This is used to be able to calculate the proper frequency to send to the Variable Frequency Drive to achieve and accurate speed in ft/min or m/min.
4. **Feed Chain Pitch** - The distance between links on the feed chain. This is used to calculate the position in feet or meters from the encoder rotations. It is also used to be able to calculate the proper frequency to send to the Variable Frequency Drive to achieve and accurate speed in ft/min or m/min.
5. **Feed Drive Sprocket Teeth** - The number of teeth on the driving sprocket of the feed system. This is used to be able to calculate the proper frequency to send to the Variable Frequency Drive to achieve and accurate speed in ft/min or m/min.
6. **Feed Pos. Encoder Counts/Revolution** - The number of points on the encoder per revolution. This is used to calculate the position in feet or meters from the encoder rotations. It is also used to be able to calculate the speed in ft/min or m/min that the head is feeding.
7. **Encoder Pulley Flats** - The number of flats on the encoder timing belt pulley. This is used to calculate the position in feet or meters from the encoder rotations. It is also used to be able to calculate the speed in ft/min or m/min that the head is feeding.
8. **Drive Pulley Flats** - The number of flats on the drive timing belt pulley. This is used to calculate the position in feet or meters from the encoder rotations. It is also used to be able to calculate the speed in ft/min or m/min that the head is feeding.
9. **Forward Travel Limit** - The software stop position for forward head travel.
10. **Reverse Travel Limit** - The software stop position for reverse head travel.
11. **Loading Arms Window Start** - The position at which the safety window for the loading arms starts. The head has to be outside of this window in order to operate the loading arms.
12. **Loading Arms Window End** - The position at which the safety window for the loading arms ends. The head has to be outside of this window in order to operate the loading arms.
13. **Servo Max RPM** - The maximum allowable RPM the servo can run.
14. **Ball Screw Thread Pitch** - The distance between threads on the ball screw. This is used to calculate the position in inches or millimeters from the encoder rotations.
15. **Upper Travel Limit** - The software stop position for the upward head travel.

16. Lower Travel Limit - The software stop position for the downward head travel.
17. 6' Bed Extension - Pressing this button will change the forward travel limit so the head is able to travel onto the 6' bed extension.
18. 12' Bed Extension - Pressing this button will change the forward travel limit so the head is able to travel onto the 12' bed extension. It will also allow you to enable and disable the 12' bed extension hydraulics on the "Setup" screen. (**NOTE:** Only the 12" bed extension is equipped with hydraulics.)
19. Poland Mill - When enabled all settings for the Poland Mill will be active.
20. Install Config. Factory Defaults - Pressing this button resets all the values on the screen to factory defaults.
21. Blade Motor Horsepower - The horsepower to the blade motor. This is used to calculate the horsepower or kilowatts of the blade motor from the power feedback of the soft-start.

3.12.2 Feed Setup

From the Main Screen, push the Setup button, then push the Feed Setup button. The Feed Setup screen is where the Return To Start Of Log function can be tuned and the position of feed calibrated. You can also reference feed speed from this screen.

See Figure 3-27.



300_0227-6B

FIG. 3-27

Position Calibration

This mill uses an encoder to track feed position for different locations (e.g. Start of Log Position and End of Log Position). With the ability to have these values more functions can be automated during the sawing cycle.

The Raw Position displays the raw data from the encoder before it is converted to the actual units.

Position Calibration Procedure

If the machine needs to be calibrated, the HMI will automatically switch to the "Feed Setup" screen after control power is turned on. The only time this is not the first screen gone to after a power cycle is when there is a Joystick Configuration fault and the Centers

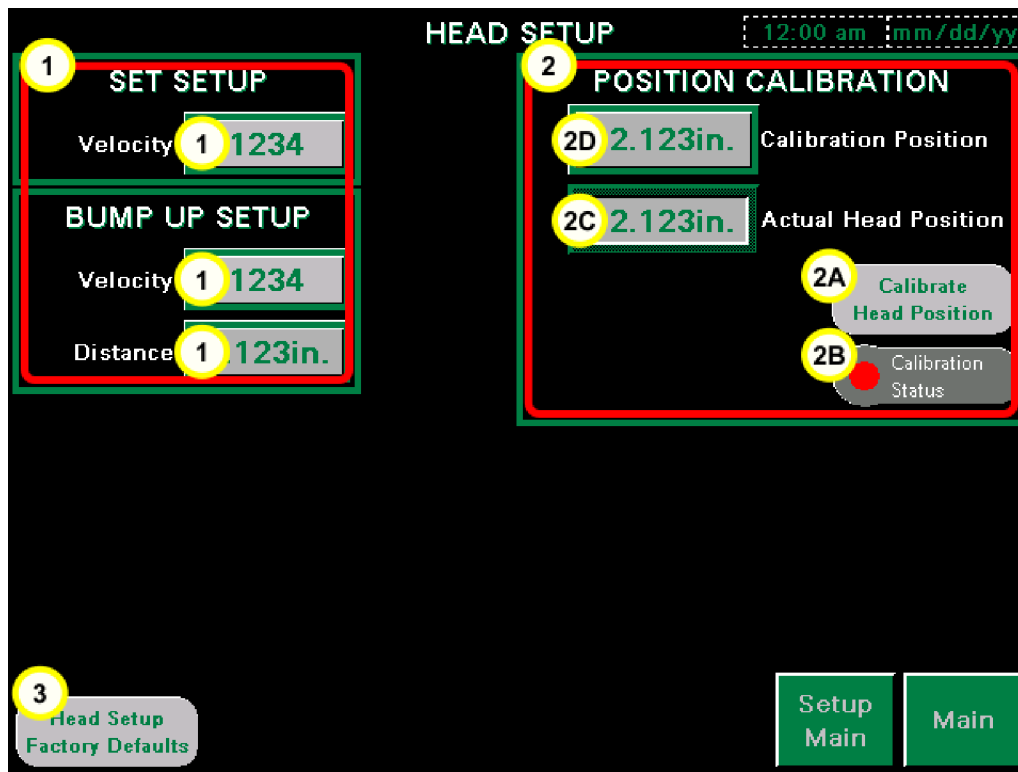
of each joystick need to be reset and the furthest travel positions need to be captured. Usually this will only happen during the initial install of the machine, and never again unless the PLC gets replaced. If the “Feed Setup” screen is already active then proceed to step 3.

1. From the “Main” screen press the “Setup” button.
2. On the “Setup” screen press the “Feed Setup” button.
3. At the top right of the “Feed Setup” screen is the “Position Calibration” section **(2)**. If the calibration is required then the “Calibration Status” **(2B)** will be RED, if you are just re-calibrating then it is probably GREEN.
4. Make sure there are no obstructions in the path of the saw head. The head will travel all the way to the reverse hard stop.
5. Press the “Calibrate Feed Position” **(2A)** button.
6. The head will start slowly traveling to the reverse hard stop. To calibrate the feed position the head presses against the hard stop until there is a spike in motor current on the feed motor. At that point that position is called 1' 0", and the “Actual Feed Position” **(2C)** should have a value around 1.0ft., the value sometimes floats above this because when the feed drive release pressure the rubber stop pushes the head back away from it. The “Calibration Status” **(2B)** will turn green when the process is complete.

3.12.3 Head Setup

From the Main Screen, push the Setup button, then push the Head Setup button. The Head Setup screen is where the Head Position can be tuned and the position of head calibrated.

See Figure 3-28. The Head Setup screen is shown below.



300_0227-7B

FIG. 3-28

Position Calibration

The servo has an internal encoder for tracking head position.

Position Calibration Procedure

If the machine needs calibrated, the HMI will automatically switch to the “Head Setup” screen after control power is turned on. If the “Head Setup” screen is already active then proceed to Step 3.

1. From the “Main” screen press the “Setup” button.
2. On the “Setup” screen press the “Head Setup” button.

3

Setup

Upper and Lower Saw Head Stop Adjustment

3. At the top right of the “Head Setup” screen is the “Position Calibration” section. If the calibration is required then the “Calibration Status” will be RED, if you are just re-calibrating then it is probably GREEN.
4. Position the head over a bed rail and measure from a down set tooth to the bed rail.
 - Enter this value in the “Calibration Position” numeric entry box **(2D)**.
5. Press the “Calibrate Head Position” button.
6. Calibration complete.

3.12.4 Upper and Lower Saw Head Stop Adjustment

Adjust the upper and lower head stop before starting to operate the sawmill. To adjust the lower head stop, move the saw head slowly all the way down to 1” above the sawmill bed. The saw head will stop automatically. Adjust the lower head stop so it is 1/16-1/8” from the head frame. Move the saw head slowly all the way up to 36” above the sawmill bed until the saw head automatically stops. Adjust the upper head stop so it is 1/16-1/8” from the head frame.

See Figure 3-29.

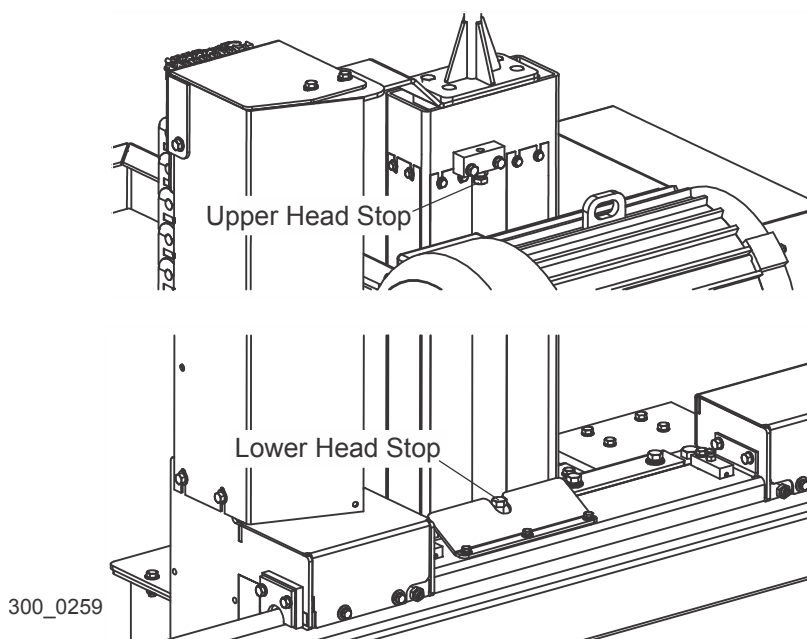


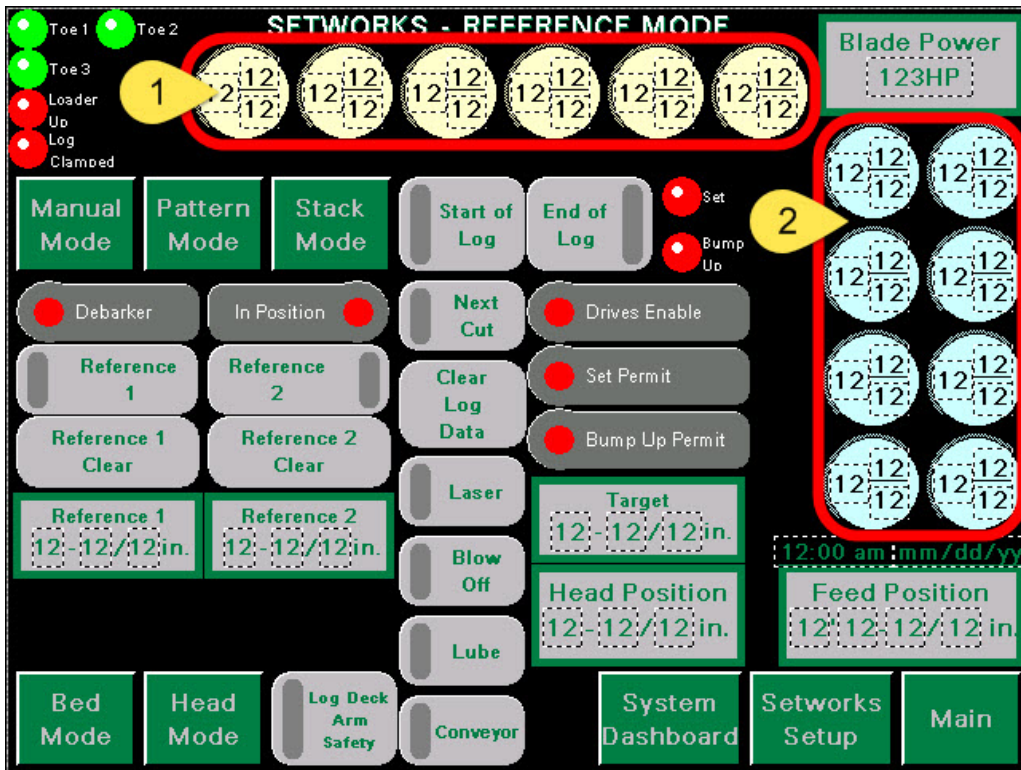
FIG. 3-29

NOTE: Check the upper and lower saw head stop settings every time the head position calibration is performed.

3.12.5 Networks Setup

From the Home screen, touch the Networks Setup button.

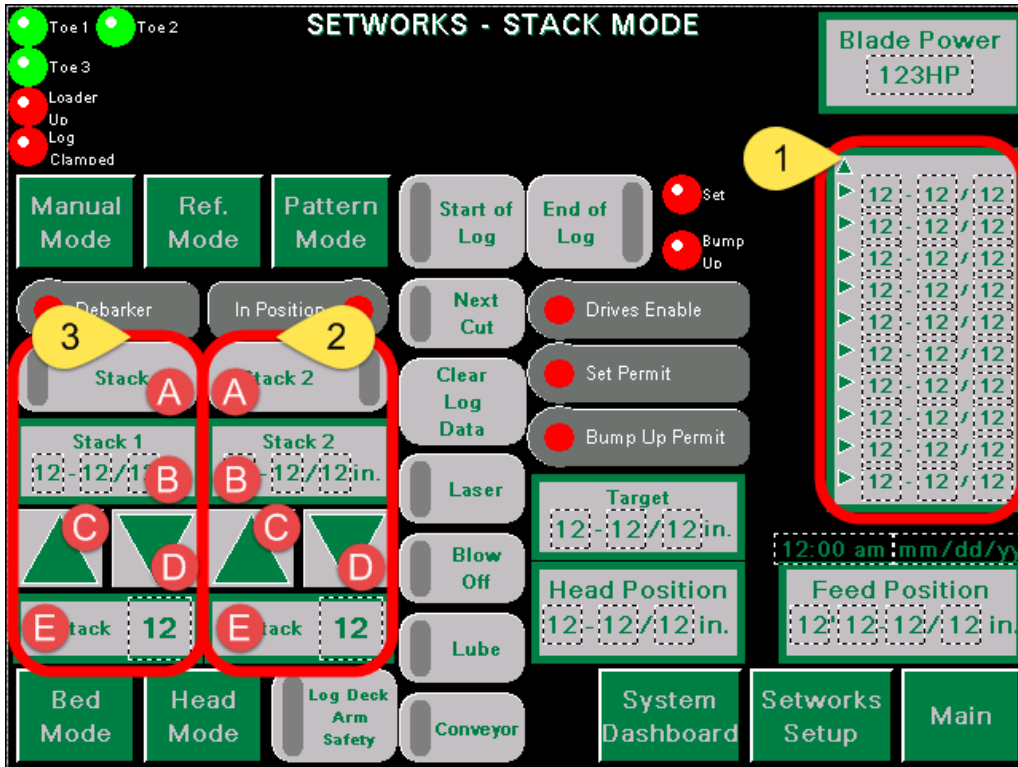
See **Figure 3-30**. There are six Board Size buttons used in Reference and Pattern modes. There are also eight Cant Size buttons used in Reference and Pattern modes. Their values are always displayed on the touch screen when in these modes.



300_0227-9B

FIG. 3-30

See Figure 3-31. There are also four Stacks in Stack mode. Each stack has ten sizes.



300_0227-10B

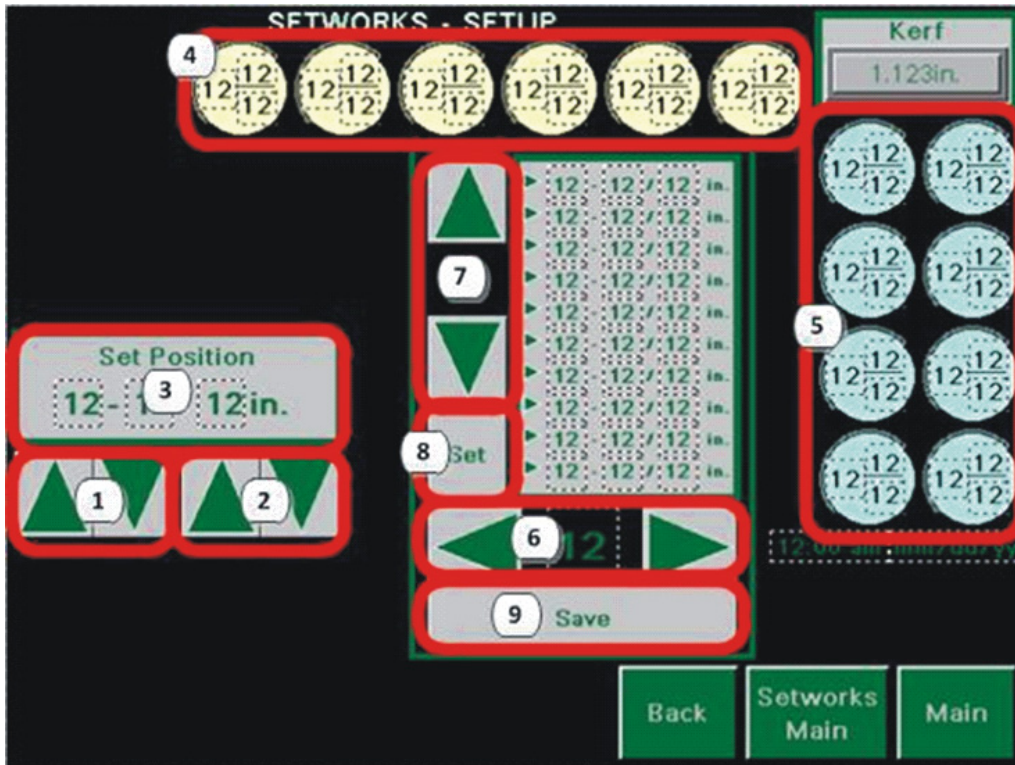
FIG. 3-31

To program the Board Sizes, Cant Sizes, and Stack Sizes you have to go to the “Setworks Setup” screen. From the Main screen just press the “Setworks Setup” screen. From Reference or Pattern mode also press the “Setworks Setup” screen. If you want to change board or cant sizes while cutting a log, you must use the buttons located in the mode you are in so that you do not leave setworks and delete all your log date, i.e. Start of Log Position, End of Log Position, or Reference positions.

The Kerf Size is also setup on this screen.

Fractional Size Setup

See Figure 3-32. The Networks Setup screen is shown below.



300_0227-11

FIG. 3-32

- (1) Use these arrows to increase or decrease the size by whole inches.
- (2) Use these arrows to increase or decrease the size by a thirty-second of an inch.
- (3) This display shows the size selected.
- (4) Press one of the board size buttons to set it to the size selected.
- (5) Press one of the cant size buttons to set it to the size selected.
- (6) Choose the Stack to you want to set with thee buttons.
- (7) Choose the position of the stack to edit.
 - Each size above the one set will be filled with the value entered.
- (8) Press the "Set" button to set the position of the stack to the size selected.

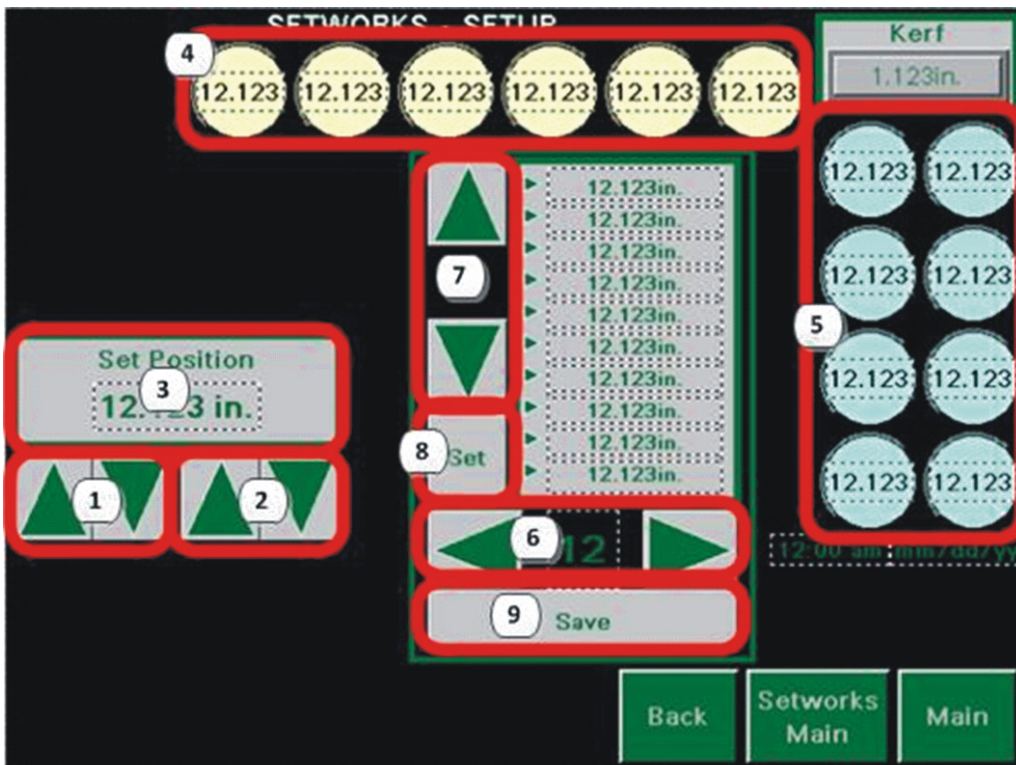
3 Setup

Setworks Setup

(9) When the Stack is full, press the “Save” button to keep it in memory.

Decimal Size Setup

See Figure 3-33. The Setworks Setup screen is shown below.



300_0227-12

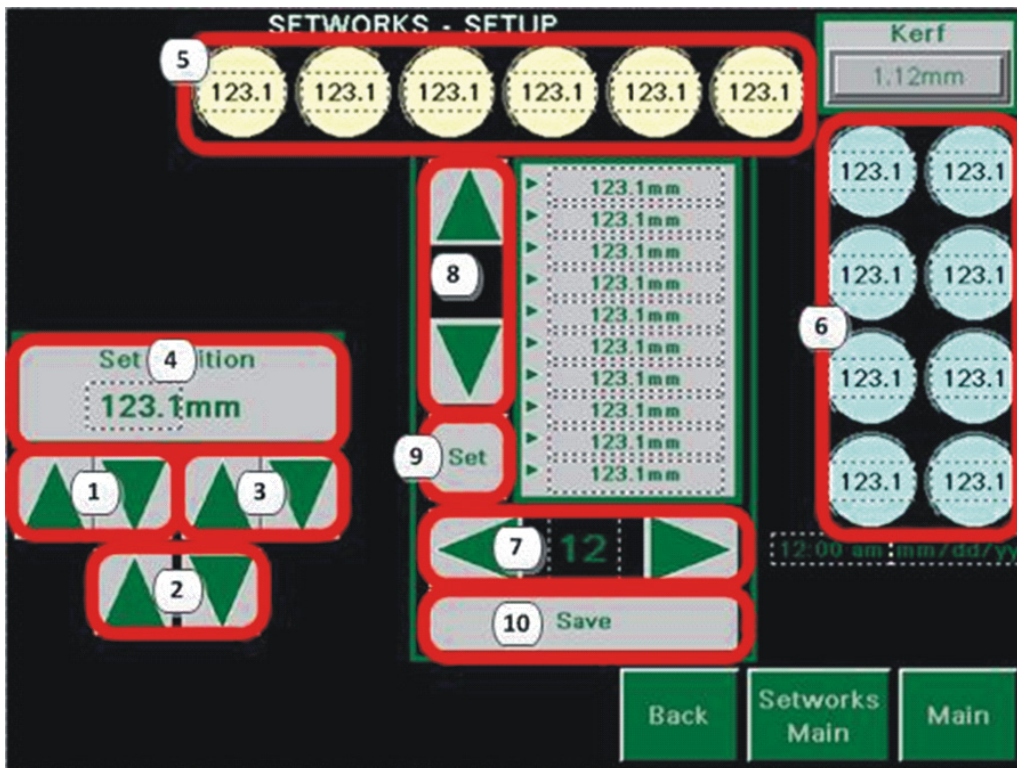
FIG. 3-33

- (1) Use these arrows to increase or decrease the size by whole inches.
- (2) Use these arrows to increase or decrease the size by a thirty-second of an inch.
- (3) This display shows the size selected.
- (4) Press one of the board size buttons to set it to the size selected.
- (5) Press one of the cant size buttons to set it to the size selected.
- (6) Choose the Stack to set with these buttons.
- (7) Choose the position of the stack to edit.
 - Each size above the one set will be filled with the value entered.

- (8) Press the “Set” button to set the position of the stack to the size selected.
- (9) When the Stack is full, press the “Save” button to keep it in memory.

Metric Size Setup

See **Figure 3-34**. The Setworks Setup screen is shown below.



300_0227-13

FIG. 3-34

- (1) Use these arrows to increase or decrease the size by 10mm.
- (2) Use these arrows to increase or decrease the size by 1mm.
- (3) Use these arrows to increase or decrease the size by 0.1mm.
- (4) This display shows the size selected.
- (5) Press one of the board size buttons to set it to the size selected.
- (6) Press one of the cant size buttons to set it to the size selected.
- (7) Choose the Stack to you want to set with thee buttons.

(8) Choose the position of the stack to edit.

- Each size above the one set will be filled with the value entered.

(9) Press the “Set” button to set the position of the stack to the size selected.

(10) When the Stack is full, press the “Save” button to keep it in memory.

SECTION 4 OPERATION

4.1 Control Overview

The WM4000 control was designed to allow the operator to control the sawing operation with minimal effort and movement.

See Figure 4-1. The control box includes controls to start and stop the machine. The operator interface also contains the touch screen used to set up the machine and diagnose problems.

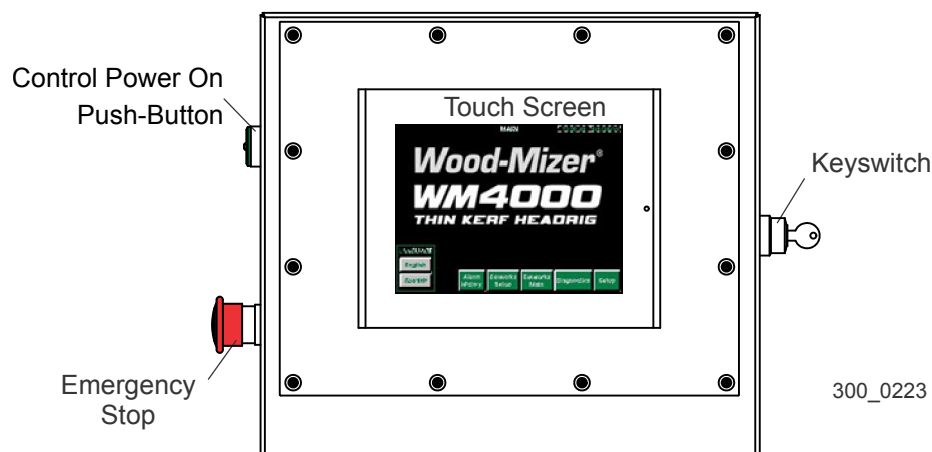


FIG. 4-1

Touch Screen: The touch screen is used to setup how the mill functions and controls the networks. Upon initial power-up, the screen will display the Home Screen.

Emergency Stop: Press this button to turn off Control Power to the Machine. Turning off control power will also remove Line voltage from the Feed Drive, Up/Down Drive, and Blade Soft-Start. To release this button, twist it clockwise until it pops out.

Key Switch: The key-switch enables control of the Feed Drive, Up/Down Drive, and Blade Soft-Start. In the OFF position (the key turned counter-clockwise) the feed will not work, the head will not go up and down, and the blade brake will be engaged. When the key is in the RUN position (the key straight up and down) the Feed Drive and Up/Down Drive will function. When the key is turned to the START position (the key turned clockwise) the blade motor will start. The Feed Drive and Up/Down drive still have functionality when the key is in the START position.

Control Power On Push-Button: Press this button to turn Control Power on to the machine. When control power comes on, Line voltage will return to the Feed Drive, Up/Down Drive, and Blade Soft-Start.

4.2 Distribution Box Overview

See **Figure 4-2**. The distribution box on the saw head contains controls for the blade tension. The box also includes lights that indicate which mode (head or bed) the joystick controls are currently set to. The control box also includes controls to start and stop the machine. A description of each box component is provided below.

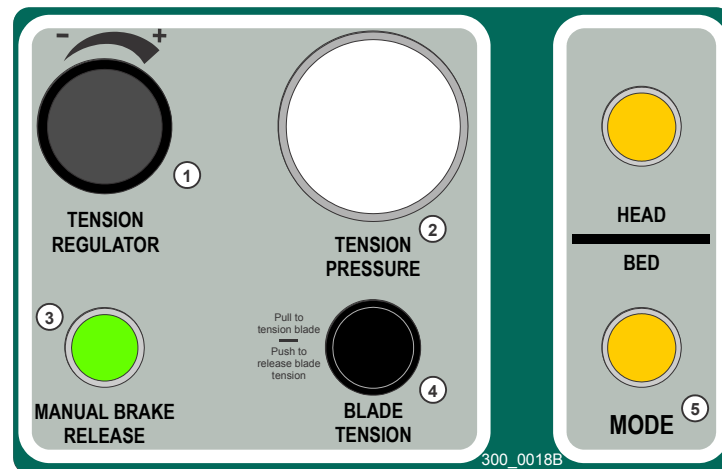
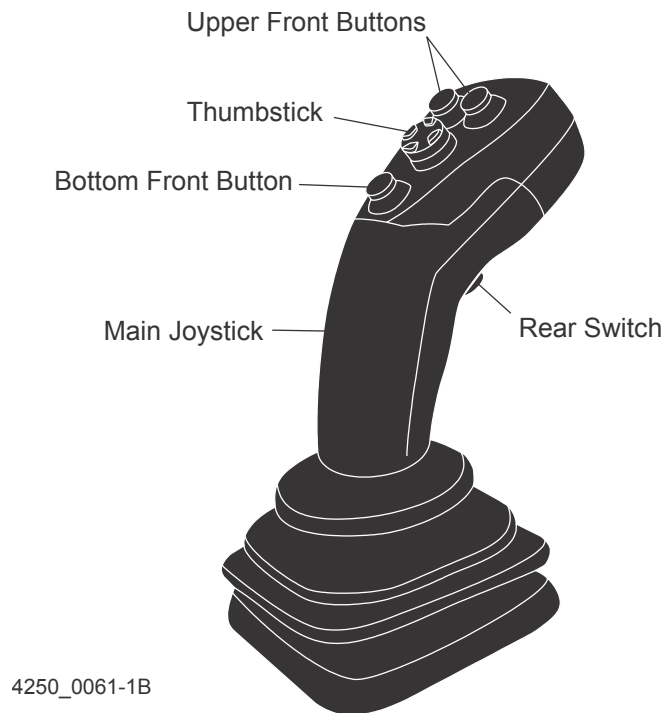


FIG. 4-2

1. **TENSION REGULATOR** - Turning this knob adjusts the blade tension pressure. Pull the knob out to unlock it and turn the knob clockwise to increase blade tension, counterclockwise to reduce blade tension. When finished changing the pressure, push the knob back into to lock it.
2. **TENSION PRESSURE** - Gauge indicates current blade tension pressure.
3. **MANUAL BRAKE RELEASE** - Push in and hold to release the blade wheel brake. **NOTE:** When control power is off the blade brake is engaged. When changing blades it is sometimes necessary to spin the blade wheels. To manually release the blade brake, press and hold the button. Release the button to engage the brake again.
4. **BLADE TENSION** - Pull out to tension the blade tension, push in to release the tension.
5. **MODE** - Two lights indicate the current mode of the joystick controls.
 - **HEAD** - When lit, the joystick controls are in head mode. The joysticks can be used to operate saw head functions (saw head up, down, forward, reverse, cruise control, board blow-off and blade guide arm in or out).
 - **BED** - When lit, the joystick controls are in bed mode. The joysticks can be used for log handling functions (loader, clamp, turner, side supports and rollers).

4.3 Joystick Control Overview

See Figure 4-3. The joysticks located at the operator seat control all of the sawmill functions. Each joystick can be moved forward, backward, left and right to perform various functions. Each joystick also has a thumbstick, three front buttons and a rear switch to perform additional functions.



4250_0061-1B

FIG. 4-3

The machine comes with three configurations of the joystick controls: Default, User 1, and User 2. If the operator prefers to have some functions in different locations, he can move them around in one of the user modes and save the layout. All of the reference in this section will be related to the default layout.

To toggle between head and bed functions, press the rear switch of the left joystick. The MODE light on the head distribution box will indicate if the controls are in bed mode or head mode. There is also indication of the mode the controls are in on the touch screen, if the touch screen displays one of the setworks screens.

See Figure 4-4. In HEAD mode, push the left joystick forward to lower the saw head. The further the joystick is pushed, the faster the head moves down. Pull the joystick back to raise the saw head. The further the joystick is pulled, the faster the head moves up.

IN HEAD MODE:

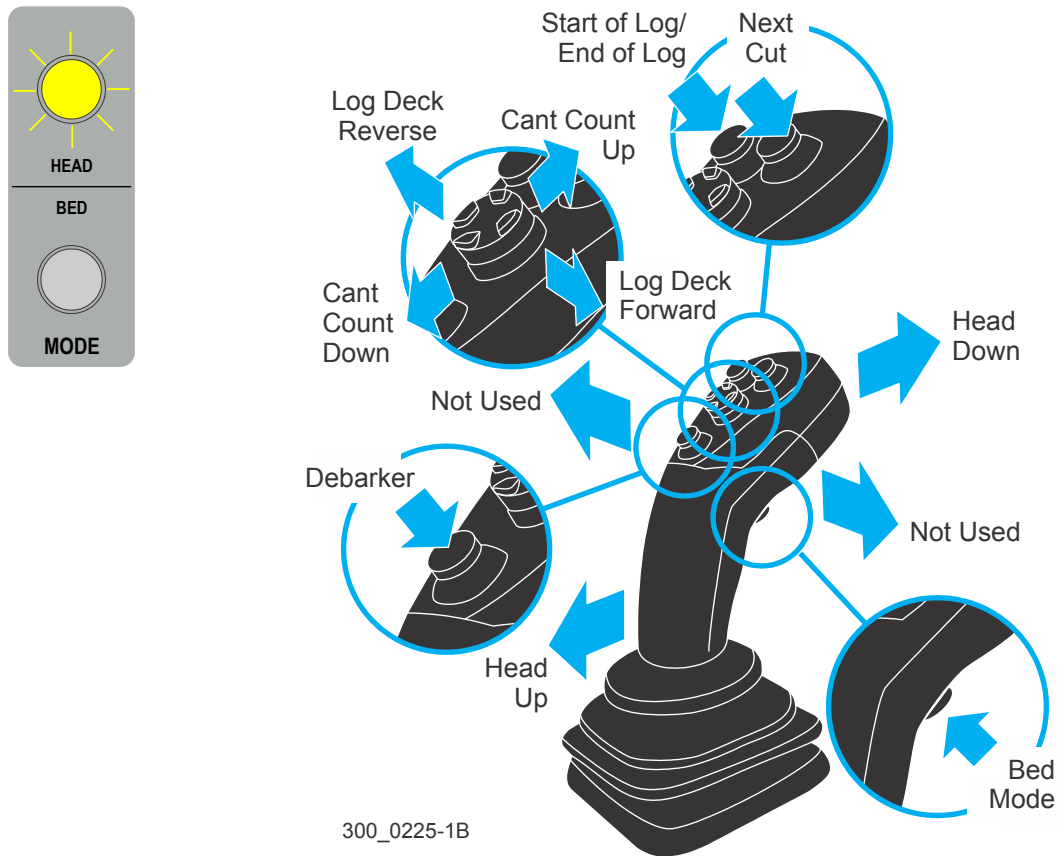


FIG. 4-4

Press the top left head button to set either the Start of Log position or the End of Log position. Press the top right head button to toggle on/off Next Cut. Press the bottom head button to start the debarker operation. Press the rear switch to change to Bed Mode. Press the thumbstick left to reverse the log deck, right to move the log deck forward. Press the thumbstick up to increase the Cant Count in Pattern Mode, down to decrease the count.

See Figure 4-5. In HEAD mode, push the right joystick forward to make the head travel backwards. The further the joystick is pushed, the faster the head moves backward. Pull the joystick back to make the head travel forward. The further the joystick is pulled, the faster the head travels forward.

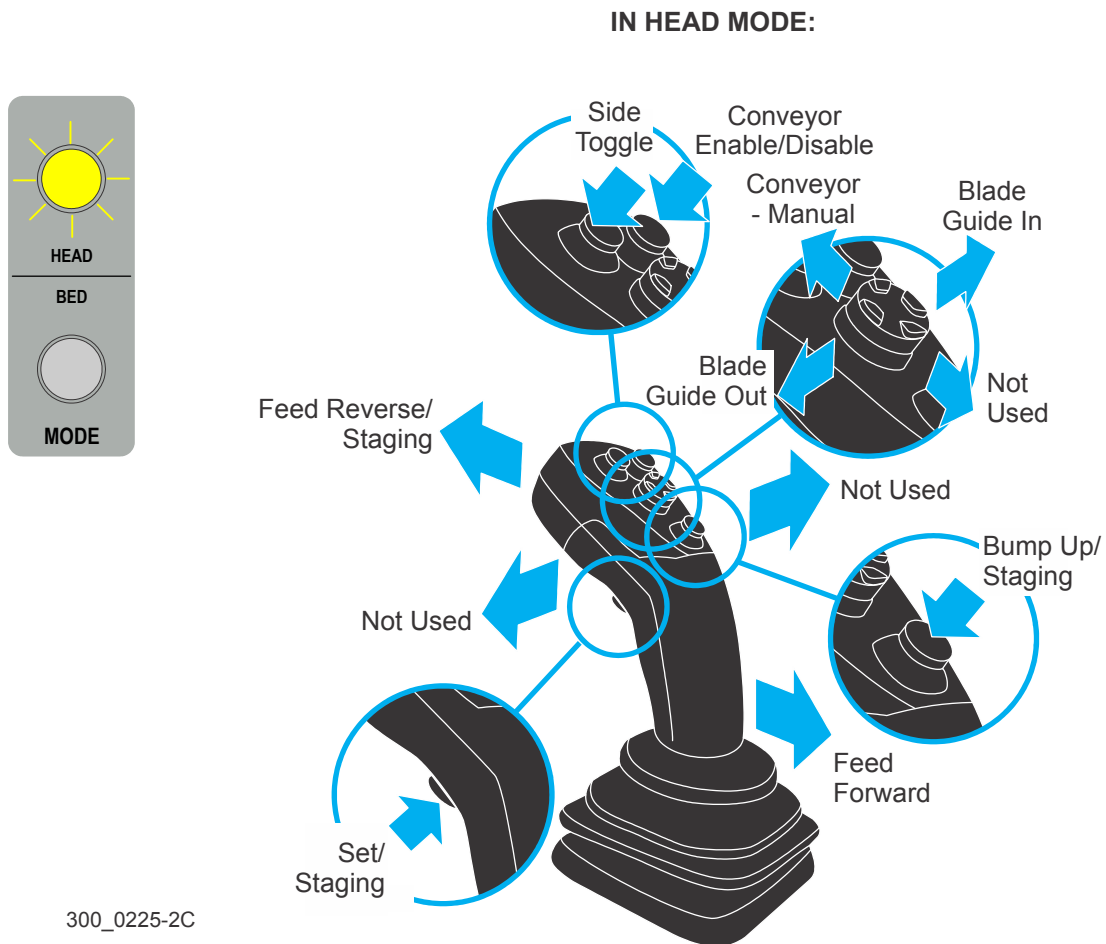


FIG. 4-5

Press the top left head button to toggle between sides in Networks. Press the bottom head button to initiate a bump up function. Press the rear switch to initiate a set function. Press the thumbstick left to move the blade guide out, and press it right to move the blade guide in. While moving the head backward pressing both the set and bump up functions together initiates a move to the staging position.

Press the top right head button to enable or disable the conveyor. Press the thumbstick up to manually run the conveyor.

4

Operation

Joystick Control Overview

See Figure 4-6. In BED mode, push the left joystick forward to lower the clamp. The further the joystick is pushed, the faster the clamp moves down. Pull the joystick backward to raise the clamp. The further the joystick is pulled, the faster the clamp moves up. Push the joystick left to move the clamp out. The further the joystick is pushed, the faster the clamp moves out. Push the joystick right to move the clamp in. The further the joystick is pushed, the faster the clamp moves in.

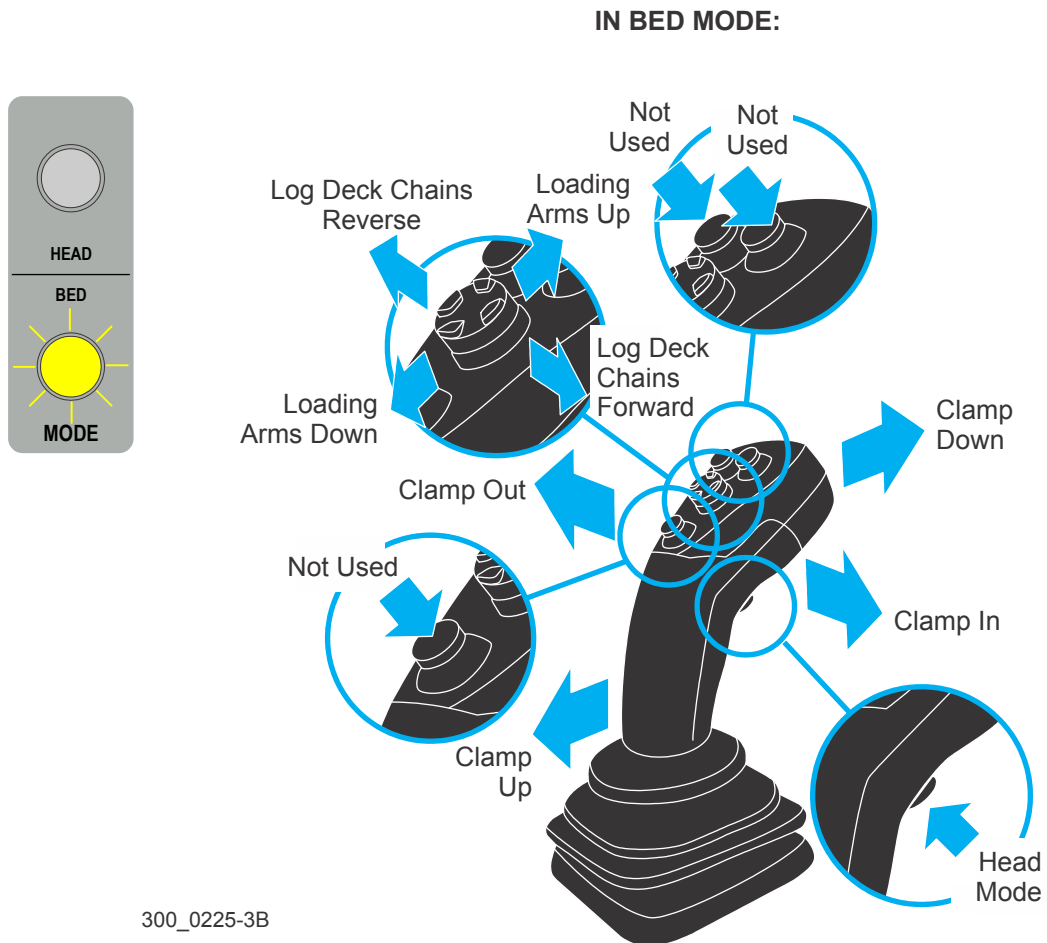


FIG. 4-6

Press the thumbstick forward to raise the loading arms, press it down to lower the loading arms. Press the thumbstick left to make the log deck chains move backward. Press the thumbstick right to make the log deck chains move forward. Press the rear switch to switch to HEAD mode.

See Figure 4-7. In BED mode, push the right joystick forward to lower the side supports. The further the joystick is pushed, the faster the side supports move down. Pull the joystick backward to raise the side supports. The further the joystick is pulled, the faster the side supports move up. Pull the joystick left to lower the chain turners. The further the joystick is pulled, the faster the chain turners move down. Push the joystick right to raise the chain turners. The further the joystick is pushed, the faster the chain turners move up.

IN BED MODE:

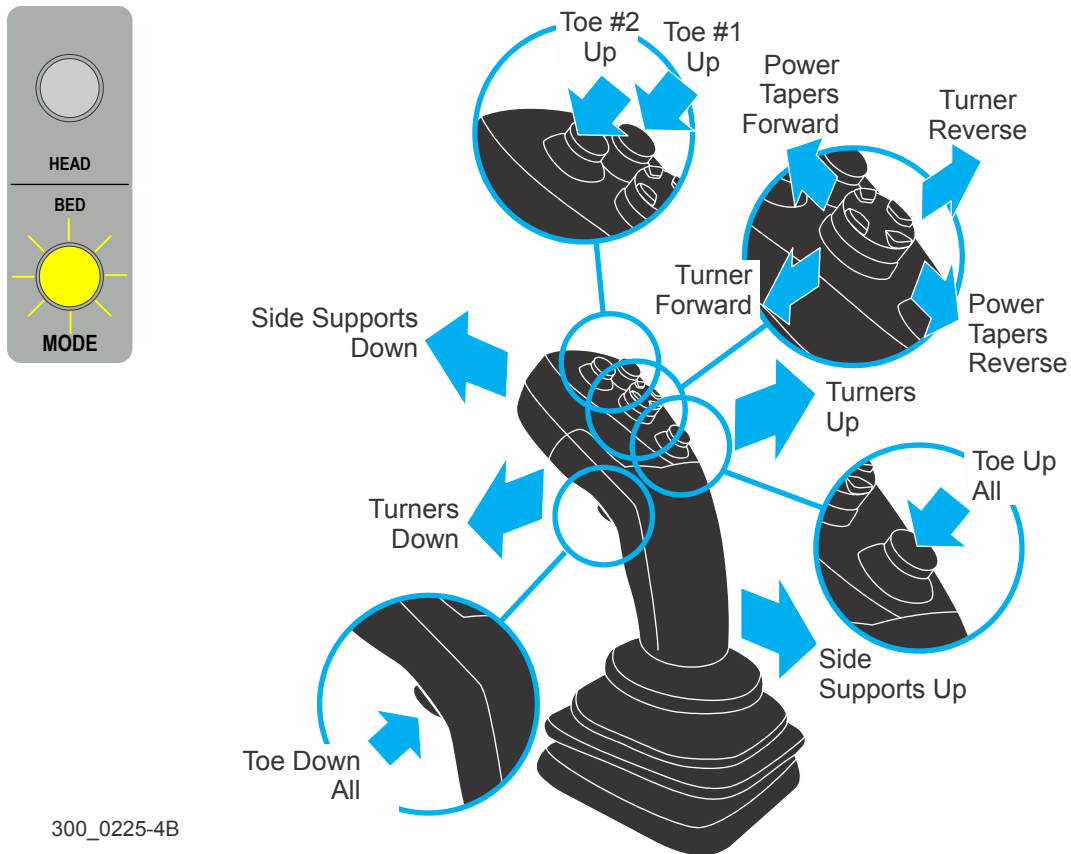


FIG. 4-7

Press the top left head button to raise Toe #2. Press the top right head button to raise Toe #1. Press the bottom head button to raise all the Toe Boards. Press the rear switch to lower all the Toe Boards. Press the thumbstick forward to turn the power taper rollers forward and press it down to move the power taper rollers backward. Press the thumbstick left to rotate the change turners forward and press it right to rotate the change turners backward.

4.4 Programming the Control

4.4.1 System Setup

From the Main Screen, push the Setup button.

See Figure 4-8.

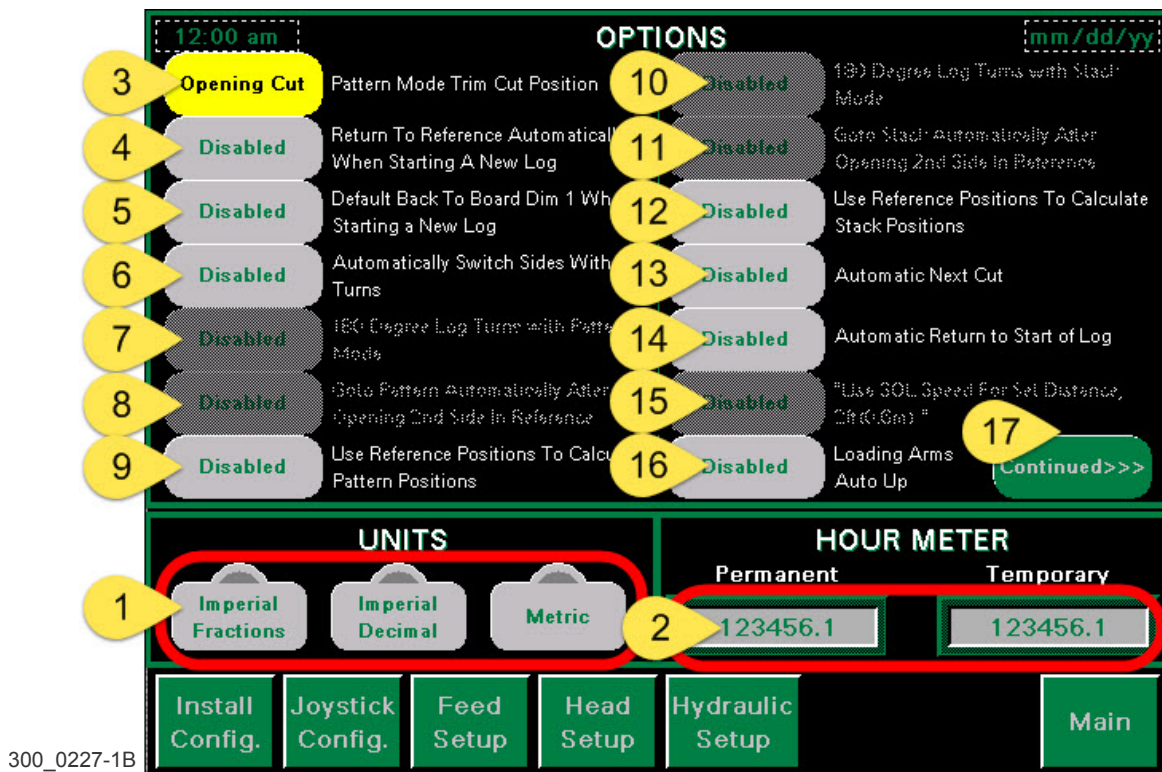


FIG. 4-8

1. There are three selections for units: Imperial Fractions, Imperial Decimals, and Metric. The active unit has a green indicator. To change units, press the desired button and the indicator for that unit will turn on.
2. There is a permanent hour meter that is not resettable, and a temporary hour meter that can be reset by pressing the numeric display. **NOTE:** If the PLC is ever replaced, the permanent hour meter will start back over at 0.

There are several optional functions built into the mill to help automate some of the steps for sawing a log. These steps were developed around the most common cutting method.

Typically the method followed is to open two sides in reference mode. Switch to pattern mode and cut down to the desired number of cants with the dimensions selected.

3. **Pattern Mode Trim Cut Position** - in pattern mode you can select where to take the trim cut, either on the opening cut or before the first cant/last board.
4. **Return To Reference Automatically When Starting A New Log** - When enabled the touch screen will automatically switch back to Reference mode each time a new log is started. There are two ways to signal the start of a new log; performing a Staging function, or lowering the loading arms all the way.
5. **Default Back To Board Dim 1 When Starting A New Log** - When enabled the board size in the first board size button, from left to right, will be selected each time a new log is started. There are two ways to signal the start of a new log; performing a Staging function, or lowering the loading arms all the way.
6. **Automatically Switch Sides With Log Turns** - When enabled the machine will switch sides, i.e. Reference 1 to Reference 2, when the log is unclamped and the any of the four chain turner functions are activated; Up/Down or Forward/Reverse. The machine will not keep changing sides each time one of these functions is activated. There must be a cut taken on the side switched to before the machine will switch again.
7. **180 Degree Log Turns with Pattern Mode** - When enabled every time when the log is turned the machine will assume the log is flipped 180 degrees and automatically goes to Pattern 1.
8. **Go to Pattern Automatically After Opening 2nd Side In Reference** - When enabled the touch screen will automatically switch to Pattern mode after a cut has been taken in Reference 2 and a log turn is sensed. This option is not available unless the option to Automatically Switch Sides With Log Turns is enabled.
9. **Use Reference Position To Calculate Pattern Positions** - When enabled, and the trim cut position is set to opening cut, the last cut taken in Reference 1 will be used as the position to reference for the position of the head in pattern mode for calculating the pattern based off the cant size selected, number of cants, and board size selected. This prevents having to search for best position for possible opening cut. When enabled, and the trim cut position is set to first cant/last board, the last cut taken in Reference 1 will be used as the last but taken in Pattern 1 and just set to the next board size. Reference 2 last cut position will be used for Pattern 2.
10. **180 Degree Log Turns with Stack Mode** - When enabled every time when the log is turned the machine will assume the log is flipped 180 degrees and automatically goes to Stack 1.
11. **Go to Stack Automatically After Opening 2nd Side In Reference** - When enabled the touch screen will automatically switch to Stack mode after a cut has been taken in Reference 2 and a log turn is sensed. This option is not available unless the option to Automatically Switch Sides With Log Turns is enabled.
12. **Use Reference Position To Calculate Stack Positions** - When enabled the last cut

taken in Reference 1 will be used as the position to reference for the position of the head in stack mode for calculating the starting position in the stack. Reference 2 last cut position will be used for Stack 2.

- 13. Automatic Next Cut** - When enabled Next Cut will automatically turn on when taking the opening cut on all four sides when the machine senses a cut is active based on the blade motor power engage threshold setting.
- 14. Automatic Return to Start of Log** - When enabled after the head has exited the cut, performed a bump up, and started to move backwards this function will take control of the feed and automatically return to the position set for Start of Log. The operator does not need to worry about letting off the joystick in time to stop the head before it travels too far past the log, the machine will stop it automatically, just keep the joystick pressed all the way forward until the head comes to a complete stop.
- 15. Use SOL Speed For Set Distance, 2ft (0.6m)** - When enabled the start of log speed set on the "Dashboard" will only be used for a distance of 2ft (0.6m) from the point where it was set. Once the head has moved past this point, the speed is completely controller by the position of the joystick.
- 16. Loading Arm Auto Up** - When enabled pressing and releasing the loader up button will move the loader up for a preset time period. When disabled it is necessary to hold the loader up button in order to raise the loader all the way.
- 17.** Use this button to go the second page of options.

See Figure 4-9. The second page of options is shown below.

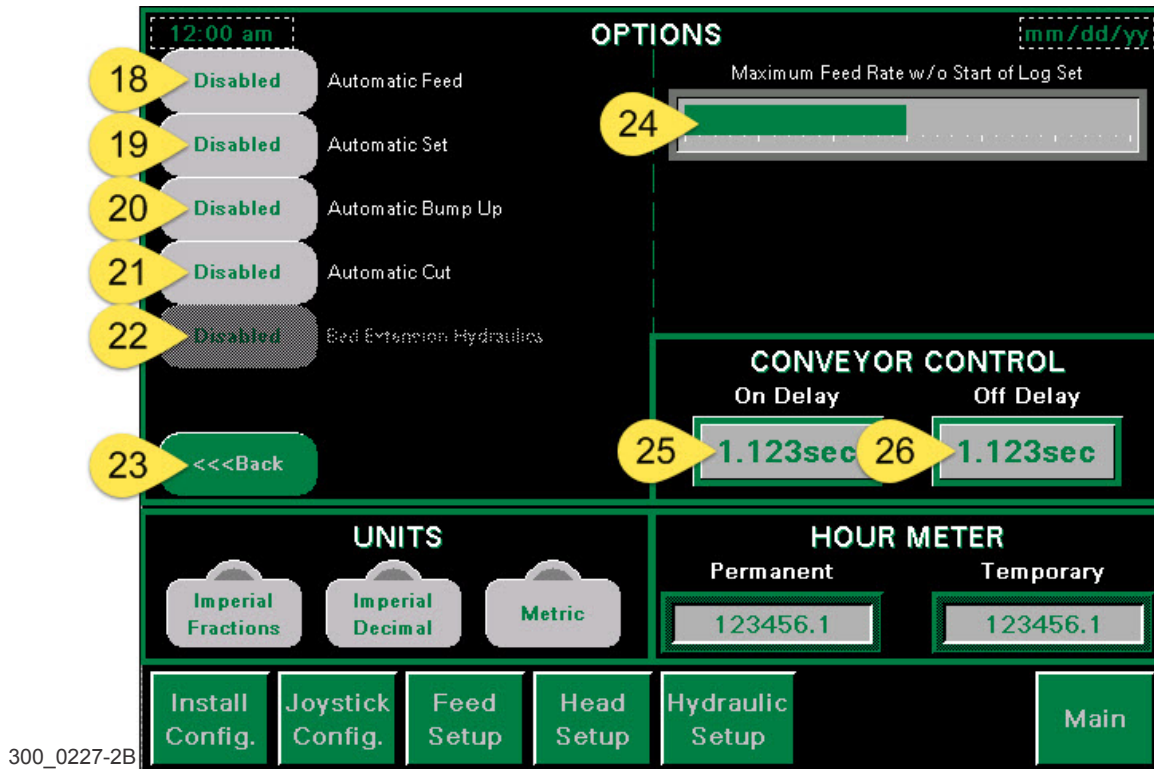


FIG. 4-9

18. Automatic Feed - When enabled the machine will automatically control the feed speed based on the two settings, maximum speed and maximum power, set on the “Dashboard”. If the maximum speed is reached before the maximum power the feed will not increase anymore, otherwise it will continue to increase until it reaches the maximum power setting. The operator still has control over the speed, the automatic feed will just prevent them from feeding too fast, per the maximum power setting. If the operator backs off on the joystick the machine will choose which ever speed is lower and use that, either the Automatic Feed or the Joystick.

19. Automatic Set - When enabled the head will automatically set to the next cut when the head has returned to the Start of Log position.

20. Automatic Bump Up - When enabled the saw head will automatically bump up after the saw head has exited to cut and passed the End of Log position.

21. Automatic Cut - When enabled the machine can run the cutting process automatically when the operator holds down the foot pedal. To initiate this the operator must have the Start of Log and End of Log positions set, Next Cut on, then hold down the foot pedal when either at the Start of Log or End of Log positions. The head will automatically cut using the Automatic Feed, Bump Up, Return, and Set, all on its own, and continue this

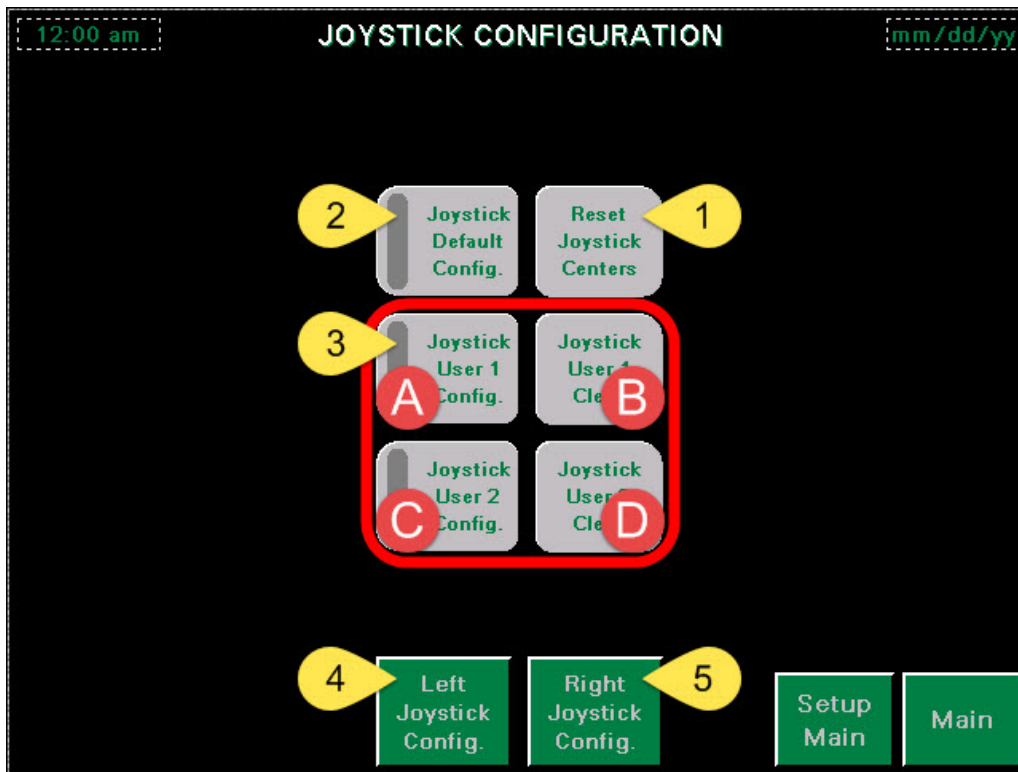
process until the foot pedal is released.

- 22. Bed Extension Hydraulics** - When enabled the hydraulics on the bed extension will be active and work with the hydraulics of the standard bed. This option is not available when the Bed Extension has not been turned on in the Installation Configuration.
- 23.** Use this button to go back to the first page of options.
- 24. Maximum Feed Rate w/o Start of Log Set** - This sets the maximum forward feed rate when Start of Log is active allowing the head to move up to 300ft/min forward.
- 25.** This timer sets how long the feed must be in reverse before the conveyor will start.
- 26.** This timer sets how long the conveyor will keep running after the feed has stopped moving in reverse.

4.4.2 Joystick Configuration

See Figure 4-10. The machine is equipped with a programmable joystick configuration. There is a default Joystick Configuration and two User Defined Configurations. During the installation of the machine it may be necessary to configure some of the parameters of the joysticks.

From the System Setup Screen, push the Joystick Config. button to go to the Joystick Configuration screen.



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FIG. 4-10

1. **Reset Joystick Centers** - During the very first power up of a mill, replacement of a joystick, or replacement of the PLC, the centers of the joysticks will have to be set. If the machine knows the centers need set it will be flashing and there will be an active “Joystick Configuration” error. Every joystick varies a little to its exact center point so it is critical to the operation of the machine that the centers be adjusted to the joysticks. Before pressing the button make sure the joysticks are in their relaxed position with nothing pushing them in any direction. When the centers are captured the PLC also configures a dead band area around the centers that has to be exceeded to make the joystick control any motion.

2. **Joystick Default Config.** - This button selects the default layout of all the joystick functions. When the default configuration is active, the indicator on the button will be green.

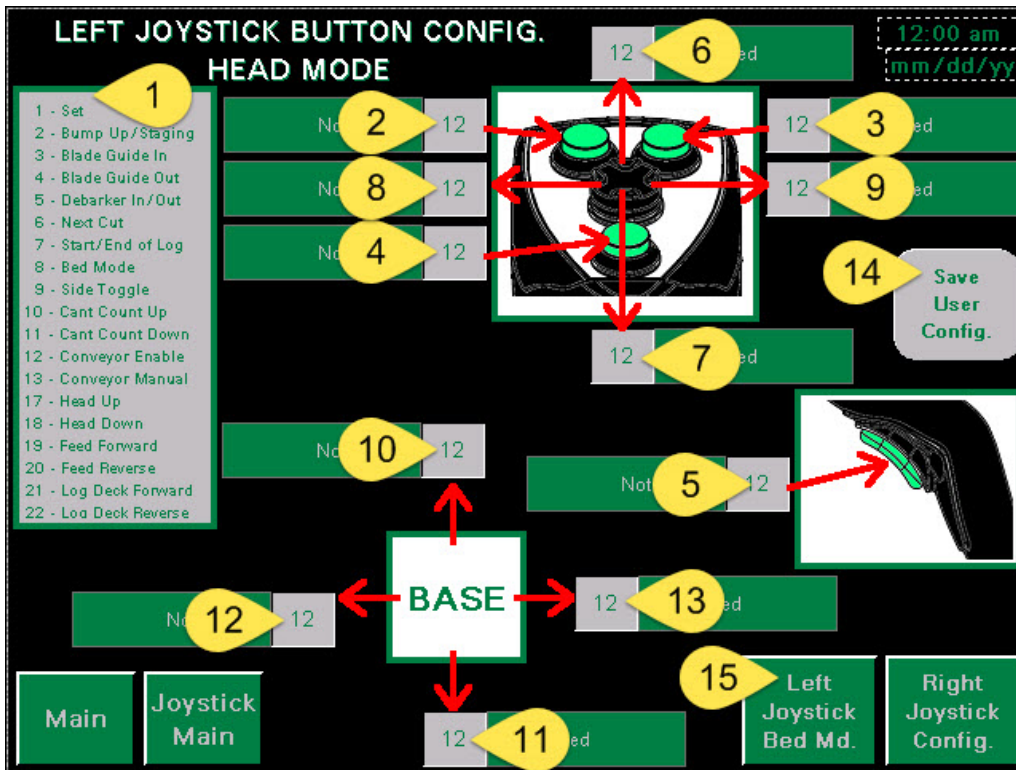
3. **User Defined Joystick Configurations** - These buttons control the user defined joystick configurations.
 - **(A) Joystick User 1 Config.** - This button selects the user 1 configuration. When the user 1 configuration is active the indicator on the button will be green.
 - **(B) Joystick User 1 Clear** - This button clears the user 1 configuration from memory.
 - **(C) Joystick User 2 Config.** - This button selects the user 2 configuration. When the user 2 configuration is active the indicator on the button will be green.
 - **(D) Joystick User 2 Clear** - This button clears the user 2 configuration from memory.
4. **Left Joystick Config.** - This button takes you to a page where you can view the joystick configuration.
5. **Right Joystick Config.** - This button takes you to a page where you can view the joystick configuration.

User Defined Joystick Configurations

This section will explain how to define a user configuration for the joysticks and save it. In this section the User 1 configuration will be referenced. Setting for the User 2 configuration is the same - just substitute the User 2 buttons for the User 1 in the instructions below.

1. Press the “Joystick User 1 Config.” button **(3A)**. The green indicator on the button should come on.
2. Press the “Left Joystick Config.” button (4) to begin setting the functions.

See Figure 4-11.



300_0227-24

FIG. 4-11

3. **(1)** This is the legend that lists all the available head mode functions and their number that is used to set that function to a specific joystick function.
4. **(2-13)** To assign a function to any joystick function, press the gray button (numeric entry), with a red arrow pointing to the function you want to program.
 - Enter the value of the function you want to assign and press enter.
 - Now that number will be displayed in the gray box and the function will be displayed in the message display next to the gray box.
 - Do this for all functions. There doesn't have to be a function assigned to each joystick function.
 - Functions **(10-13)** have to be assigned to the base of the joysticks. Between the two joysticks you have 8 locations for these functions. When you assign function 10, Head Up, to a base location, function 11, Head Down, will automatically be assigned to the opposite joystick function on the same joystick. These functions have to be put together on the same joystick. The same goes for functions 12 and 13, for the feed. These four functions are not allowed to be used on the discrete buttons of the

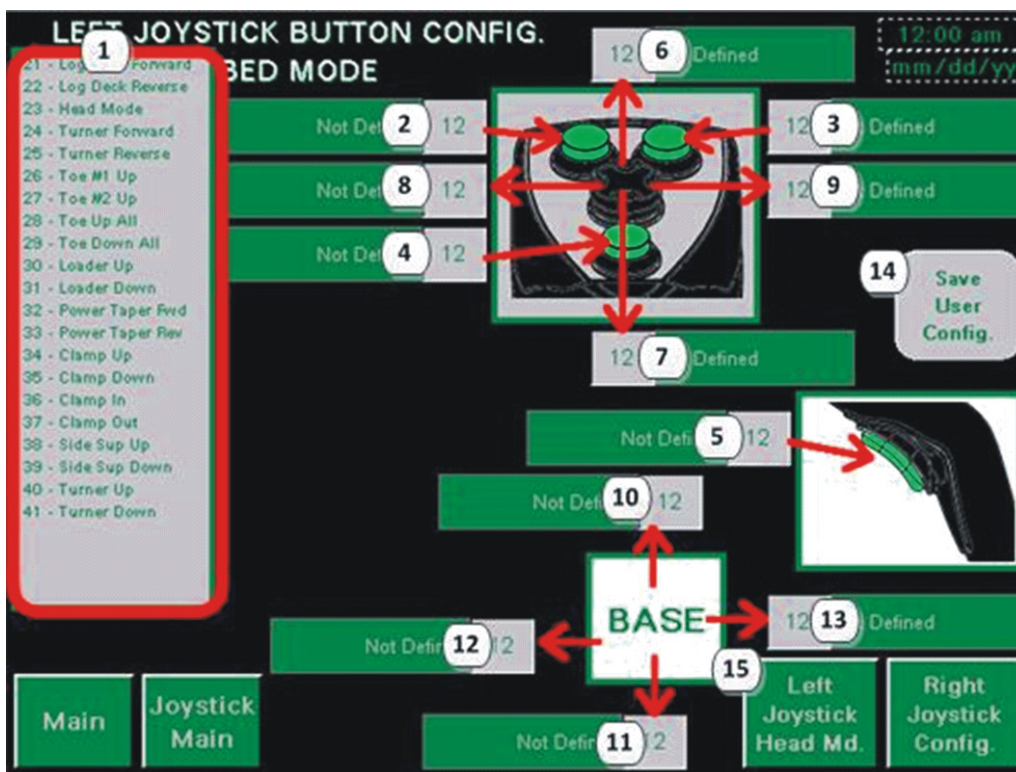
4

Operation Joystick Configuration

joysticks and the touch screen will not allow you to enter them into those spots.

5. **(14)** When you are finished setting up the joystick for head mode, you can save the configuration by pressing the “Save User Config.” button.
6. **(15)** Now you are ready to set up bed mode for this joystick. Press the “Left Joystick Bed Md.” button.

See **Figure 4-12**. The BED MODE screen for the Left Joystick Button Configuration is shown below.



300_0227-5

FIG. 4-12

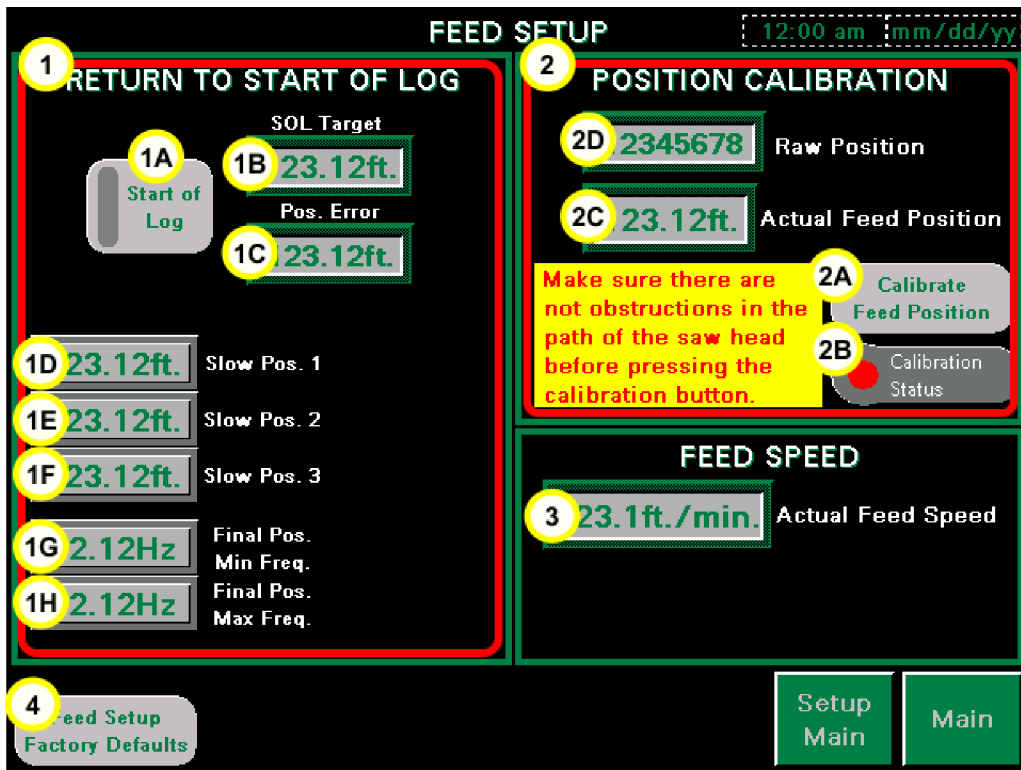
7. **(1)** This is the legend that lists all the available head mode functions and their number that is used to set that function to a specific joystick function.
8. **(2-13)** All the functions are set just as in head mode referenced in step 4.
9. **(14)** When you are finished setting up the joystick for head mode, you can save the configuration by pressing the “Save User Config.” button.
10. The left joystick configuration is finished. Follow the same procedure for the right joystick. Press the “Right Joystick Config.” button on the “Joystick Configuration” to enter the right

joystick configuration instead.

4.4.3 Feed Setup

The Feed Setup screen is where the Return To Start Of Log function can be tuned and the position of feed calibrated. You can also reference feed speed from this screen.

See Figure 4-13.



300_0227-6B

FIG. 4-13

Return To Start Of Log

This section of the Feed Setup is used to tune the Return To Start of Log function. When tuning it you are trying to get the “Pos. Error” to be as small as possible, meaning that you are as close as possible to the target you are trying to reach.

There are three positions captured for the Start of Log Position; Actual Start of Log Position, Offset, and Target. The actual position is the one captured by pressing the button either on the touch screen or joystick. This position is used to signal the machine that the head has moved into a safe position behind the log and it is okay to perform a set. The offset position is the position the feed will stop at when feeding forward until it is in position for the next cut. The target is the position the feed system is shooting for during the return. During the return, after the head has passed the Start of Log Position a set will ini-

tiate. The feed will continue returning to the Target and then stop. Now you can feed forward, the head may stop at the Offset position, if the head is not in position for the next cut. If the head is in position, there will not be a stop, it will continue to feed forward and start the cut.

Pressing the Feed Setup Factory Defaults button sets all the values back to factory defaults.

Tuning Return To Start Of Log

1. Move the head to where you want to set “Start of Log” and press the “Start of Log button (1A). The indicator will turn green to show that the position has been set, and the position will display under “SOL Target”.
2. Now run the feed about 12 ft. from that position.
3. Push the Right joystick forward and maintain it until the head comes to a complete stop.
4. Check the “Pos. Error”. If it is within a couple inches from the target leave it alone, the tuning is fine. The control for returning to start of log is not designed to be extremely accurate, because it is not necessary, so a couple inch tolerance is fine. Process is complete. If the “Pos. Error” is too large then continue to step 5.
5. You can modify the Slow Positions and Final Pos. frequencies, until you achieve the accuracy wanted.
 - **Slow Pos. 1 (1D)** - Default = 2.75. This is the position, distance from Start of Log Target, at which the feed drive will slow to 60Hz. Prior to reaching this point the feed will travel in reverse at maximum speed.
 - **Slow Pos. 2 (1E)** - Default = 1.5. This is the position, distance from Start of Log Target, at which the feed drive will slow to the “Final Pos. Max Freq.” (1H).
 - **Slow Pos. 3 (1F)** - Default = 0.75. This is the position, distance from Start of Log Target, at which the feed drive will ramp from the “Final Pos. Max Freq.” (1H), to the “Final Pos. Min Freq.” (1G). The deceleration of the drive is proportional to the distance from “Slow Pos. 3” (1F) to “SOL Target” (1B). The drive will begin at the frequency in “Final Pos. Max Freq.” (1H) at “Slow Pos. 3” (1F) and do a linear slope to the frequency in “Final Pos. Min Freq.” (1G) at “SOL Target” (1B).
 - **Final Pos. Min Freq.** - Default = 1.
 - **Final Pos. Max Freq.** - Default = 35.

Position Calibration

This mill uses an encoder to track feed position for different locations (e.g. Start of Log Position and End of Log Position). With the ability to have these values more functions can be automated during the sawing cycle.

The Raw Position displays the raw data from the encoder before it is converted to the actual units.

Position Calibration Procedure

If the machine needs to be calibrated, the HMI will automatically switch to the “Feed Setup” screen after control power is turned on. The only time this is not the first screen gone to after a power cycle is when there is a Joystick Configuration fault and the Centers of each joystick need to be reset and the furthest travel positions need to be captured. Usually this will only happen during the initial install of the machine, and never again unless the PLC gets replaced. If the “Feed Setup” screen is already active then proceed to step 3.

1. From the “Main” screen press the “Setup” button.
2. On the “Setup” screen press the “Feed Setup” button.
3. At the top right of the “Feed Setup” screen is the “Position Calibration” section **(2)**. If the calibration is required then the “Calibration Status” **(2B)** will be RED, if you are just re-calibrating then it is probably GREEN.
4. Make sure there are no obstructions in the path of the saw head. The head will travel all the way to the reverse hard stop.
5. Press the “Calibrate Feed Position” **(2A)** button.
6. The head will start slowly traveling to the reverse hard stop. To calibrate the feed position the head presses against the hard stop until there is a spike in motor current on the feed motor. At that point that position is called 1' 0", and the “Actual Feed Position” **(2C)** should have a value around 1.0ft., the value sometimes floats above this because when the feed drive release pressure the rubber stop pushes the head back away from it. The “Calibration Status” **(2B)** will turn green when the process is complete.

Feed Speed

The Feed Speed shows the actual speed the feed is moving.

4

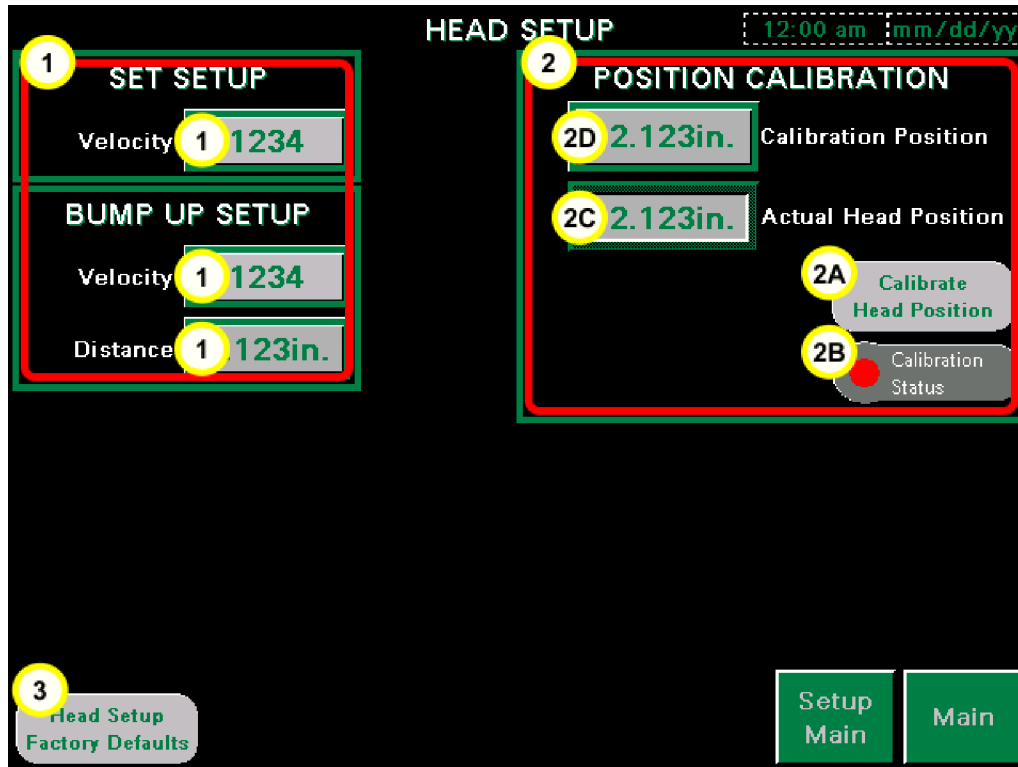
Operation

Head Setup

4.4.4 Head Setup

The Head Setup screen is where the Head Position can be tuned and the position of head calibrated.

See Figure 4-14. The Head Setup screen is shown below.



300_0227-7B

FIG. 4-14

Servo Setup

These settings control the speed the servo does Sets and Bump Ups.

- Velocity for sets.
- Velocity for bump ups.
- Bump up distance.

Pressing the Head Setup Factory Defaults button sets all the values back to factory defaults.

Position Calibration

The servo has an internal encoder for tracking head position.

Position Calibration Procedure

If the machine needs calibrated, the HMI will automatically switch to the “Head Setup” screen after control power is turned on. If the “Head Setup” screen is already active then proceed to Step 3.

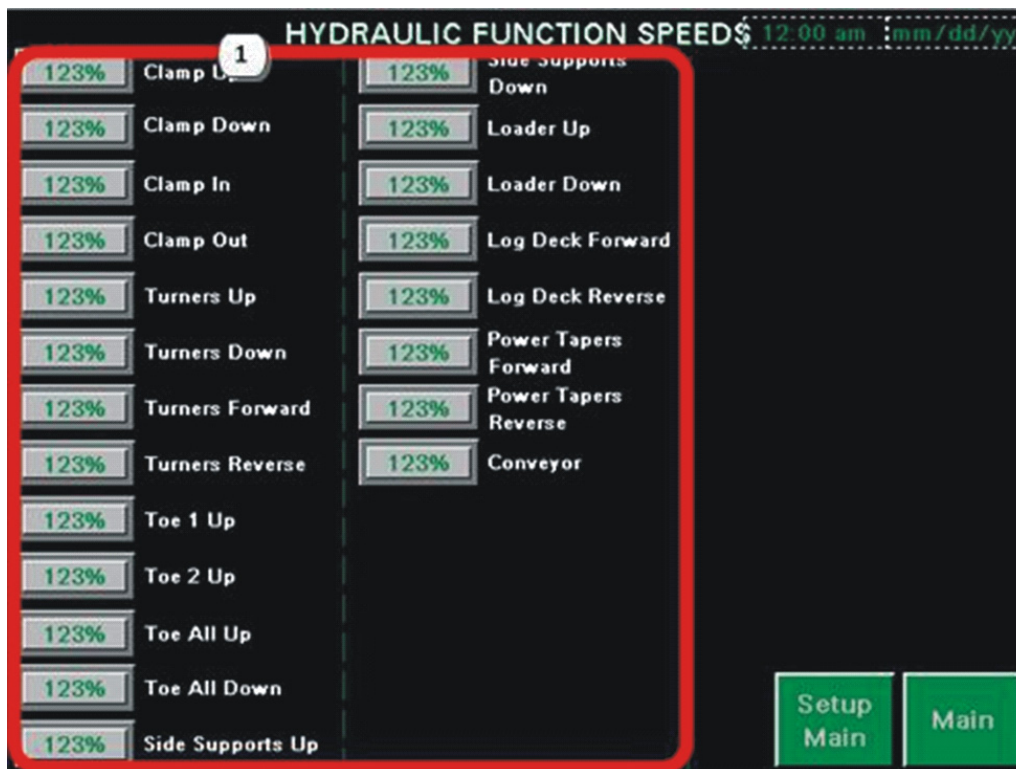
1. From the “Main” screen press the “Setup” button.
2. On the “Setup” screen press the “Head Setup” button.
3. At the top right of the “Head Setup” screen is the “Position Calibration” section. If the calibration is required then the “Calibration Status” will be RED, if you are just re-calibrating then it is probably GREEN.
4. Position the head over a bed rail and measure from a down set tooth to the bed rail.
 - Enter this value in the “Calibration Position” numeric entry box **(2D)**.
5. Press the “Calibrate Head Position” button.
6. Calibration complete.

Pressing the Head Setup Factory Defaults button sets all the values back to factory defaults.

Hydraulic Setup

The hydraulic power unit on this machine is equipped with a proportional valve on the supply line to all the valve packs. Since only 8 functions can be assigned to the joystick bases for full proportional control, a setup screen for all functions has been added so that a set-point for flow to each function can be set from 5-100%. If multiple functions are selected with set-points then that proportional valve will open fully to give sufficient flow. If a proportional function is used with a discrete function the proportional valve will use the proportional signal. If multiple proportional functions are activated then the proportional valve will open fully to give sufficient flow.

See **Figure 4-15**. The Hydraulic Functions Speeds screen is shown below.



300_0227-8

FIG. 4-15

Changing Hydraulic Set-Points

(1) To modify one of the hydraulic set-points, just press the number display for the function you want to change, then enter the new value and press Enter.

4.4.5 Setworks Setup

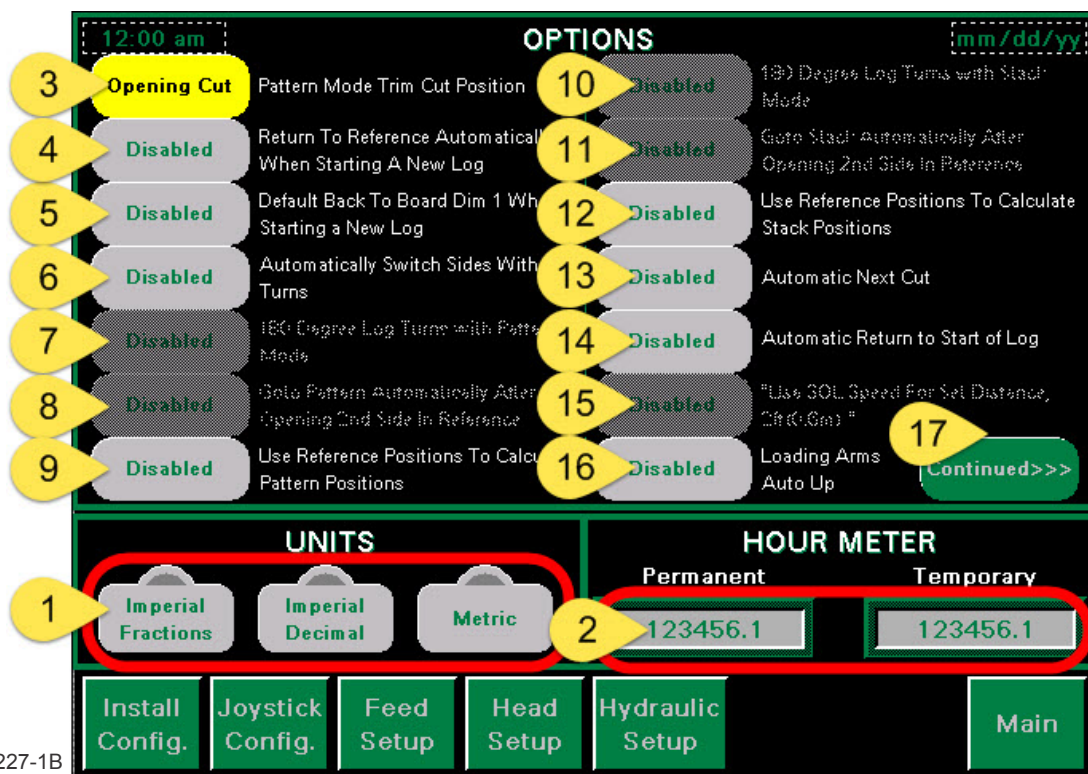
[See Section 3.12.5](#) for the complete Setworks setup information.

4.4.6 Bed Extension Setup (Optional)

After installing the optional bed extension to the sawmill bed, it is necessary to enable the bed extension in the control setup. Perform the following steps to start using the optional bed extension with the sawmill:

1. From the Main Screen, push the Setup button to enter the Options screen.

See Figure 4-16.



300_0227-1B

FIG. 4-16

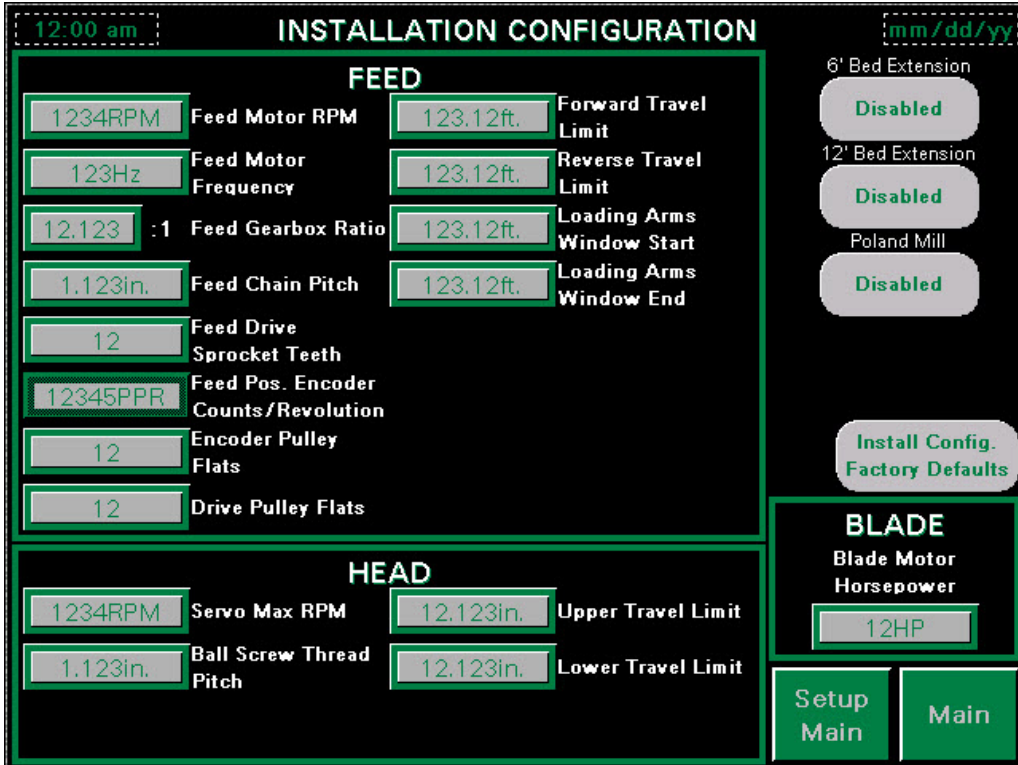
4

Operation

Bed Extension Setup (Optional)

2. Push the Install Config. button on the Options screen to enter the Installation Configuration screen. Push one of the Bed Extension buttons to enable the appropriate bed extension option.

See Figure 4-17.



300_0227-25

FIG. 4-17

4.5 Starting The Machine



DANGER! Make sure all guards and covers are in place and secured before operating the sawmill. Failure to do so may result in serious injury. Be sure the blade housing and pulley covers are in place and secure.

DANGER! Always be sure all persons are out of the path of the blade before starting the motor. Failure to do so will result in serious injury.



WARNING! Always wear eye, ear, respiration, and foot protection when operating the sawmill. Failure to do so may result in serious injury.

1. If necessary, release the EMERGENCY STOP button by turning it clockwise until it pops out.

See Figure 4-18.

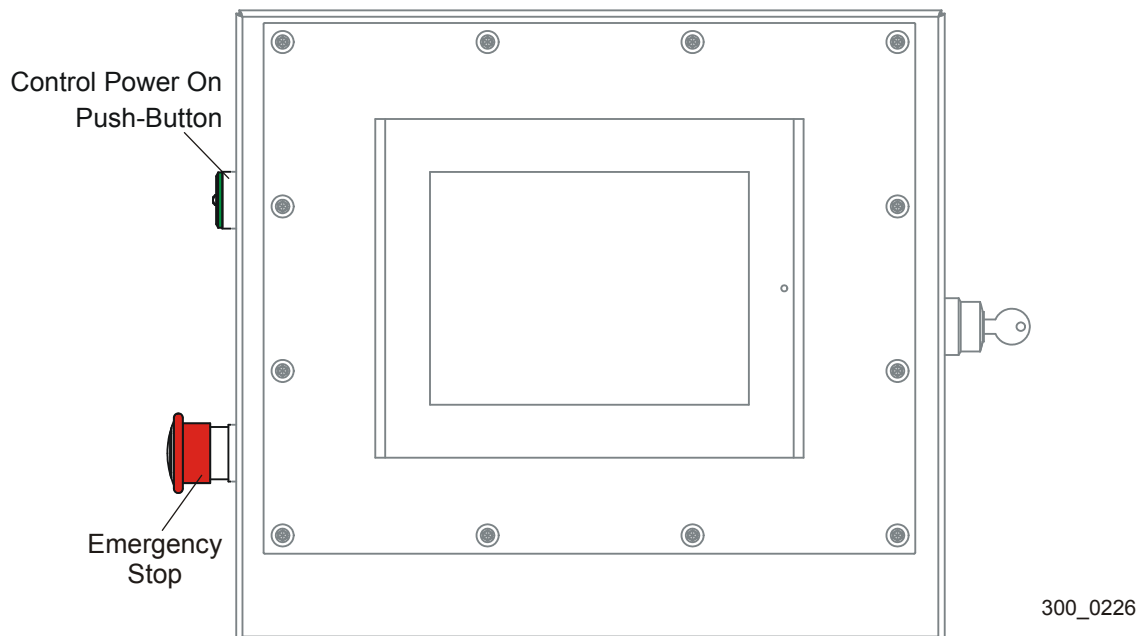


FIG. 4-18 WM4000

2. To turn the sawmill power on, push the green Power On button on the control box.

4.6 Installing A Blade



DANGER! Always shut off the sawmill and wait until the blade wheels have come to a complete stop before changing the blade. Failure to do so will result in serious injury.



WARNING! Always turn the key switch to OFF and remove the key before changing the blade. Failure to do so may result in serious injury.



WARNING! Always wear gloves and eye protection when handling bandsaw blades. Changing blades is safest when done by one person! Keep all other persons away from area when coiling, carrying or changing a blade. Failure to do so may result in serious injury.



WARNING! DO NOT use blades with stress cracks. Blades with stress cracks can shatter causing bodily injury and/or machine damage.

1. At the operator station control box, turn the key switch to OFF and remove the key.
2. At the saw head distribution box, push the BLADE TENSION button in. This will release the tension on the existing blade (if applicable).
3. Unscrew and pivot the cover lock handles and open the blade housing covers.

See Figure 4-19.

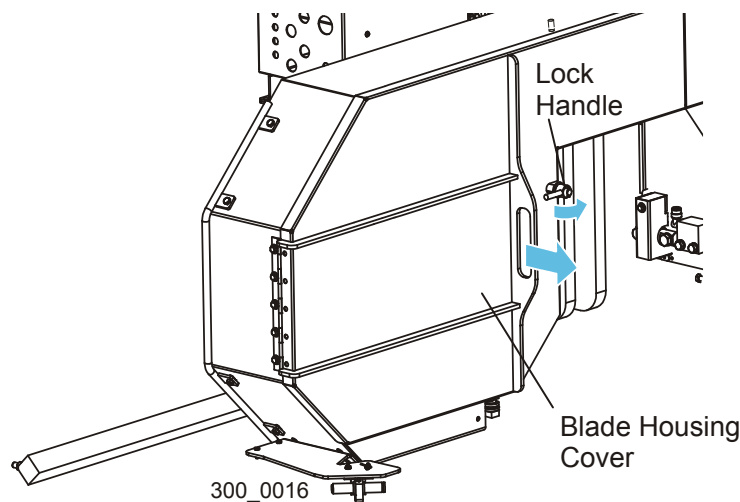


FIG. 4-19

4. Remove the blade if necessary.
5. Install the blade around both blade wheels and between the blade guides. Make sure the teeth are pointing the correct direction. The teeth on the portion of the blade between the blade guides should be pointing toward the motor side of the sawmill.

See Figure 4-20. Position the blade on the wheels so the gullet is even with the front edge of the wheel (+1/16", -0).

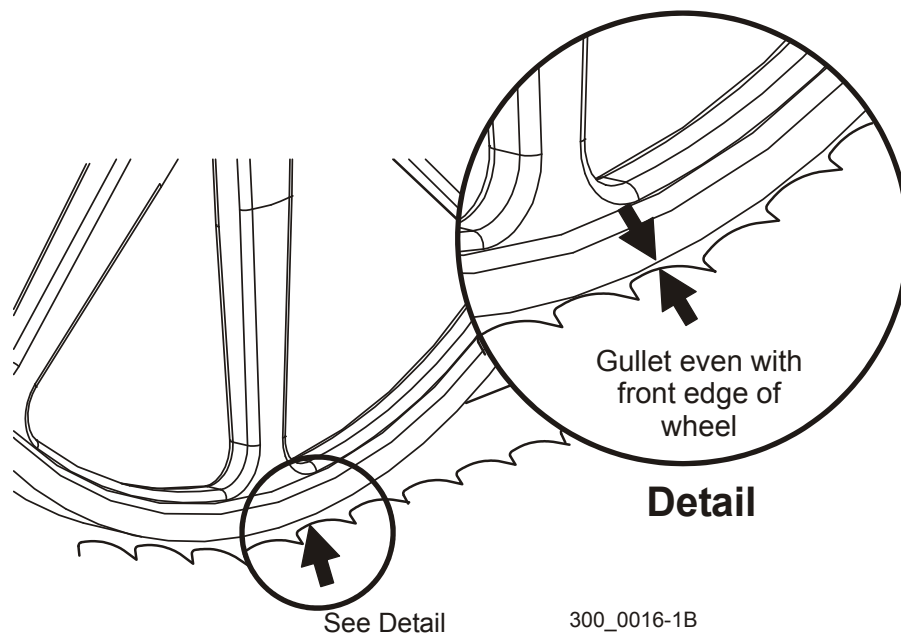


FIG. 4-20

6. Pull the BLADE TENSION button. The TENSION PRESSURE gauge should read 60 psi for 1 1/4" blades, 80 psi for 1 1/2" blades or 100 psi for 1 3/4" blades. To adjust the blade tension pressure, use the TENSION REGULATOR knob. Push the BLADE TENSION button to release the blade tension. Turn the TENSION REGULATOR knob counterclockwise to reduce blade tension, clockwise to increase blade tension. Pull the BLADE TENSION button to retension the blade.
7. Close the blade housing covers, secure with the lock handles and make sure all persons are clear of the saw head.
8. Insert the key and turn the key switch to the MOTOR START position and release, leaving the key switch in the MOTOR ON position. Let the motor spin the blade for a few seconds, turn the key switch to OFF and remove the key.



WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

4

Operation

Installing A Blade

9. Open the blade housing covers and recheck the position of the blade on the blade wheels. Make sure the blade has maintained the proper position on the blade wheels as described above. If adjustment is needed, push the BLADE TENSION button to release the blade tension and adjust the wheel as described below.

See Figure 4-21. To adjust the position of the blade on the blade wheels, loosen the jam nuts on the side adjustment bolts located at the end of the blade wheel shaft housing.

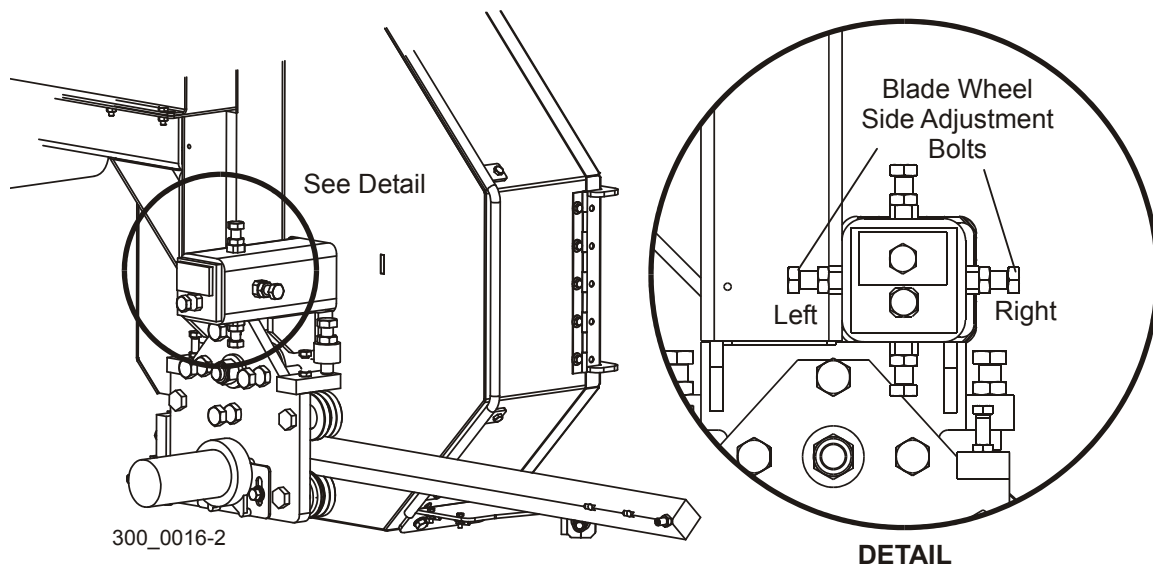


FIG. 4-21

To move the blade out on the blade wheel, loosen the right bolt and tighten the left bolt. To move the blade in on the blade wheel, loosen the left bolt and tighten the right bolt.

NOTE: Slight adjustments of the side bolts on the outer blade wheel are usually all that is necessary to track the blade properly. [See Section 7.2](#) for complete blade wheel alignment instructions.

10. Tighten the side adjustment bolt jam nuts, close the blade housing covers, retension the blade and spin the blade again. Repeat this procedure until the blade tracks on the blade wheels properly.

4.7 Loading, Turning And Clamping Logs

DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

CAUTION! Before loading a log, be sure the cutting head is moved far enough back so the log does not hit it. Failure to do so may result in machine damage.

CAUTION! Be sure the log clamp, turning arm and rollers are adjusted out of the path of the log before loading a log onto the bed. Failure to do so may result in machine damage or cause misalignment.

1. Put the mill in HEAD Mode, if necessary, by pressing the rear switch button on the left joystick.
2. Pull the left joystick backwards to raise the saw head to clear any obstructions and move the head all the way back to the reverse hard stop by pushing the right joystick forward, so it is clear for loading.

See Figure 4-22.

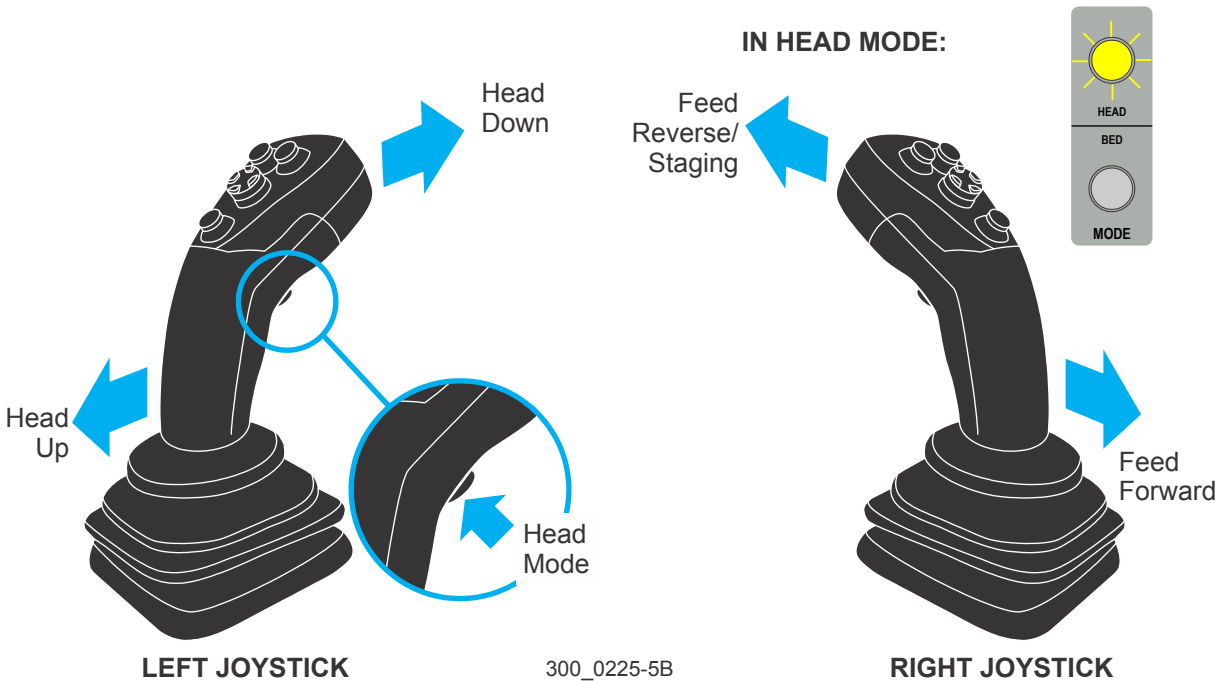


FIG. 4-22

- Put the mill in BED Mode by pressing the rear switch button on the left joystick.

See Figure 4-23.

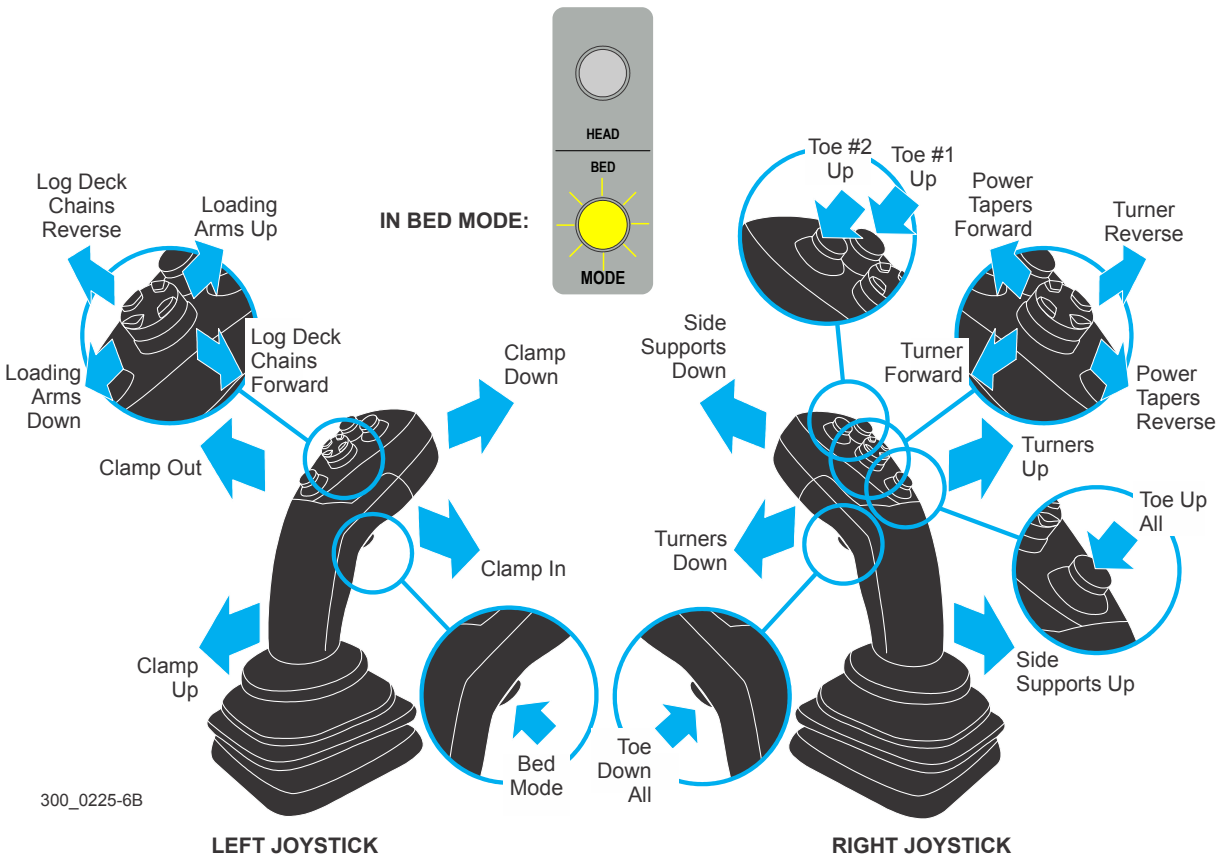


FIG. 4-23

- Raise the side supports by pulling the right joystick back until they are all the way up.
- Move the clamp out by pushing the left joystick left until it is all the way out.
- Lower the clamp by pushing the left joystick forward until it is all the way down.
- Lower the toe boards, if necessary, by pressing the rear switch button on the right joystick.
- Lower the turners, if necessary, by pulling the right joystick left until they are all the way down.
- Run the log deck chains forward by press the 4-way switch right on the left joystick until a log is against the loading arms.
- Lower the loading arms by pressing the 4-way switch down on the left joystick until the log

rolls onto the bed.



DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

11. Raise the clamp by pulling the left joystick backwards and bring the clamp in by pulling the left joystick right to keep the log from rolling back to the loading arms.
12. Raise the loading arms by pressing the 4-way switch up on the left joystick until the arms are all the way up.
13. Raise the turners by pushing the right joystick right, spin the log to the appropriate starting position by turning the turner chains forward pressing the 4-way switch left on the right joystick or backward pressing the 4-way switch right on the right joystick.
14. Lower the turners by pulling the right joystick left.
15. Taper the log with the toe boars by raising toe board 1 with the right head button on the right joystick or by raising toe board 2 with the left head button on the right joystick.
16. Adjust the clamp up or down, if needed, by pulling or pushing the left joystick, then clamp the log completely by pulling the left joystick right.
17. Put the mill in HEAD Mode by pressing the rear switch button on the left joystick to begin sawing the log.

4.8 Networks Overview

4.8.1 Common Indicators and Buttons for All Modes

See Figure 4-24. The Networks - Manual Mode is shown below.

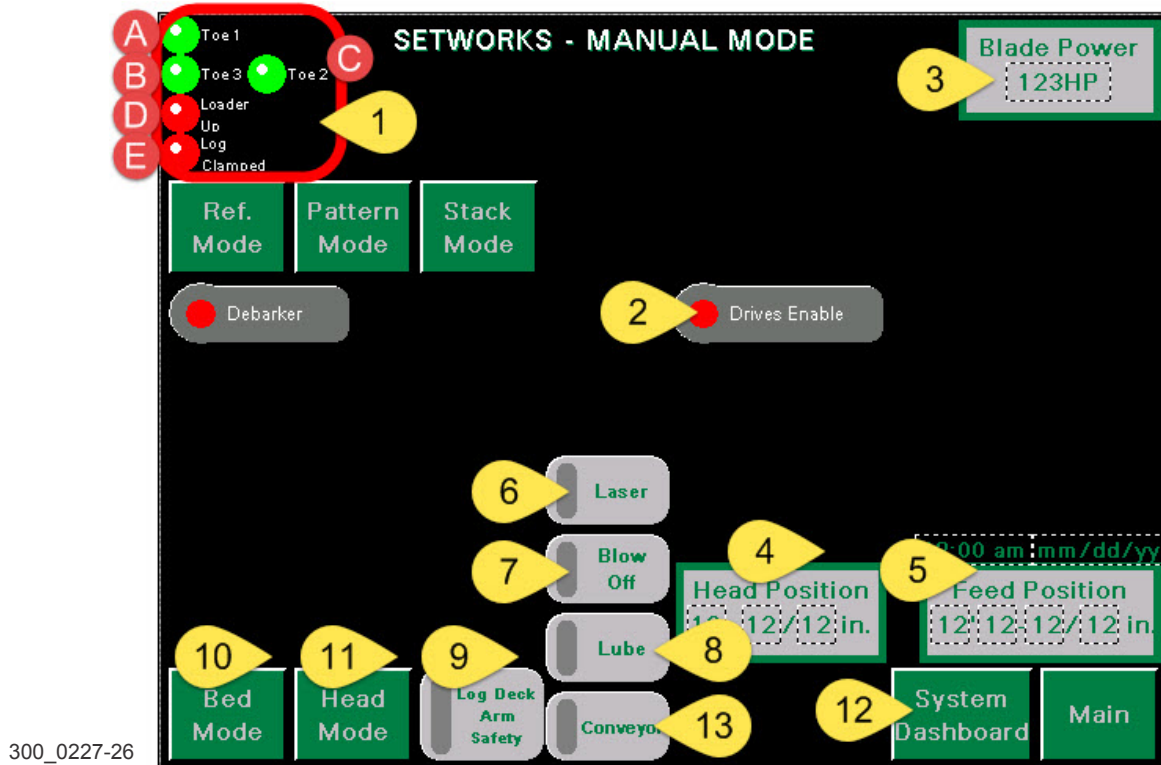


FIG. 4-24

1. Indicators. When the Toe Board indicator is green the machine assumes the toe board is down because the last movement of the toe board was a downward motion long enough for the toe board to move all the way down. Just a short push of the button in the down direction is not enough to make the light go green, it has to be maintained for a time delay. When the indicator is red the machine assumes the toe board is up because the last movement of the toe board was an upward motion. This will turn red at the slightest upward movement, there is not time delay to make the indicator turn red.
 - (A) Toe Board 1
 - (B) Toe Board 2
 - (C) Toe Board 3
 - (D) Loader Up. This indicator turns red after a time delay when the loading arms are

being lowered. It will turn green after a longer time delay when the arms are being raised.

- **(E) Log Clamped.** This indicator turns red after a time delay when the log clamp is being moved out. It will turn green after a longer time delay when the log clamp is being moved in.

- 2. **Drives Enable.** This indicator is red when the drives do not have permission for motion of the feed or head. It will turn green when the motion permission is active.

- 3. **Blade Power.** Displays the current power the blade motor is running at. It is displayed in HP for Imperial, and kW for Metric.

- 4. **Head Position.** Displays the current head position. It is displayed in fractional inches for Imperial Fractions, decimal inches for Imperial Decimal, and millimeters for Metric.

- 5. **Feed Position.** Displays the current feed position. It is displayed in feed with fractional inches for Imperial Fractions, decimal feet for Imperial Decimal, and meters for Metric.

- 6. **Laser.** This button turns the laser line on and off. When the indicator is green the laser is on, when gray it is off.

- 7. **Blow Off.** This button turns on the blow-off. When the indicator is green the blow off is on, when gray it is off. The blow-off valve is only active when the head is moving backwards.

- 8. **Lube.** This button turns the blade lube on. When the indicator is green the lube is on, when gray it is off. The lube only works when the blade motor is running and the head is moving forward.

- 9. **Log Deck Arm Safety.** This button turns the log deck arm safety on and off. When it is on it prevents interference between the head and loading arms. When it is off the sawyer is control of interference prevention.

- 10. **Bed Mode.** This button will activate Bed Mode, if not already active. When Bed Mode is active the button will blink.

- 11. **Head Mode.** This button will activate Head Mode, if not already active. When Head Mode is active the button will blink.

- 12. **System Dashboard.** This button will take you to the system dashboard.

- 13. **Conveyor.** This button will enable/disable the conveyor.

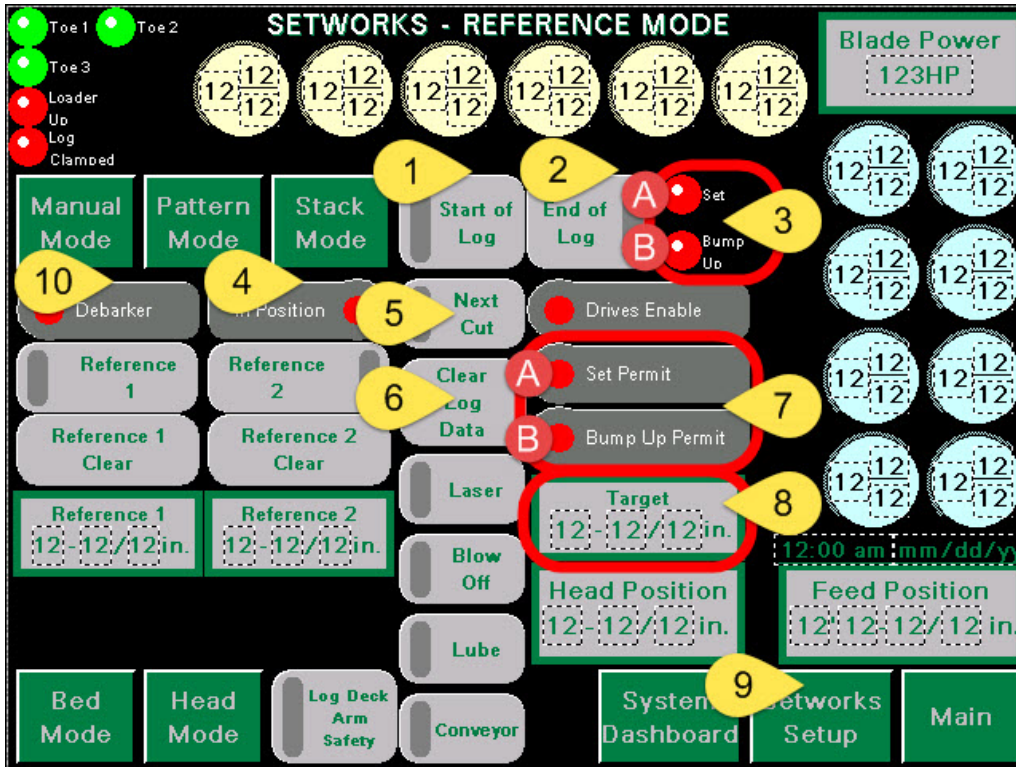
4

Operation

Common Indicators and Buttons for Reference, Pattern, and Stack Modes

4.8.2 Common Indicators and Buttons for Reference, Pattern, and Stack Modes

See Figure 4-25. The Networks - Reference Mode is shown below.



300_0227-27

FIG. 4-25

1. Start of Log. This button sets the Start of Log position when starting a new log and making the first opening cut. The indicator turns green when the position is set. This can also be set by the button on the joystick.
2. End of Log. This button sets the End of Log position when starting a new log and making the first opening cut. The indicator turns green when the position is set. This can also be set by the button on the joystick.
3. Set and Bump Up indicators.
 - (A) Set. This indicator turns green when a set function has been requested. When returning to start of log the set button can be pressed. The indicator should turn green indicating the set command was received and will initiate when in a safe position to do so.
 - (B) Bump Up. This indicator turns green when a bump up function has been requested. When cutting through the log the bump up button can be pressed. The indicator should turn green indicating the bump up command was received and will

initiate when in a safe position to do so.

4. In. Position Indicator. Turns green when the head is in position, and red when it is not.
5. Next Cut. This button turns on Next Cut setting to the next board size. The indicator turns green when the position is set. This can also be set by the button on the joystick.
6. Clear Log Data. This button will clear all the data for the log, Start of Log position, End of Log position, Reference 1, Reference 2, Pattern 1, and Pattern2.
7. Set and Bump Up Permits.
 - **(A)** Set Permit. This indicator blinks red when it is not safe to do a set. When the feed is in position safe for a set it will turn green. The head must be behind the Start of Log position to get this permit.
 - **(B)** Bump Up Permit. This indicator blinks red when it is not safe to do a bump up. When the feed is in position safe for a bump up it will turn green. The head must be in front of the End of Log position to get this permit.
8. Target. This numeric display shows the position the head is going to for a set or bump up. This allows you to compare the accuracy of the position when done, comparing it to the Head Position.
9. Networks Setup. This button takes you to the “Networks Setup” screen for changing or adding board or cant sizes.
10. Debarker Indicator. Turns green when the debarker is active, and red when it is not.

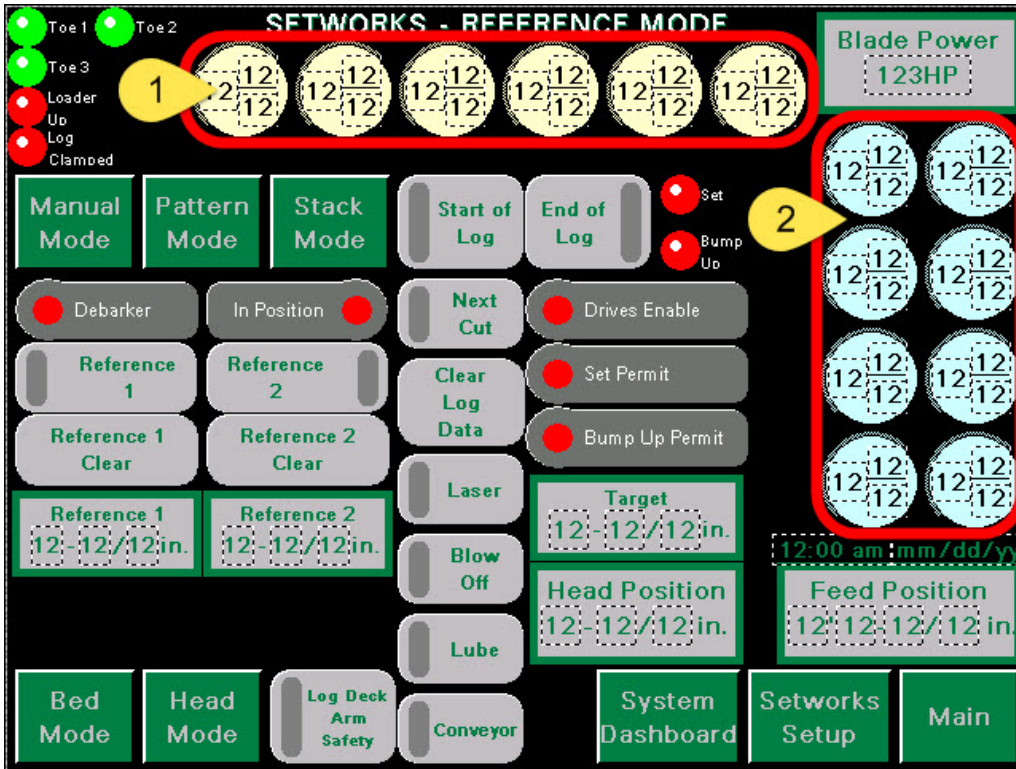
4

Operation

Common Indicators and Buttons for Reference and Pattern Modes

4.8.3 Common Indicators and Buttons for Reference and Pattern Modes

See Figure 4-26. The Networks - Reference Mode is shown below.



300_0227-9B

FIG. 4-26

1. Board Sizes. Reference and Pattern mode both have 6 board sizes in this area. The active board size will be highlighted in a bright yellow. To activate a board size just touch the one needed.
2. Board/Cant Sizes. In Reference mode these 8 sizes are for additional boards. In Pattern mode these 8 sizes are for cants. The active size will be highlighted in a brighter blue. In Reference mode there can only be one board size selected so if one of these is selected the previous 6 will all be inactive. In Pattern mode you select a cant size for each Pattern, 1 and 2, they can be different so that you can cut down to a 4x6, etc.

4.8.4 Manual Mode

All operations for sawing the log in Manual Mode are manually controlled by the operator. The head will not perform sets or bump ups in manual mode. The return to start of log function is not available in manual mode

4.8.5 Reference Mode

In Reference Mode the operator picks a reference point when opening the log, then each set after that will be the board size selected. The head does not directly reference from the bed but from the first cut, and will drop board sizes from there.

See Figure 4-27.

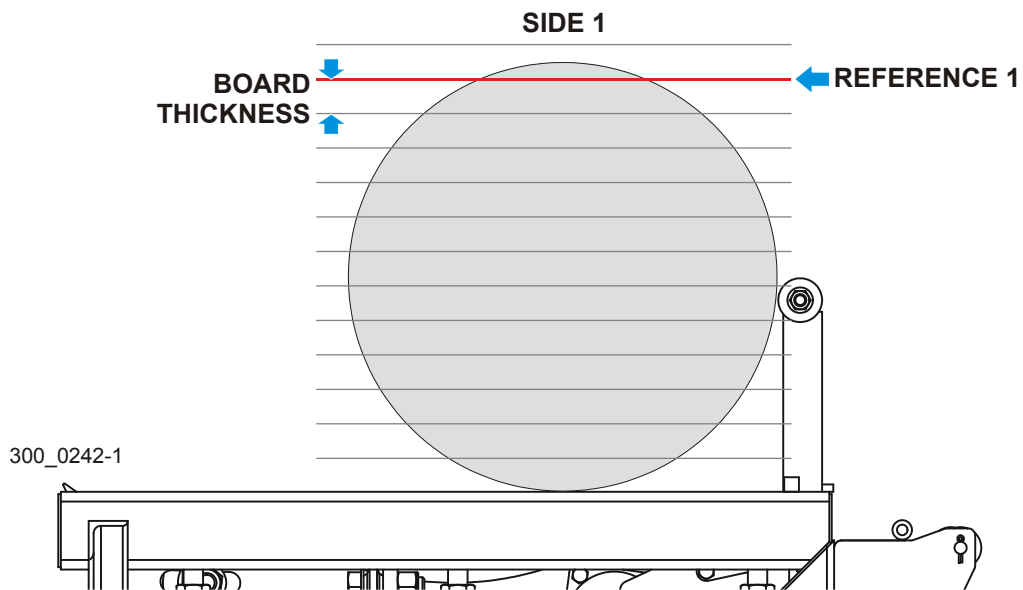
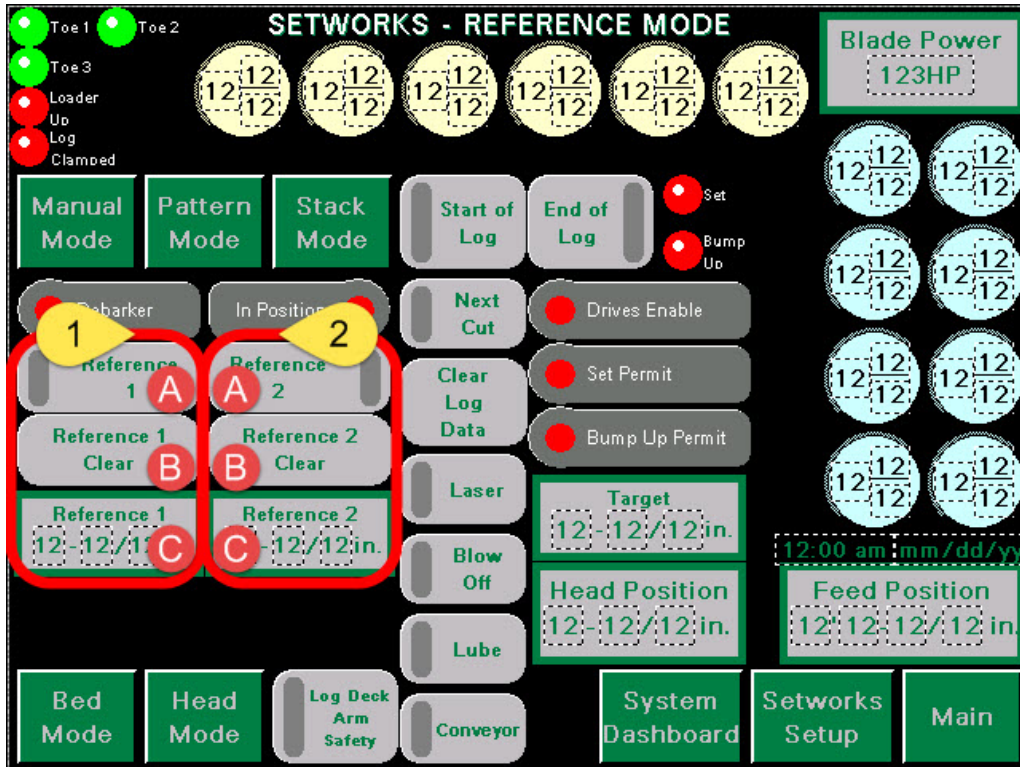


FIG. 4-27

4 Operation

Reference Mode

See Figure 4-28.



300_0227-28

FIG. 4-28

1. Reference 1 buttons and displays.

- **(A)** Reference 1. This button will activate Reference 1 and capture the current head position as Reference 1 position (1C). The indicator turns green when the Reference is active.
- **(B)** Reference 1 Clear. This button will clear out the position of Reference 1 (1C).
- **(C)** Reference 1. This numeric display shows the current position of Reference 1.

2. Reference 2 buttons and displays.

- **(A)** Reference 2. This button will activate Reference 2 and capture the current head position as Reference 2 position (2C). The indicator turns green when the Reference is active.
- **(B)** Reference 2 Clear. This button will clear out the position of Reference 2 (2C).
- **(C)** Reference 2. This numeric display shows the current position of Reference 2.

4.8.6 Pattern Mode

In Pattern Mode the operator picks a possible starting point when opening the log, then the head will calculate where to take the first cut based off a pattern of the cant size selected, number of cants, and the board size. After the first cut the head will set to the board size selected until it reaches the pattern of cants. After that it will set to the cant sizes until the last one is cut. These dimensions are directly referenced from the bed up.

See Figure 4-29.

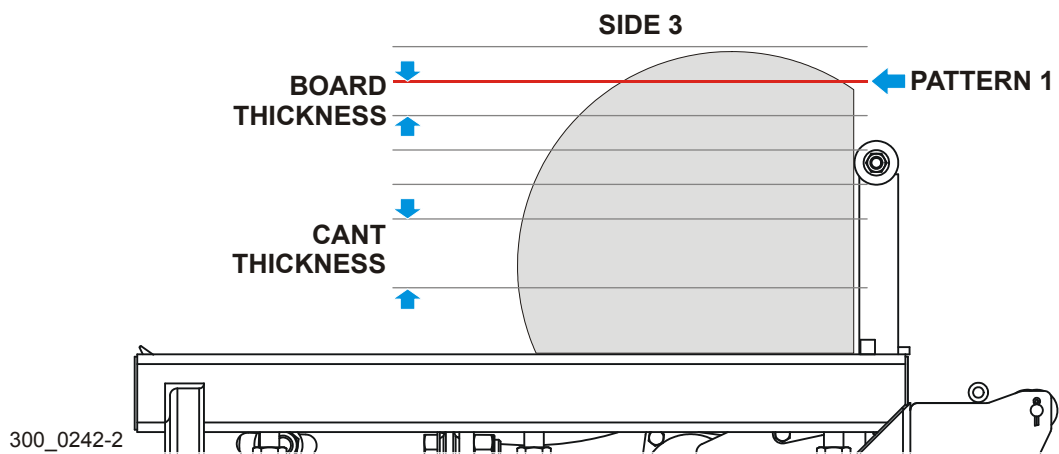
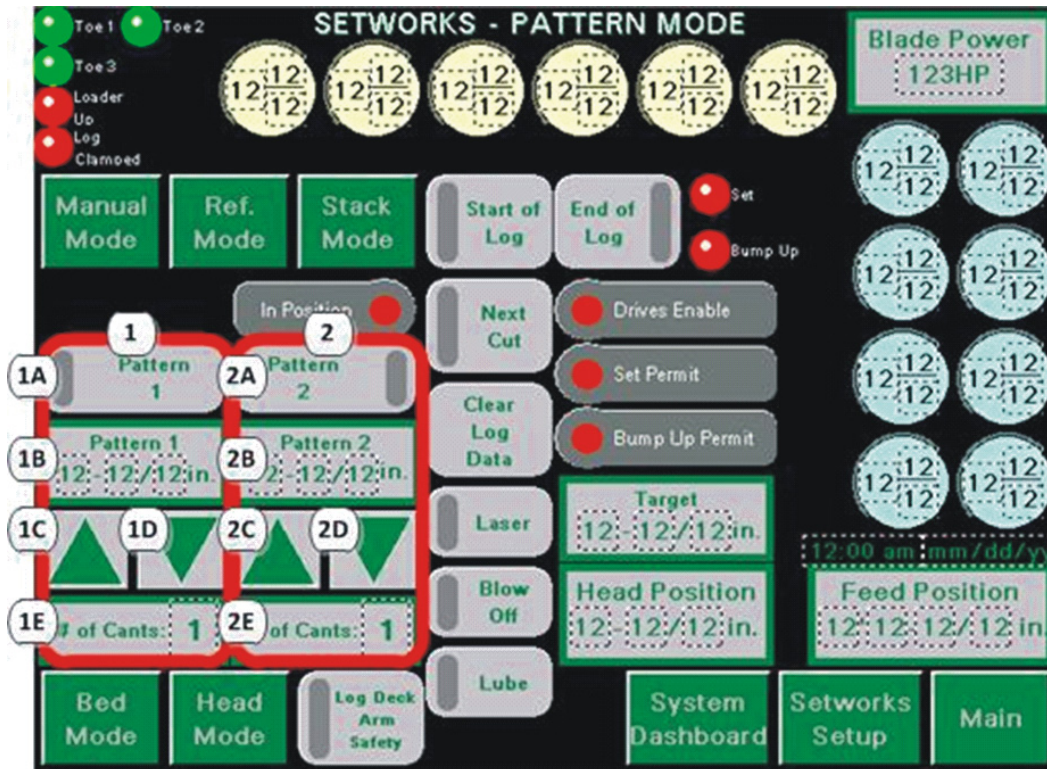


FIG. 4-29

4 Operation

Pattern Mode

See Figure 4-30.



300_0227-18

FIG. 4-30

(1) Pattern 1 buttons and displays.

- **(1A)** Pattern 1. This button will activate Pattern 1 and capture the current head position as Pattern 1 position (1B). The indicator turns green when the Pattern is active. If you press and hold the button for a time period, it will also clear out Pattern 1 position (1B).
- **(1B)** Pattern 1. This numeric display shows the current position of Pattern 1.
- **(1C)** Increment. This button increases the # of Cants (1E) by 1.
- **(1D)** Decrement. This button decrease the # of Cants (1E) by 1.
- **(1E)** # of Cants. This numeric display shows the number of cants in Pattern 1.

(2) Pattern 2 buttons and displays.

- **(2A)** Pattern 2. This button will activate Pattern 2 and capture the current head position as Pattern 2 position (2B). The indicator turns green when the Pattern is active. If you press and hold the button for a time period, it will also clear out Pattern 2 position (2B).

tion (2B).

- **(2B)** Pattern 2. This numeric display shows the current position of Pattern 2.
- **(2C)** Increment. This button increases the # of Cants (2E) by 2.
- **(2D)** Decrement. This button decrease the # of Cants (2E) by 2.
- **(2E)** # of Cants. This numeric display shows the number of cants in Pattern 2.

4.8.7 Stack Mode

In Stack Mode the operator chooses a predefined stack memory, places the head near where the opening cut is to be taken and presses the set button. After each cut, the head will drop to the next size in the stack memory. When above the stack all drops will be the size of the top stack size. These dimensions are directly referenced from the bed up.

See Figure 4-31.

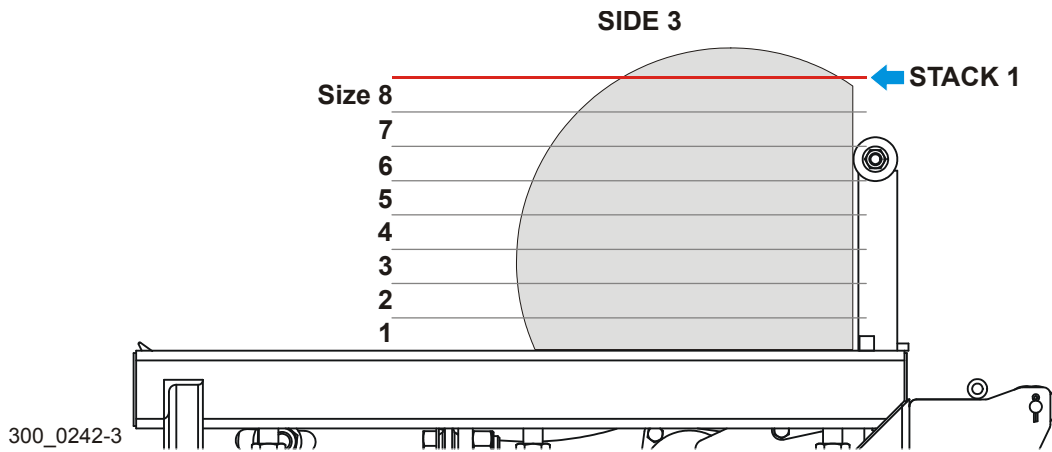
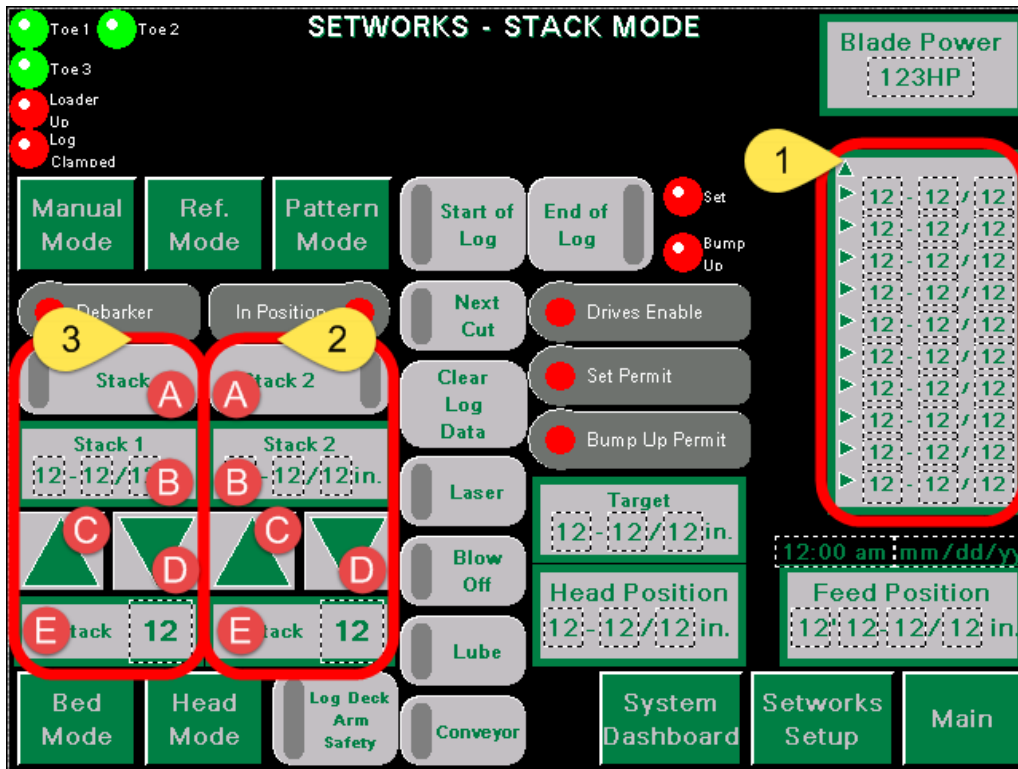


FIG. 4-31

4 Operation

Stack Mode

See Figure 4-32.



300_0227-10B

FIG. 4-32

1. Stack. Displays all the sizes in the stack and the current position you are at in the stack.
2. Stack 1 buttons and displays.
 - (A) Stack. This button will activate Stack 1 and capture the current head position as Stack 1 position (B). The indicator turns green when the Stack is active. If you press and hold the button for a time period, it will also clear out Stack 1 position (B).
 - (B) Stack 1. This numeric display shows the current position of Stack 1.
 - (C) Increment. This button increases the stack memory.
 - (D) Decrement. This button decrease the stack memory.
 - (E) Stack. This numeric display shows the Stack memory selected.
3. Stack 2 buttons and displays.
 - (A) Stack 2. This button will activate Stack 2 and capture the current head position

as Stack 2 position (B). The indicator turns green when the Stack is active. If you press and hold the button for a time period, it will also clear out Stack 2 position (B).

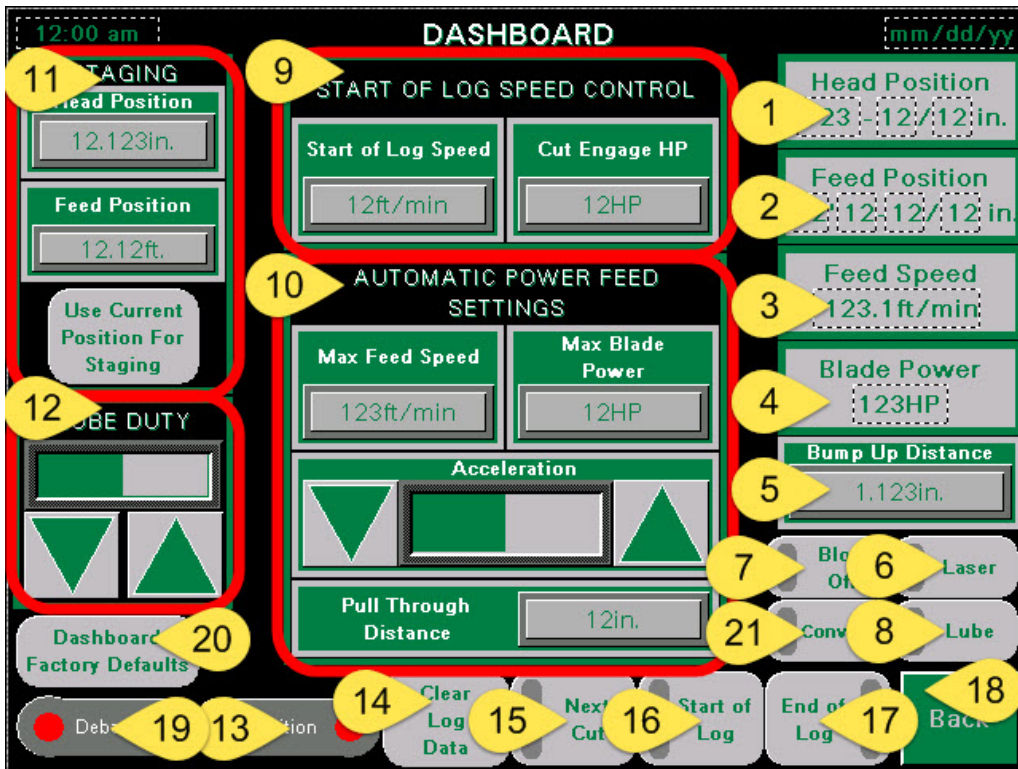
- **(B)** Stack 2. This numeric display shows the current position of Stack 2.
- **(C)** Increment. This button increases the stack memory.
- **(D)** Decrement. This button decrease the stack memory.
- **(E)** Stack. This numeric display shows the Stack memory selected.

4 Operation

Dashboard

4.8.8 Dashboard

See Figure 4-33.



300_0227-29

FIG. 4-33

1. Head Position. [See Section 4.8.1](#) number 4.
2. Feed Position. [See Section 4.8.1](#) number 5.
3. Feed Speed. This numeric display shows the current feed speed. Displayed in ft./min. for Imperial and m/min. for Metric.
4. Blade Power. [See Section 4.8.1](#) number 3.
5. Bump Up Distance. This numeric display shows the current bump up distance. Default is 0.625"(5/8"). To change it just press the numeric display and enter the value you want then press enter.
6. Laser. [See Section 4.8.1](#) number 6.
7. Blow Off. [See Section 4.8.1](#) number 7.

8. Lube. [See Section 4.8.1](#) number 8.
9. Start of Log Speed Control. These settings control the speed of the feed at the start of the log and when it turns off based on entering a cut.
 - Start of Log Speed. This numeric display shows the current speed for start of log. To change it just press the numeric display and enter the value you want then press enter.
 - Cut Engage HP. This numeric display shows the current threshold at which the machine assumes it is in an active cut based on blade motor power. To change it just press the numeric display and enter the value you want then press enter.
10. Automatic Power Feed Settings. These settings control how the automatic power feed reacts.
 - Max Feed Speed. This numeric display shows the maximum feed speed the automatic feed will go to when trying to achieve the maximum blade power(10B). To change it just press the numeric display and enter the value you want then press enter.
 - Max Blade Power. This numeric display shows the maximum blade power the automatic feed will try to achieve. To change it just press the numeric display and enter the value you want then press enter.
 - Acceleration-Graph. This bar graph shows the level of acceleration the feed will take when trying to reach the maximum blade power. The higher the bar, green bar towards the right, the faster it will accelerate. The lower the bar, green bar towards the left, the slower it will accelerate. Some woods will need lower acceleration for best cutting performance.
 - Acceleration-Decrease. This button decreases the acceleration.
 - Acceleration-Increase. This button increases the acceleration.
 - Pull Through Distance. This numeric display shows the current distance the feed will move past the end of log position when in an automatic cut before returning to start of log. When doing an automatic but you have to make sure the pull-back fingers on the head drop before returning to start of log, or the head will jamb them against the log.
11. Staging. These settings control where the head will return to when a staging function is activated. To initiate a staging function after you have made the last cut on the log, push the right joystick forward to return to start of log, then press both the rear switch and bottom head button of the right joystick, then release all joystick controls. The head will return to the set feed position, then go to the set head position.

- Head Position. This numeric display shows the set head position for the staging function. To change it just press the numeric display and enter the value you want then press enter.
- Feed Position. This numeric display shows the set feed position for the staging function. To change it just press the numeric display and enter the value you want then press enter.
- Use Current Position For Staging.

12. Lube Duty. This setting controls how often the lube pulses.

- Lube Duty-Graph. This bar graph shows the frequency of pulses of the lube system. The higher the bar, green bar towards the right, the more pulses. The lower the bar, green bar towards the left, the less pulses.
- Lube Duty-Decrease. This button decreases the amount of pulses.
- Lube Duty-Increase. This button increases the amount of pulses.

13. In Position. [See Section 4.8.2](#) number 4.

14. Clear Log Data. [See Section 4.8.2](#) number 6.

15. Next Cut. [See Section 4.8.2](#) number 5.

16. Start of Log. [See Section 4.8.2](#) number 1.

17. End of Log. [See Section 4.8.2](#) number 2.

18. Back. This button takes you back to the previous screen.

19. This indicator turns green when the debarker is active.

20. This button resets all values on the screen to factory defaults.

21. Conveyor. This button enables/disables the conveyor.

4.9 General Sawing Sequence



DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

The following is a general procedure for sawing a log. See the previous sections of this manual for details concerning the operations listed.

NOTE: For this sequence the Trim Cut is set to default, Opening Cut, all options are disabled and the joysticks are in the default configuration.

4.9.1 Prepare the sawmill for loading a log

1. Turn on control power:
 - Release the e-stop button on the operator control, if necessary, by twisting it clockwise until it pops out.
 - Press the control power on button and release it. It should light up green and stay on.
 - Wait for the control to power up by waiting for the “Power Up” pop up window to disappear.
2. Start the blade motor by turning the key switch on the operator clockwise to the start position.

4.9.2 Load the log

1. Put the mill in Head Mode, if necessary, by pressing the rear switch button on the left joystick.
2. Move the head all the way back to the reverse hard stop by pushing the right joystick forward, so it is clear for loading.
3. Put the mill in Bed Mode, if necessary, by pressing the rear switch button on the left joystick.
4. Raise the side supports by pulling the right joystick back until they are all the way up.
5. Move the clamp out by pushing the left joystick left until it is all the way out.
6. Lower the clamp by pushing the left joystick forward until it is all the way down.
7. Lower the toe boards, if necessary, by pressing the rear switch button on the right joystick.

4

Operation

Make the opening cut on the first side

stick.

8. Lower the turners, if necessary, by pulling the right joystick left until they are all the way down.
9. Run the log deck chains forward by press the 4-way switch right on the left joystick until a log is against the loading arms.
10. Lower the loading arms by pressing the 4-way switch down on the left joystick until the log rolls onto the bed.
11. Raise the clamp by pulling the left joystick backwards and bring the clamp in by pulling the left joystick right to keep the log from rolling back to the loading arms.
12. Raise the loading arms by pressing the 4-way switch up on the left joystick until the arms are all the way up.
13. Raise the turners by pushing the right joystick right, spin the log to the appropriate starting position by turning the turner chains forward pressing the 4-way switch left on the right joystick or backward pressing the 4-way switch right on the right joystick.
14. Lower the turners by pulling the right joystick left.
15. Taper the log with the toe boards by raising toe board 1 with the right head button on the right joystick or by raising toe board 2 with the left head button on the right joystick.
16. Adjust the clamp up or down if needed by pulling or pushing the left joystick, then clamp the log completely by pulling the left joystick right.

4.9.3 *Make the opening cut on the first side*

1. Enter Reference Mode.
 - From the “Main Screen” press the “Setworks Main” button. This will take you to Manual Mode.
 - Now, press the “Reference Mode” button. This will take you to Reference Mode.
2. Move the head near the start of the log by pulling the right joystick backward.
3. Raise or Lower the head to where you want to take your opening cut by pulling the left joystick backward or pushing it forward.
4. Capture the Start of Log position by pressing the left head button on the left joystick.
5. Capture the current head position for Reference 1 by turning on Next Cut by pressing the

right head button on the left joystick.

6. Start sawing by pulling the right joystick backward.
 - The saw will enter the log at the Start of Log speed set on the “Dashboard”.
 - Once the blade power exceeds the engage threshold, set on the “Dashboard”, the operator has full control of the feed speed from the joystick. The farther it is pulled back, the faster it will try to feed. Monitor blade power while pulling the joystick back.
7. Capture the End of Log position when the blade complete exits the log by pressing the left head button on the left joystick.
8. Once the fingers have cleared the log let off the right joystick so the head will come to a stop.
9. If the slab is large enough to push back with the fingers press the bottom head button on the right joystick to do a bump up.
10. If the slab is too thin to push back lift the head above it by pulling the left joystick back.
11. Push the right joystick back to return to the start of log.
 - The operator has full control of the return so it is necessary to let up on the joystick to slow down when nearing the start of log.
12. Make sure the board size you wish to use is highlighted on the “Reference Mode” screen, then push the rear switch button on the right joystick to perform a set. Now you can saw another board with the same sequence of steps **6-11**, skipping step **7**.

4.9.4 *Turn the log to side 2*

1. With the head all the way back to the start of log position push the rear switch button of the left joystick to switch to bed mode.
2. Unclamp the log by pushing the left joystick left.
3. If the toe boards were used on side 1, lower them by pressing the rear switch button on the right joystick.
4. Raise the side supports by pulling the right joystick backward, until the supports are all the way up.
5. Raise the turners by pushing the right joystick right.
6. Now turn the log with the turner chains until the flat open face of Reference 1 is against

the side supports, by pressing the 4-way switch left on the right joystick.

7. Lower the turners by pulling the right joystick left.
8. Lower the side supports enough to make sure you will not hit them when opening side 2.
9. Taper the log with the toe boards by raising toe board 1 with the right head button on the right joystick or by raising toe board 2 with the left head button on the right joystick.
10. Clamp the log by pulling the left joystick right.
 - You may have to support the log with the turners when clamping to keep the flat against the side supports, or you will have to raise and lower the clamp with the left joystick forward and backward to press the flat back against the side supports.

4.9.5 *Make the opening cut on the second side*

1. Press the Reference 2 button to activate the second side.
2. Position the head up and down to where you want to make the opening cut.
3. Press the Reference 2 button on the “Reference Mode” screen to turn on Reference 2 and set it's position.
4. Press the Next Cut button to enable next cut.
5. Now make your opening cut using the sequence in **Section 4.9.3 Make the opening cut on the first side**, steps **6-11**, skipping step **7**.
6. Repeat step **4** until you are ready to turn the log again.

Turn the log with the sequence of steps in **Section 4.9.4 Turn the log to side 2**, but now you want to put the flat of side 2 against the side supports and side 1 on the bed rails

4.9.6 *Make the opening cut on the third side*

1. Press the Pattern Mode button on the “Reference Mode” screen to enter pattern mode.
2. Make sure the correct board size is selected.
3. Select the appropriate cant size if cutting cants.
 - Set the correct number of cants for this size.
4. Move the head to where you would like to take the opening cut.

5. Press the rear switch button on the right joystick to set to the nearest board based on the cant size, cant number, and board size selected.
6. After the head is in position continue cutting with the same sequence as in **Section 4.9.3 *Make the opening cut on the first side***, steps **6-11**, skipping step **7**.
7. Repeat step **6** until you are ready to turn the log.
 - If you cut all the way down to your cants, once you reach the first one the next set will be the cant size, then you will have to turn the log to continue cutting.

Turn the log with the sequence of steps in **Section 4.9.4 *Turn the log to side 2***, but now you want to put the flat of side 3 against the side supports and side 2 on the bed rails.

4.9.7 *Make the opening cut on the fourth side*

1. Press Pattern 2 to active the fourth side.
2. Make sure the correct board size is selected.
3. Select the appropriate cant size if cutting cants.
 - Set the correct number of cants for this size.
4. Move the head to where you would like to take the opening cut.
5. Press the rear switch button on the right joystick to set to the nearest board based on the cant size, cant number, and board size selected.
6. After the head is in position continue cutting with the same sequence as in **Section 4.9.3 *Make the opening cut on the first side***, steps **6-11**, skipping step **7**.
7. Repeat step **6** until you are ready to turn the log.
8. If you cut all the way down to your cants, once you reach the first one the next set will be the cant size, then you will have to turn the log to continue cutting.
9. If you turn back to side 3 you will need to press Pattern 1 on the “Pattern Mode” screen to switch back to the 1st/3rd side. Same for if you turn again to the 2nd/4th side.

4.9.8 *Return to the staging position, if set*

1. After making the last cut on the last side when you start to return the head to start of log, press both the rear switch button and the bottom head button of the right joystick, then release the joystick completely. The head will return to the set feed position, then it will raise to the set head position.

2. You are not ready to load another log and start over.
3. You will have to take Setworks back to reference mode by pressing the Reference Mode button.

4.10 Automated Sawing Sequence



DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

The following is a general procedure for sawing a log. See the previous sections of this manual for details concerning the operations listed.

NOTE: For this sequence the Trim Cut is set to default, Opening Cut, all options are disabled and the joysticks are in the default configuration.

4.10.1 Prepare the sawmill for loading a log

1. Turn on control power.
 - Release the e-stop button on the operator control, if necessary, by twisting it clockwise until it pops out.
 - Press the control power on button and release it. It should light up green and stay on.
 - Wait for the control to power up by waiting for the “Power Up” pop up window to disappear.
2. From the “Main Screen” go to the “Setup” screen and enable the following options by pressing the button to the left of each option:
 - Return To Reference Automatically When Starting A New Log
 - Automatically Switch Sides With Log Turns
 - Goto Pattern Automatically After Opening 2nd Side In Reference
 - Default Back To Board Dim 1 When Starting A New Log
 - Use Reference Positions To Calculate Pattern Positions
 - Automatic Next Cut
 - Automatically Return to Start of Log

- Use SOL Speed For Set Distance, 2ft(0.6m)
 - Automatic Feed
 - Automatic Set
 - Automatic Bump Up
 - Automatic Cut
3. Start the blade motor by turning the key switch on the operator clockwise to the start position.

4.10.2 Load the log

1. Put the mill in Head Mode, if necessary, by pressing the rear switch button on the left joystick.
2. Move the head all the way back to the reverse hard stop by pushing the right joystick forward, so it is clear for loading.
3. Put the mill in Bed Mode, if necessary, by pressing the rear switch button on the left joystick.
4. Raise the side supports by pulling the right joystick back until they are all the way up.
5. Move the clamp out by pushing the left joystick left until it is all the way out.
6. Lower the clamp by pushing the left joystick forward until it is all the way down.
7. Lower the toe boards, if necessary, by pressing the rear switch button on the right joystick.
8. Lower the turners, if necessary, by pulling the right joystick left until they are all the way down.
9. Run the log deck chains forward by press the 4-way switch right on the left joystick until a log is against the loading arms.
10. Lower the loading arms by pressing the 4-way switch down on the left joystick until the log rolls onto the bed.
11. Raise the clamp by pulling the left joystick backwards and bring the clamp in by pulling the left joystick right to keep the log from rolling back to the loading arms.
12. Raise the loading arms by pressing the 4-way switch up on the left joystick until the arms

are all the way up.

13. Raise the turners by pushing the right joystick right, spin the log to the appropriate starting position by turning the turner chains forward pressing the 4-way switch left on the right joystick or backward pressing the 4-way switch right on the right joystick.
14. Lower the turners by pulling the right joystick left.
15. Taper the log with the toe boards by raising toe board 1 with the right head button on the right joystick or by raising toe board 2 with the left head button on the right joystick.
16. Adjust the clamp up or down if needed by pulling or pushing the left joystick, then clamp the log completely by pulling the left joystick right.

4.10.3 *Make the opening cut on the first side*

1. Enter Reference Mode.
 - From the “Main Screen” press the “Setworks Main” button. This will take you to Manual Mode.
 - Now, press the “Reference Mode” button. This will take you to Reference Mode.
2. Move the head near the start of the log by pulling the right joystick backward.
3. Raise or Lower the head to where you want to take your opening cut by pulling the left joystick backward or pushing it forward.
4. Capture the Start of Log position by pressing the left head button on the left joystick.
5. Start sawing by pulling the right joystick backward.
 - The saw will enter the log at the Start of Log speed set on the “Dashboard”.
 - Once the blade power exceeds the engage threshold, set on the “Dashboard”, the Automatic Feed will take over using the settings on the Dashboard. The operator still has control of the speed because the machine will select the slower of two speeds, either the Automatic or the Joystick. If the operator backs off on the joystick to a slower speed than the Automatic then the feed will slow to that speed.
 - Once the Automatic Feed engages the machine will also automatically turn on Next Cut and use the current head position for Reference 1.
6. Capture the End of Log position when the blade complete exits the log by pressing the left head button on the left joystick, the head will then automatically bump up.

7. Once the fingers have cleared the log let off the right joystick so the head will come to a stop.
8. If the slab is too thin to push back lift the head above it by pulling the left joystick back.
9. Push the right joystick back to return to the start of log.
 - Once the joystick is pushed back the machine will take over to return to the target start of log position. Do not let off the joystick until the head has come to a stop.
 - Once the head has passed the actual Start of Log position the head will start a set, while still returning to the target Start of Log position.
10. Now you can saw another board with the same sequence of steps **5-9**, skipping step **6**.

4.10.4 Turn the log to side 2

1. With the head all the way back to the start of log position push the rear switch button of the left joystick to switch to bed mode.
2. Unclamp the log by pushing the left joystick left.
3. If the toe boards were used on side 1, lower them by pressing the rear switch button on the right joystick.
4. Raise the side supports by pulling the right joystick backward, until the supports are all the way up.
5. Raise the turners by pushing the right joystick right.
6. Now turn the log with the turner chains until the flat open face of Reference 1 is against the side supports, by pressing the 4-way switch left on the right joystick.
7. Lower the turners by pulling the right joystick left.
8. Lower the side supports enough to make sure you will not hit them when opening side 2.
9. Taper the log with the toe boards by raising toe board 1 with the right head button on the right joystick or by raising toe board 2 with the left head button on the right joystick.
10. Clamp the log by pulling the left joystick right.
 - You may have to support the log with the turners when clamping to keep the flat against the side supports, or you will have to raise and lower the clamp with the left joystick forward and backward to press the flat back against the side supports.

4.10.5 Make the opening cut on the second side

1. Position the head up and down to where you want to make the opening cut.
2. Now make your opening cut using the sequence in **Section 4.10.3 Make the opening cut on the first side**, steps 5-10, skipping step 6.
3. The machine will automatically set Reference 2 and turn on Next Cut.
4. Repeat step 2 until you are ready to turn the log again.

Turn the log with the sequence of steps in **Section 4.10.4 Turn the log to side 2**, but now you want to put the flat of side 2 against the side supports and side 1 on the bed rails. **NOTE:** When turning the machine will automatically switch to Pattern Mode.

4.10.6 Make the opening cut on the third side

1. Make sure the correct board size is selected.
2. Select the appropriate cant size if cutting cants.
 - Set the correct number of cants for this size.
3. Press the rear switch button on the right joystick to set to the nearest board based on the cant size, cant number, and board size selected.
4. The machine uses the last cut of Reference 1 to determine where to make the opening cut.
5. After the head is in position continue cutting with the same sequence as in **Section 4.10.3 Make the opening cut on the first side**, steps 5-10, skipping step 6.
6. Repeat step 5 until you are ready to turn the log.
 - If you cut all the way down to your cants, once you reach the first one the next set will be the cant size, then you will have to turn the log to continue cutting.

Turn the log with the sequence of steps in Step 6, but now you want to put the flat of side 3 against the side supports and side 2 on the bed rails. **NOTE:** The machine will automatically switch to Pattern 2.

4.10.7 Make the opening cut on the fourth side

1. Make sure the correct board size is selected.
2. Select the appropriate cant size if cutting cants.

- Set the correct number of cants for this size.
- 3. Press the rear switch button on the right joystick to set to the nearest board based on the cant size, cant number, and board size selected.
- 4. The machine uses the last cut of Reference 2 to determine where to make the opening cut.
- 5. After the head is in position continue cutting with the same sequence as in **Section 4.10.3** ***Make the opening cut on the first side***, steps **5-10**, skipping step **6**.
- 6. Repeat step **5** until you are ready to turn the log.
- 7. If you cut all the way down to your cants, once you reach the first one the next set will be the cant size, then you will have to turn the log to continue cutting.
- 8. When turning the log now the machine will automatically switch sides.

4.10.8 *Return to the staging position, if set.*

1. After making the last cut on the last side when you start to return the head to start of log, press both the rear switch button and the bottom head button of the right joystick, then release the joystick completely. The head will return to the set feed position, then raise to the set head position.
2. You are not ready to load another log and start over.
3. The machine will automatically return to Reference Mode and highlight Board Dim 1.

SECTION 5 MAINTENANCE

This section lists the maintenance procedures that need to be performed.

See the [Maintenance Log](#) located after this section for a complete list of maintenance procedures and intervals. Keep track of machine maintenance by filling in the machine hours and the date you perform each procedure.



This symbol identifies the interval (hours of operation) at which each maintenance procedure should be performed. Procedures that should be performed “as required” are indicated by “A/R”.

Be sure to refer to option and engine manuals for other maintenance procedures.

5.1 Blade Guides (Standard Block/Roller Guides)

NOTE: Block/Roller Guides are standard on the WM4000.

1. Check the rollers for performance and wear every blade change. Make sure the rollers are clean and spinning freely. If not, replace them. Replace any rollers which have worn smooth or have become cone shaped.
2. Inspect the blocks at every blade change for damage or wear. If the block housing is bent or damaged, replace the block assembly. Also, replace the block assemblies before the blocks are worn to a point the blade may contact the block housing.
3. Check the guide blocks are properly spaced from the blade every 25 hours of operation. Use the provided shim or a feeler gauge to check the blocks are adjusted .008” - .010” from the blade.



As the blocks wear, the front inside corner will wear more than the body of the block. When the corner wears far enough, sawing performance will be affected even if the body of the block is adjusted properly to the blade. At this point, the block should be replaced. If you have access to the appropriate equipment, you can grind or mill the blocks to a new flat surface and reuse them. It is recommended you develop a routine schedule for replacing the blade guide blocks based on your sawing conditions and experience.

Preventing sap buildup on the blade is critical when using the high-performance blade guide system. If the wood you are sawing leaves sap buildup on the blade, increase the amount of oil mixed with the lube water.

4. Make sure the blade support channel in the center of the C-frame is 1/16" (1.5 mm) away from the blade. If not, loosen the mounting bolts and adjust the channel as necessary. Check the channel every blade change. Failing to maintain this adjustment will lead to early blade breakage.

See Figure 5-1.

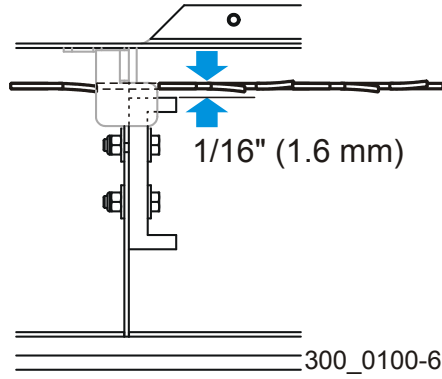


FIG. 5-1

5.2 Sawdust Removal



Remove the excess sawdust from the blade guide assemblies, blade wheel housings, throat and sawdust chute every blade change.



WARNING! Always keep clear of exiting sawdust. Keep hands, feet and any other objects away from the sawdust chute when operating sawmill. Failure to do so may result in serious injury.

WARNING! Always check to ensure the steel fingers inside the sawdust chute are in place before operating the sawmill. The steel fingers have been designed to help prevent a broken blade or some other object from becoming a projectile and exiting the sawdust chute. Failure to have these fingers in place may result in serious injury.



Remove all sawdust and debris from around the velocity fuse valves on the bottom of the log loader cylinders every 8 hours of operation.

Remove sawdust buildup from the area around the bottom up/down screw bellows. Also remove sawdust from the cable carrier tray.

5.3 Track Rails & Scrapers

Properly maintaining the sawmill carriage track is critical in preventing corrosion that can cause pitting and scaling on the rail surfaces. Pitted and scaled surfaces can, in turn, cause rough cuts or jerky power feed movement.

See Figure 5-1.

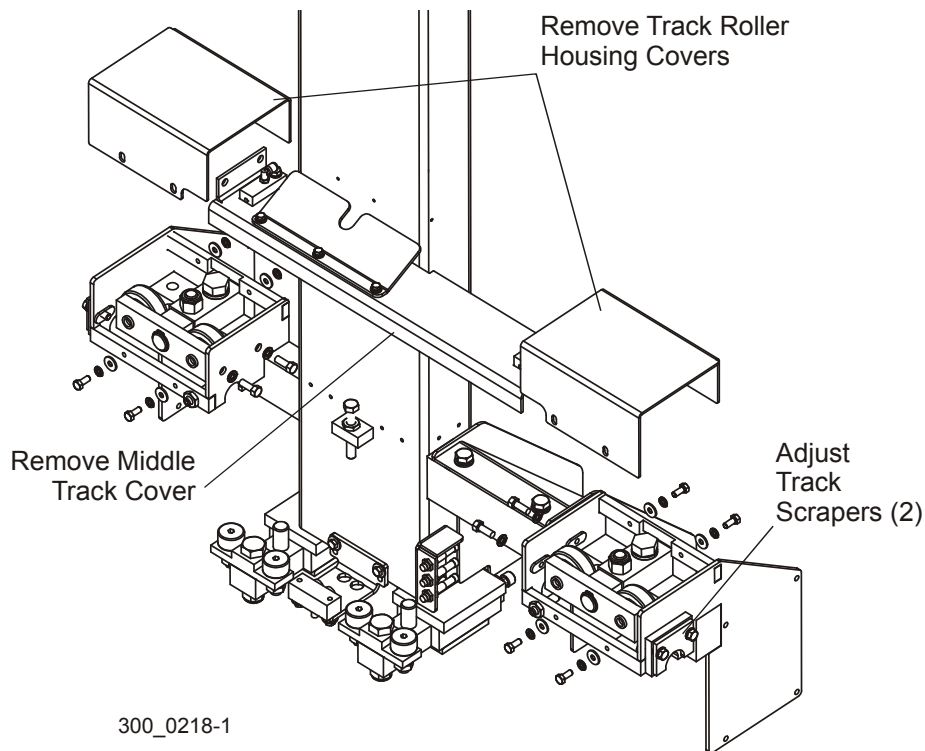


FIG. 5-1

1. Clean track rails to remove any sawdust and sap buildup every fifty hours of operation.

50

Use a light-grade sandpaper or emery cloth to sand off any rust or other adhering particles from the rails.



CAUTION! Keep track rails free of rust. Formation of rust on the track rail in the areas where the cam bearings roll can cause rapid deterioration of the track rail surface.

- 8 2. Lubricate the track rails with Dexron III ATF transmission fluid. Oil lubrication will help protect the rails from corrosive elements such as acid rain and/or moisture from nearby bodies of saltwater (if applicable). This lubrication is essential to maintain the integrity of the track rails and track rollers and to achieve long service life.

Locate the three oil fittings and open the covers. Use an oil can to apply Dexron III until the oiler pads are soaked. Repeat this procedure every eight hours of operation.

See Figure 5-2.

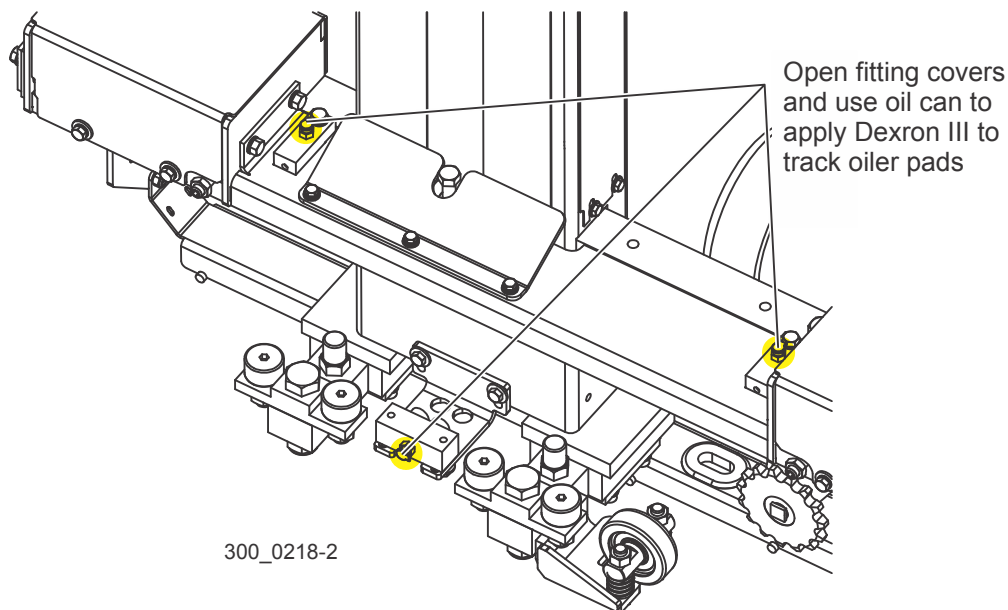


FIG. 5-2

- AR 3. Check the track scrapers as needed. Make sure the scrapers fit firmly against the rail. To adjust each scraper, loosen the two mounting bolts and push the scraper downward until it fits firmly against the rail. Retighten the mounting bolts.

5.4 Miscellaneous

1. Oil all chains with Dexron III ATF every fifty hours of operation.



CAUTION! Do not use chain lube. It causes sawdust buildup in chain links.

2. Apply a thin film of a Dexron III ATF to the blade guide arm every fifty hours of operation to help prevent it from rusting.

3. Adjust the blade guide arm drive chain as necessary to prevent the arm from slipping. To adjust the chain, loosen the blade guide arm motor mounting plate bolts and slide the motor to take slack out of the chain. To adjust the chain, loosen the blade guide arm motor mounting plate bolts and slide the motor to take slack out of the chain.

See **Figure 5-3**. The routing of the blade guide arm chain is provided for your reference.

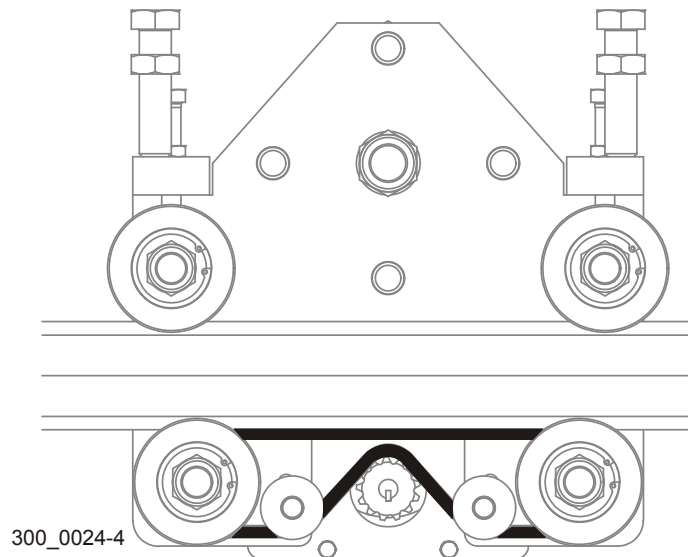


FIG. 5-3

4. Grease the pivot points of the operator seat (2), log clamp (1), log loader (6), log turner (1), rear toe board (1), board return arm pivots (5) and side supports (6) with a NLGI No. 2 grade lithium grease every fifty hours of operation.
5. Make sure all safety warning decals are readable. Remove sawdust and dirt. Replace any damaged or unreadable decals immediately. Order decals from your Customer Service Representative.

5.5 Proximity Sensors

Proximity sensors are used in various locations to ensure proper operation of the sawmill. Check the sensors periodically or when errors in operation occur with the following systems.

5.5.2 Broken Blade Sensor

See Figure 5-4. A sensor located under the blade motor mounting plate detects when a blade breaks and stops the saw. When a blade breaks, the saw motor drops to its idle position, activating the sensor and alerting the operator with the Check Machine light and the message “Broken Blade Shutdwn” on the control display.

Check that the area between the sensor and the motor mount plate are clear of sawdust buildup and/or obstructions that could result in false sensor readings. Remove the blade tension and check that the sensor is lit when the motor is resting on the stop bolt. Loosen the jam nut and adjust the sensor away from the motor mount plate until the sensor light goes out. Then adjust back in until the sensor light comes on plus one 1/4 turn. Tighten the jam nut.

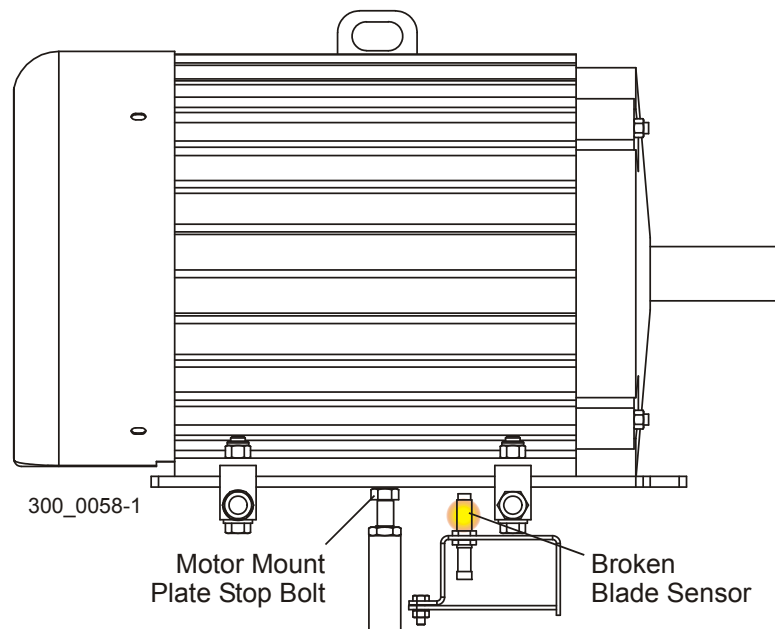


FIG. 5-4

5.5.3 Up/Down Ball Screw Sensor

See Figure 5-5. A sensor located at the middle up/down ball screw mount is activated if the saw head hits an obstruction or lower travel limit as the head is being lowered. A break-away nut separates from the mount and the sensor alerts the operator with the Check Machine light and the message “Head Down Obstructed” on the control display.

Remove the obstruction and move the saw head up to re-engage the ball screw nut. If the error occurs at the bottom of the saw head travel limit, clear sawdust or obstructions from the area around the bottom of the ball screw bellows that might cause the nut to break-away before reaching the actual lower travel limit.

Check that the areas between the sensor and the ball screw nut are clear of sawdust buildup or obstructions that could result in false sensor readings. Be sure the sensor is lit when positioned over the ball screw nut. Loosen the jam nut and adjust the sensor away from the nut until the sensor light goes out. Then adjust back in until the sensor light comes on plus one full turn. Tighten the jam nut.

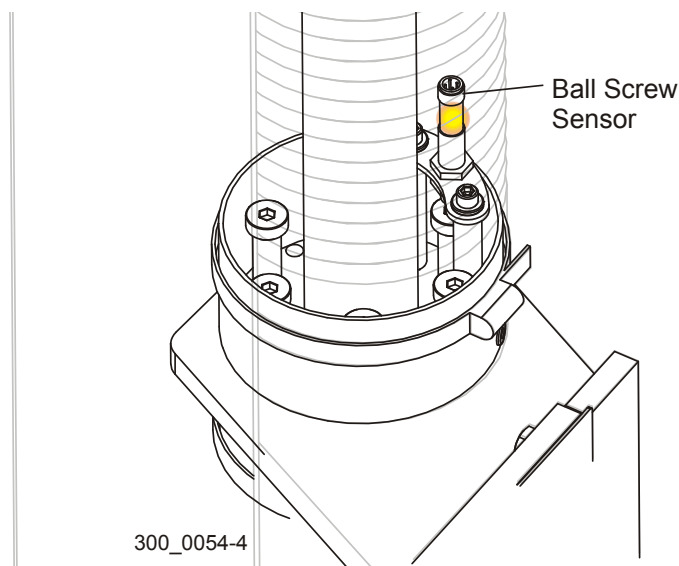





FIG. 5-5


5.6 Hydraulic System Maintenance

- 50  1. Check the hydraulic tank fluid every fifty hours of operation. The sight gauge on the tank should indicate a fluid level between LOW and HIGH. Add an all-season hydraulic fluid such as Conoco HVI32 as needed to maintain proper fluid level.

If the fluid appears brown or cloudy, has an unusual 'burnt' odor, or if there is a sudden rise in oil temperature above 160°, completely drain the hydraulic tank and refill with new fluid. Also, remove and clean the suction strainer from the end of the hydraulic tank. Blow out any debris from the strainer and clean with a non-petroleum solvent before reinstalling to the tank.

- 50  2. Inspect the hydraulic lines and fittings for leaks every fifty hours of operation or as fluid appears around the machine.

- 500  3. Replace the cartridge filter on the back of the hydraulic fluid tank every 500 hours of operation.

- 2000  4. Completely drain the reservoir and refill with new fluid every 2000 hours of operation. Also, remove and clean the suction strainer from the end of the hydraulic tank. Blow out any debris from the strainer and clean with a non-petroleum solvent before reinstalling to the tank.



IMPORTANT! Close the hydraulic power unit pressure gauge valve to isolate the pressure gauge from the hydraulic circuit during normal machine operation. **NOTE:** The pressure gauge is used for troubleshooting purposes only.

5.7 Blade Wheel Bearings & Scrapers

50 **Standard Belted Blade Wheels Only:** Rotate the blade wheel belts and check them for wear. Rotating the belts every 50 hours will provide longer belt life. Replace belts as necessary. Use only B76 belts manufactured by Goodyear or Browning.

A/R **Optional Crowned Blade Wheels Only:** Inspect the blade wheel scrapers at every blade change. The scrapers are self-adjusting and only need replaced when they no longer contact the blade wheel. When one side of the scraper is worn, remove it and flip it over to use the other side.

750 **See Figure 5-4.** Lubricate the blade wheel hub bearings every 750 hours of operation with a high-quality synthetic grease such as Amoco Rycon #2 or Chevron SRI #2.

1. Remove the dust cap from the hub.
2. Pump grease from a grease gun into the grease fitting until the new grease is seen exiting the hub bearings.
3. Replace the dust cap.

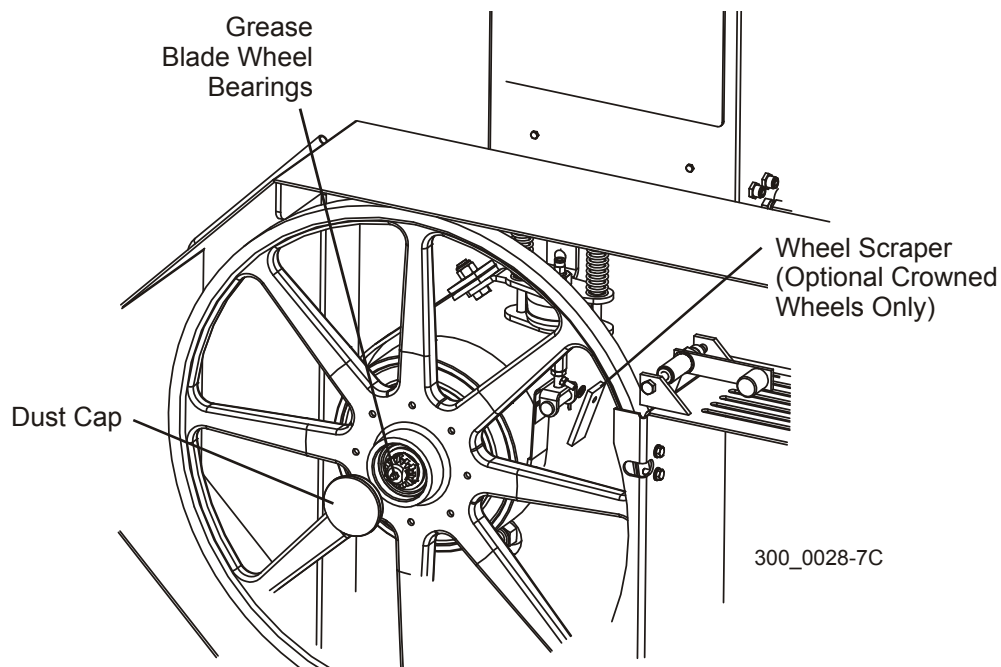


FIG. 5-4

5.8 Up/Down System

500

See Figure 5-5. Lubricate the up/down ballscrew with TriGEL-450R grease every 500 hours of operation. Wood-Mizer provides ballscrew grease in 10cc syringes for convenient application. Lubrication may be required sooner if environmental conditions require it. If the lubricant appears to have dispersed or is dry or crusted, reduce the maintenance interval.

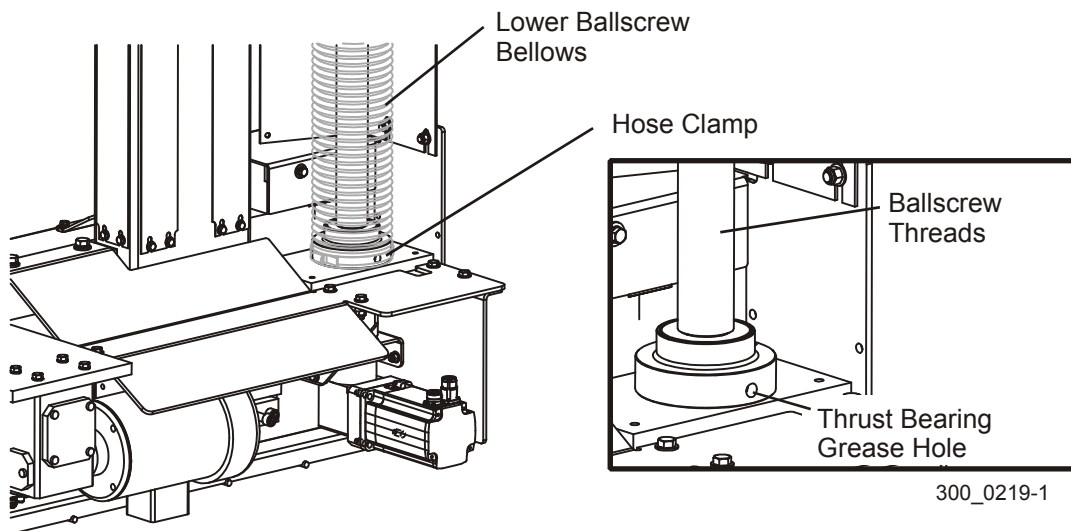


FIG. 5-5

1. Lower the saw head all the way down and blow off sawdust from around the upper ballscrew bellows.
2. Raise the saw head all the way up and blow off sawdust from around the lower ballscrew bellows. Remove the top hose clamp from the lower bellows to access the ballscrew.
3. Inspect the condition of the ballscrew lubricant. If the lubricant appears to have dispersed or is dry or crusted, reduce the maintenance interval. Remove any old grease and/or particle buildup from the screw.
4. Apply 10cc of lubricant directly to the ballscrew threads. Start just below the ballscrew nut and lubricate the threads down as far as the lower bellows will allow.
5. Remove the bottom hose clamp from the lower bellows. Lift the bellows up and continue applying lubricant to the ballscrew threads down to the thrust bearing housing.
6. Remove the screw plugging the hole in the thrust bearing mount. Apply 5cc of lubricant through the hole to lubricate the thrust bearing. Replace the plug screw.

7. Reattach the lower ballscrew bellows and secure with the hose clamps. Raise and lower the saw head to work the grease along the entire length of the ballscrew.

50 Check the up/down mast rails for excessive sawdust buildup every 50 hours of operation. Adjust the mast rail scrapers if necessary. Turn the adjustment bolts clockwise to tighten the scrapers. The scrapers should just be snug against the mast rails; do not overtighten.

See Figure 5-6.

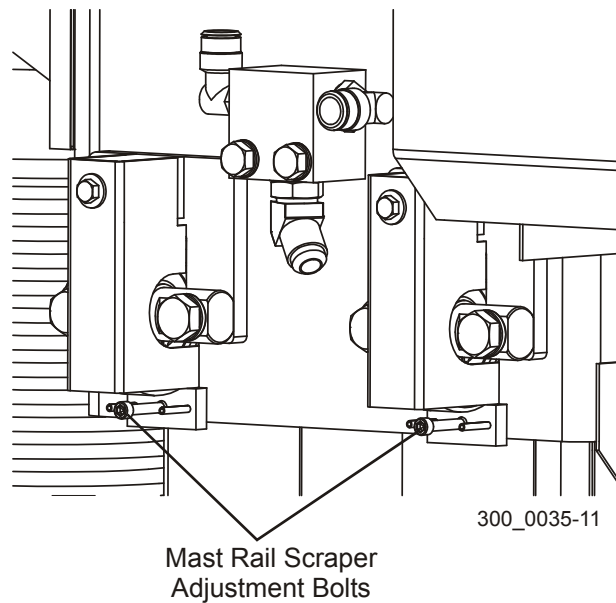


FIG. 5-5

5.9 Power Feed

1. Check the feed chain tension every 50 hours of operation and adjust as needed. Measure the power feed chain tension with the saw head all the way toward the front of the mill (closest to control station). Use the adjustment nut on the feed tensioner at the rear of the mill to tighten or loosen the power feed chain. Adjust the chain until it measures 11 inches ($\pm 1/2$ ") from the top of the top rail at its lowest point.

50

CAUTION! Do not overtighten the feed chain. Damage to the power feed motor may result.

See Figure 5-6.

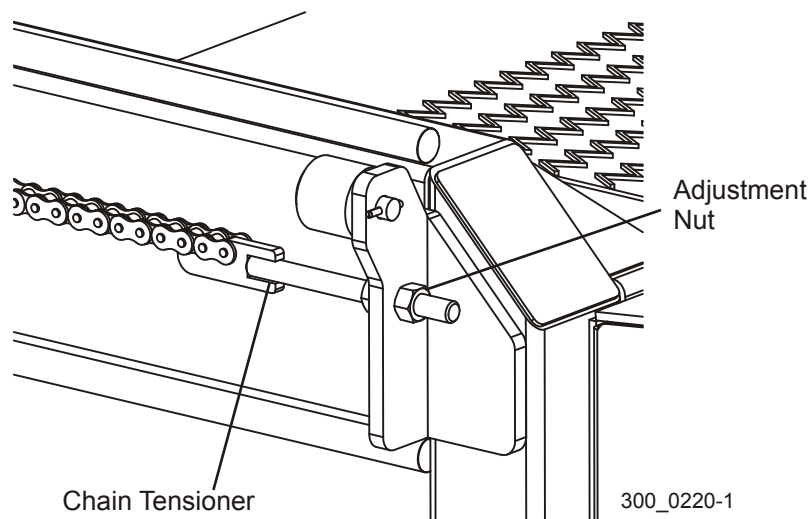


FIG. 5-6 WM4000

See Figure 5-7. Refer to this figure for feed chain routing instructions.

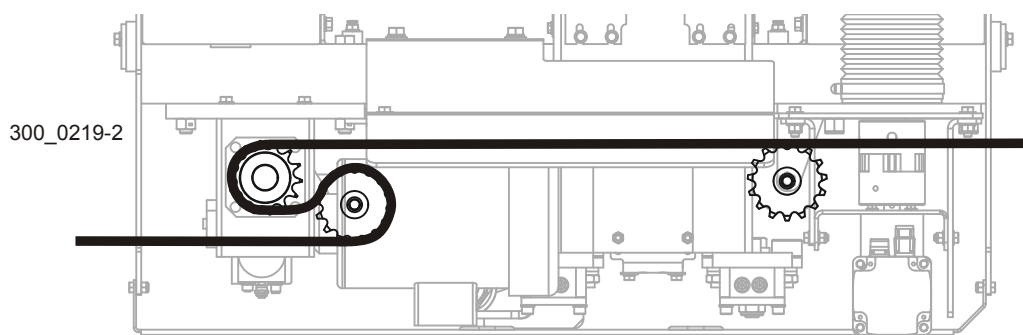


FIG. 5-6 WM4000

2. Lubricate the feed chain with Dexron III ATF every fifty hours of operation.

50



CAUTION! Do not use chain lube. It causes sawdust buildup in chain links.

A/R

Check the power feed gearbox oil level. Add a synthetic gear oil such as Mobil Glygoyle 460 as needed.

5000

Drain and refill the gearbox with 19 - 22 ounces of oil after the first 100 hours of sawmill operation. Repeat every 5000 hours or once a year, whichever comes first.

Wood-Mizer offers replacement gear oil in 8 ounce bottles.

3. Inspect the power feed drive system for worn sprockets, chain links, etc... every 500 hours of operation. Replace or repair components as necessary.

500

See Figure 5-7. Check that the feed drive shaft coupler set screws are tight.

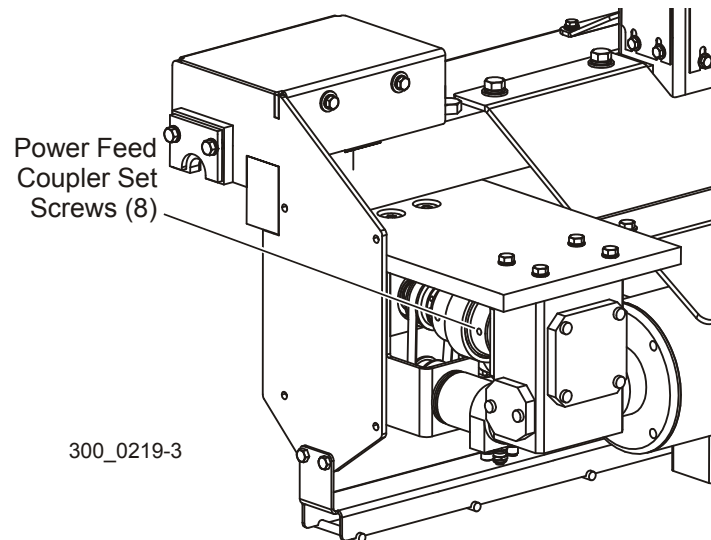


FIG. 5-7 WM4000

5.10 Drive Belt Tension & Alignment



Check the drive belt tension and alignment after the first 5 hours of operation, then every 50 hours thereafter.



WARNING! Do not for any reason adjust the drive belt with the motor running. Doing so may result in serious injury.



CAUTION! Always keep proper tension on the drive belt. Improper tension can ruin the belt. A loose drive belt can also cause wavy cuts, the blade to slow or stop in the cut or the cruise control to not operate properly.

Before tensioning the belt, check the alignment of the motor and drive pulleys. Misaligned pulleys will result in reduced belt life.

1. Install, tension and track a blade. Turn the machine off, disconnect and lock out the power supply.
2. Remove belt covers as necessary and place a string across the back of the drive pulley. Pull the string tight and position it contacts the pulley on each side of the pulley.
3. Check the position of the motor pulley against the sting. When the pulleys are properly aligned the string will contact both sides of each pulley.
4. If necessary, adjust the motor pulley so it is aligned with the drive pulley. To move the motor pulley straight in or out, loosen the pulley bushing and move the pulley in or out on the motor shaft. To adjust the angle of the motor pulley, loosen the motor mount bolts and tilt the motor as necessary. Retighten the motor pulley bushing and/or mounting bolts and recheck the alignment with the string.

See Figure 5-8.

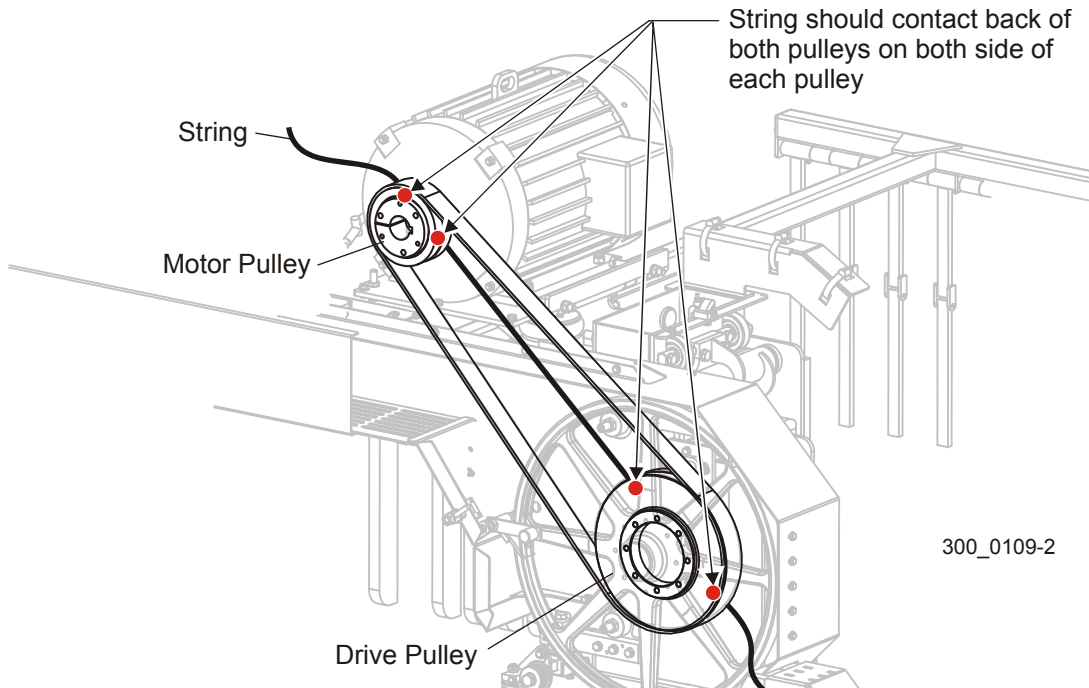


FIG. 5-8

5. Check that the belt is properly tensioned.

See the table below for drive belt tension specifications.

| Belt Type | After First | Then Every | Belt Tension |
|-----------|-------------|------------|--|
| PD | 5 hrs | 50 hrs | 1/2" (12.5mm) deflection with 34 lbs. (15.4kg) of deflection force |

5**Maintenance***Drive Belt Tension & Alignment*

See Figure 5-9.

To adjust the belt, loosen the four motor mount bolt nuts. Loosen the adjustment bolt jam nuts and turn both adjustment bolts to move the motor and tension the belt. Recheck belt tension, adjust as necessary and retighten the adjustment bolt jam nuts and motor mount bolt nuts.

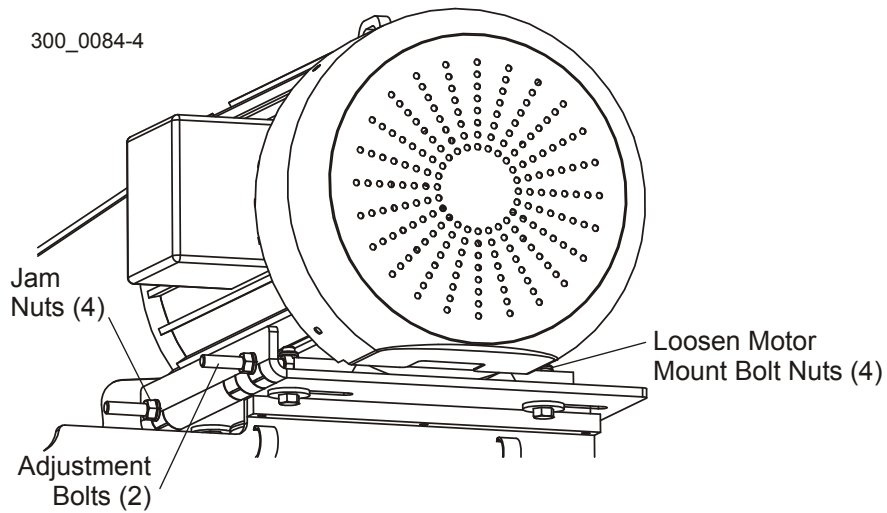


FIG. 5-9

5.11 Turner Chain Tension



Adjust the turner chain tension the log turner(s) as necessary to keep the turner(s) operating properly. If the chain(s) become too loose, the log will catch on the support bracket and not turn.

See Figure 5-10. To adjust the chain tension, loosen the clamping bolt nut and the jam nut on the adjustment bolt. Turn the adjustment bolt counterclockwise to tighten the chain until it is aligned with the curved portion of the support bracket. Retighten the jam nut and the clamping bolt nut.

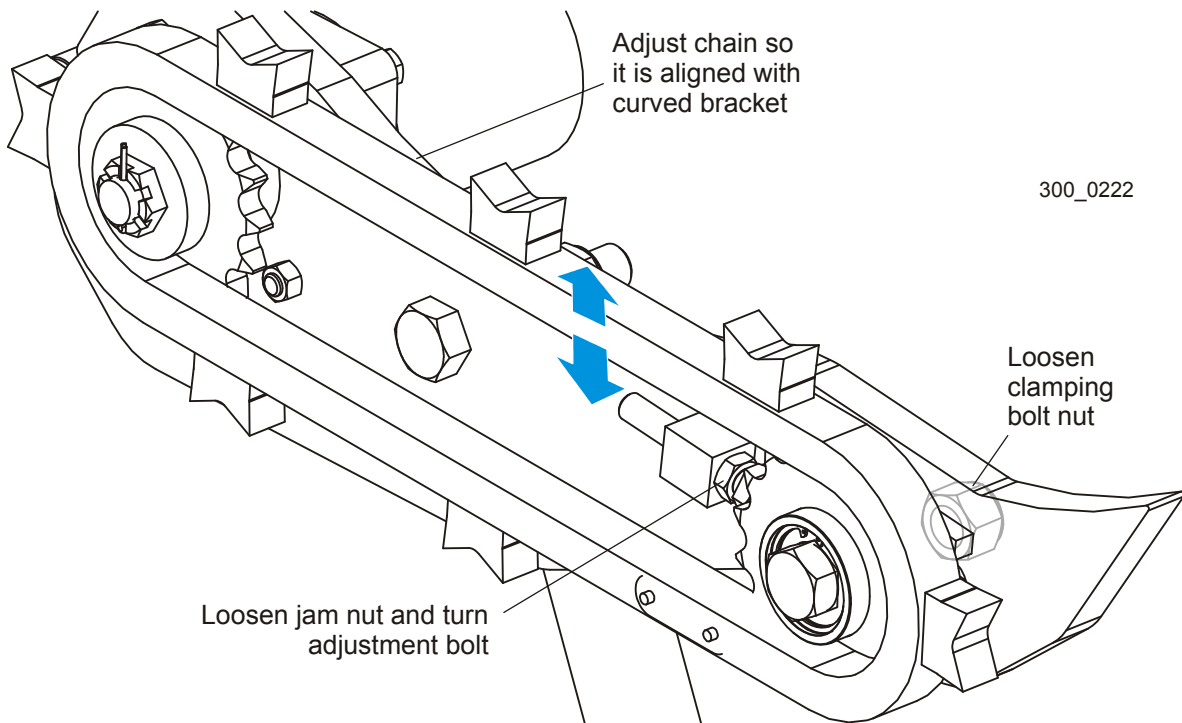


FIG. 5-10

MAINTENANCE LOG

TOTAL HOURS OF OPERATION

FILL IN THE DATE AND THE MACHINE HOURS AS YOU PERFORM EACH PROCEDURE.
A SHADED BOX INDICATES MAINTENANCE IS NOT NEEDED AT THIS TIME.

| PROCEDURE | REFERENCE | TOTAL HOURS OF OPERATION | | | | | | | | | | | | | | | | | | | |
|--|----------------------------------|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|----------|--|--|--|--|--|--|--|--|--|--|
| | | 550 HRS | 600 HRS | 650 HRS | 700 HRS | 750 HRS | 800 HRS | 850 HRS | 900 HRS | 950 HRS | 1000 HRS | | | | | | | | | | |
| Clean and lubricate track, check track scrapers | See Section 5.3 | | | | | | | | | | | | | | | | | | | | |
| Check mast rails and adjust scrapers | See Section 5.8 | | | | | | | | | | | | | | | | | | | | |
| Grease pivot points and bearings/Oil chains | See Section 5.4 | | | | | | | | | | | | | | | | | | | | |
| Check drive belt tension | See Section 5.10 | | | | | | | | | | | | | | | | | | | | |
| Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only) | See Section 5.7 | | | | | | | | | | | | | | | | | | | | |
| Lubricate blade wheel bearings | See Section 5.7 | | | | | | | | | | | | | | | | | | | | |
| Lubricate feed chain and check chain tension | See Section 5.9 | | | | | | | | | | | | | | | | | | | | |
| Lubricate up/down ballscrew & thrust bearing | See Section 5.8 | | | | | | | | | | | | | | | | | | | | |
| Replace power feed gearbox oil | See Section 5.9 | | | | | | | | | | | | | | | | | | | | |
| Inspect feed chain, sprockets and coupler | See Section 5.9 | | | | | | | | | | | | | | | | | | | | |
| Inspect hydraulic lines & fittings | See Section 5.6 | | | | | | | | | | | | | | | | | | | | |
| Check hydraulic fluid level | See Section 5.6 | | | | | | | | | | | | | | | | | | | | |
| Replace hydraulic system filter | See Section 5.6 | | | | | | | | | | | | | | | | | | | | |
| Inspect hydraulic pump motor brushes | See Section 5.6 | | | | | | | | | | | | | | | | | | | | |

MAINTENANCE LOG

TOTAL HOURS OF OPERATION

FILL IN THE DATE AND THE MACHINE HOURS AS YOU PERFORM EACH PROCEDURE.
A SHADED BOX INDICATES MAINTENANCE IS NOT NEEDED AT THIS TIME.

| PROCEDURE | REFERENCE | TOTAL HOURS OF OPERATION | | | | | | | | | | | | | |
|--|----------------------------------|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|
| | | 1050 HRS | 1100 HRS | 1150 HRS | 1200 HRS | 1250 HRS | 1300 HRS | 1350 HRS | 1400 HRS | 1450 HRS | 1500 HRS | | | | |
| Clean and lubricate track, check track scrapers | See Section 5.3 | | | | | | | | | | | | | | |
| Check mast rails and adjust scrapers | See Section 5.8 | | | | | | | | | | | | | | |
| Grease pivot points and bearings/Oil chains | See Section 5.4 | | | | | | | | | | | | | | |
| Check drive belt tension | See Section 5.10 | | | | | | | | | | | | | | |
| Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only) | See Section 5.7 | | | | | | | | | | | | | | |
| Lubricate blade wheel bearings | See Section 5.7 | | | | | | | | | | | | | | |
| Lubricate feed chain and check chain tension | See Section 5.9 | | | | | | | | | | | | | | |
| Lubricate up/down ballscrew & thrust bearing | See Section 5.8 | | | | | | | | | | | | | | |
| Replace power feed gearbox oil | See Section 5.9 | | | | | | | | | | | | | | |
| Inspect feed chain, sprockets and coupler | See Section 5.9 | | | | | | | | | | | | | | |
| Inspect hydraulic lines & fittings | See Section 5.6 | | | | | | | | | | | | | | |
| Check hydraulic fluid level | See Section 5.6 | | | | | | | | | | | | | | |
| Replace hydraulic system filter | See Section 5.6 | | | | | | | | | | | | | | |
| Inspect hydraulic pump motor brushes | See Section 5.6 | | | | | | | | | | | | | | |

MAINTENANCE LOG

TOTAL HOURS OF OPERATION

FILL IN THE DATE AND THE MACHINE HOURS AS YOU PERFORM EACH PROCEDURE.
A SHADED BOX INDICATES MAINTENANCE IS NOT NEEDED AT THIS TIME.

| PROCEDURE | REFERENCE | TOTAL HOURS OF OPERATION | | | | | | | | | | | | | | | | | | |
|--|----------------------------------|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|--|--|--|
| | | 1550 HRS | 1600 HRS | 1650 HRS | 1700 HRS | 1750 HRS | 1800 HRS | 1850 HRS | 1900 HRS | 1950 HRS | 2000 HRS | | | | | | | | | |
| Clean and lubricate track, check track scrapers | See Section 5.3 | | | | | | | | | | | | | | | | | | | |
| Check mast rails and adjust scrapers | See Section 5.8 | | | | | | | | | | | | | | | | | | | |
| Grease pivot points and bearings/Oil chains | See Section 5.4 | | | | | | | | | | | | | | | | | | | |
| Check drive belt tension | See Section 5.10 | | | | | | | | | | | | | | | | | | | |
| Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only) | See Section 5.7 | | | | | | | | | | | | | | | | | | | |
| Lubricate blade wheel bearings | See Section 5.7 | | | | | | | | | | | | | | | | | | | |
| Lubricate feed chain and check chain tension | See Section 5.9 | | | | | | | | | | | | | | | | | | | |
| Lubricate up/down ballscrew & thrust bearing | See Section 5.8 | | | | | | | | | | | | | | | | | | | |
| Replace power feed gearbox oil | See Section 5.9 | | | | | | | | | | | | | | | | | | | |
| Inspect feed chain, sprockets and coupler | See Section 5.9 | | | | | | | | | | | | | | | | | | | |
| Inspect hydraulic lines & fittings | See Section 5.6 | | | | | | | | | | | | | | | | | | | |
| Check hydraulic fluid level | See Section 5.6 | | | | | | | | | | | | | | | | | | | |
| Replace hydraulic system filter | See Section 5.6 | | | | | | | | | | | | | | | | | | | |
| Inspect hydraulic pump motor brushes | See Section 5.6 | | | | | | | | | | | | | | | | | | | |

MAINTENANCE LOG

TOTAL HOURS OF OPERATION

FILL IN THE DATE AND THE MACHINE HOURS AS YOU PERFORM EACH PROCEDURE.
A SHADED BOX INDICATES MAINTENANCE IS NOT NEEDED AT THIS TIME.

| PROCEDURE | REFERENCE | 2050 HRS | 2100 HRS | 2150 HRS | 2200 HRS | 2250 HRS | 2300 HRS | 2350 HRS | 2400 HRS | 2450 HRS | 2500 HRS |
|--|----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | | | | | | | | | | |
| Clean and lubricate track, check track scrapers | See Section 5.3 | | | | | | | | | | |
| Check mast rails and adjust scrapers | See Section 5.8 | | | | | | | | | | |
| Grease pivot points and bearings/Oil chains | See Section 5.4 | | | | | | | | | | |
| Check drive belt tension | See Section 5.10 | | | | | | | | | | |
| Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only) | See Section 5.7 | | | | | | | | | | |
| Lubricate blade wheel bearings | See Section 5.7 | | | | | | | | | | |
| Lubricate feed chain and check chain tension | See Section 5.9 | | | | | | | | | | |
| Lubricate up/down ballscrew & thrust bearing | See Section 5.8 | | | | | | | | | | |
| Replace power feed gearbox oil | See Section 5.9 | | | | | | | | | | |
| Inspect feed chain, sprockets and coupler | See Section 5.9 | | | | | | | | | | |
| Inspect hydraulic lines & fittings | See Section 5.6 | | | | | | | | | | |
| Check hydraulic fluid level | See Section 5.6 | | | | | | | | | | |
| Replace hydraulic system filter | See Section 5.6 | | | | | | | | | | |
| Inspect hydraulic pump motor brushes | See Section 5.6 | | | | | | | | | | |

SECTION 6 TROUBLESHOOTING

6.1 Blade Guides

| PROBLEM | CAUSE | SOLUTION |
|--|--|---|
| Heat In Blade | Blade guide blocks not properly aligned. | Align blade guides (See Section 7.2). |
| Slow Or Wavy Sawing | Blade guides not properly aligned. | Align blade guides (See Section 7.2). |
| | Buildup on blade. | Use or increase blade lube. |
| Sparks From Blade Guide Inserts | Weld in a new blade contacting guide blocks. | Continue using blade until weld eventually wears. |
| | Chipped blade guide block. | Replace. |

6.2 Power Feed Problems



WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. For AC-powered equipment, follow the lockout procedure provided in the safety section ([See Section 1.2](#)). Failure to do so may result in injury and/or electrical system damage.

| PROBLEM | CAUSE | SOLUTION |
|--|--|--|
| Power Feed Position Is Tracking Off | Power feed chain is not tight enough making it slip around teeth on the feed drive sprocket. | Tighten the power feed chain until it measures 13 inches ($\pm 1/2$ ") from the top of the top rail at its lowest point (See Section 5.9). |

SECTION 7 ALIGNMENT

7.1 Bed Frame

7.1.1 Level Bed Frame In Length Direction

NOTE: If the floor is extremely unlevel, the sawmill legs may not be adjusted to level the bed frame in the length direction. This is not critical to maintain sawing accuracy. Level the sawmill in the length direction as closely as possible.

Move the saw head so it is positioned over the log clamp tube at the middle of the bed frame. Place a level on the main frame tube, near the front end of the sawmill. Shim the front legs if necessary until the tube is level at that location.

See Figure 7-1.

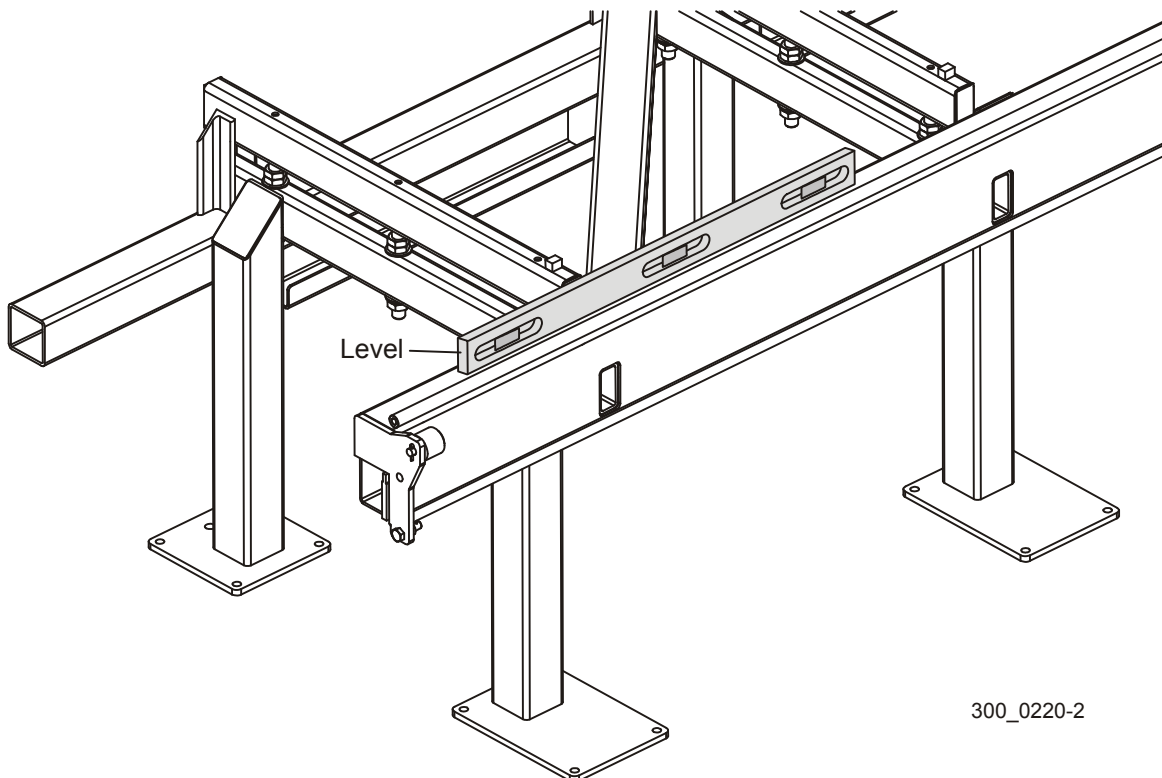


FIG. 7-1

Move the level to the center of the tube and shim the middle legs if necessary. Move the level to the rear of the tube and shim the rear legs if necessary.

7.1.2 Level Bed Frame In Width Direction

See Figure 7-2. To level the bed in the width direction, place two pieces of straight tubing between the front two bed rail supports. Place a level across both tubes, near the front bed rail ('A'). Shim the outer front leg to level the bed. Move the level to the other end of the tubes ('B') and use the second outer leg to adjust level. Move the straight tubes to the rear two bed rail supports and adjust the other outer rear legs until the bed is level.

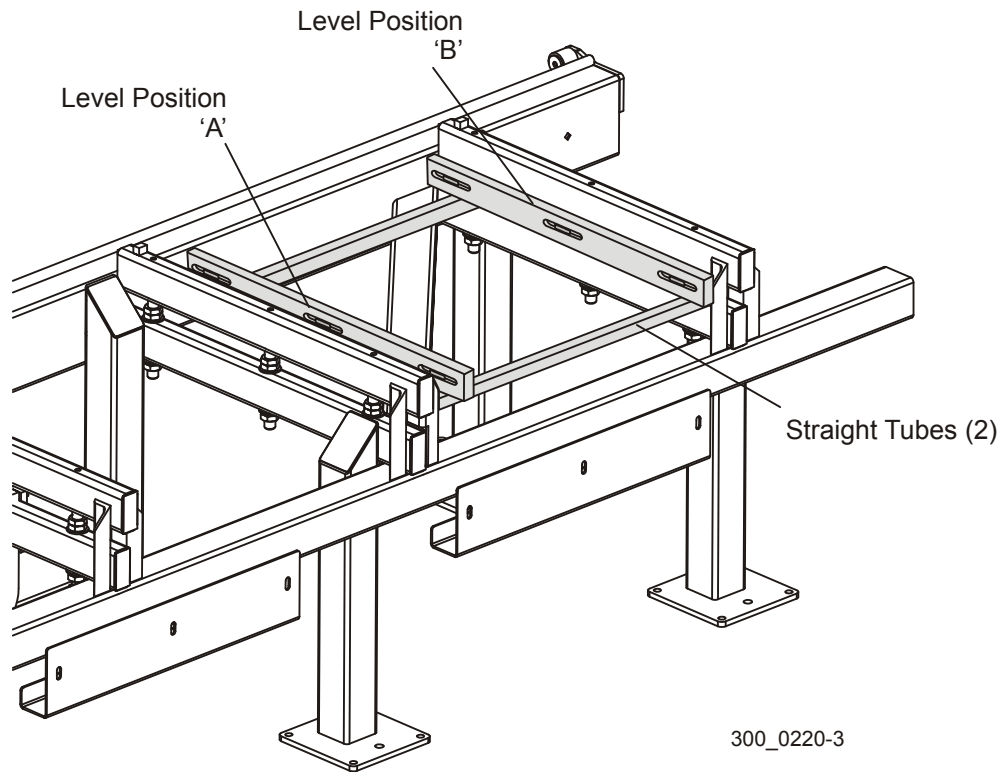


FIG. 7-2

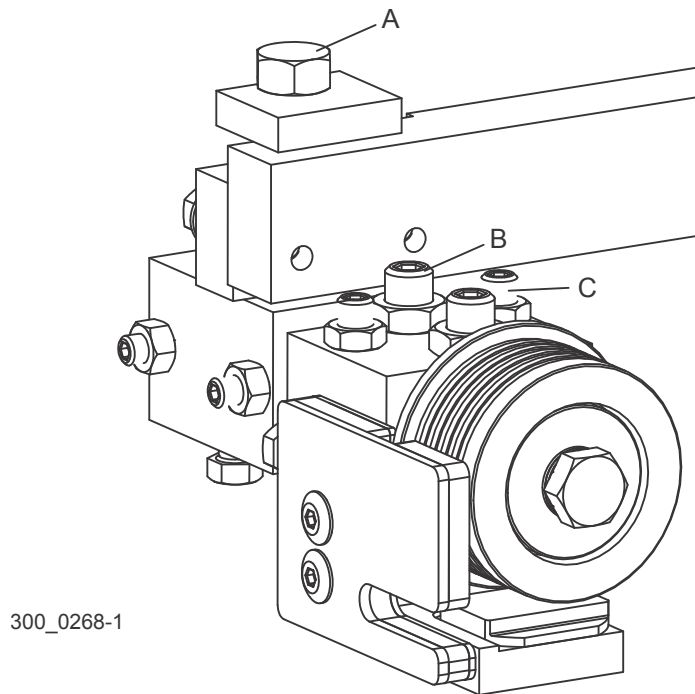
7 Alignment

Level Saw Head

7.1.3 Level Saw Head

Install a blade around the blade wheels. Tension and track the blade. Move the saw carriage so the blade is positioned over the log clamp tube. Adjust the blade guide arm all the way out.

See Figure 7-3. Adjust the blade guides so they do not touch the blade in any way. Turn blade guide assembly bolt (A) counterclockwise to move the bottom guide block down off the blade. Check that the blade guide roller does not touch the blade. Loosen set screws (B) and (C) if necessary to move roller away from blade.



300_0268-1

FIG. 7-3

See Figure 7-4. Raise the saw head until the blade measures 15" above the clamp tube by actual measurement with a tape or rule from the bottom of the blade to the clamp tube near the inner blade guide. Measure the distance to the blade at the outer end of the clamp tube. The two measurements should be equal. if necessary, adjust the lower track rollers to tilt the saw head so the blade is parallel to the clamp tube.

To tilt the outer side of the saw head down toward the bed, loosen the adjustment bolts. Turn each adjustment bolt equally, one revolution at a time and remeasure the distance from the blade to the clamp tube. Once the blade is parallel to the clamp tube, tighten the stop bolts until they stop against the roller mount block.

To tilt the outer side of the saw head up, loosen the stop bolts and tighten the adjustment bolts. Turn each adjustment bolt equally, one revolution at a time and remeasure the distance from the blade to the clamp tube. Once the blade is parallel to the clamp tube, tighten the stop bolts until they stop against the roller mount block.

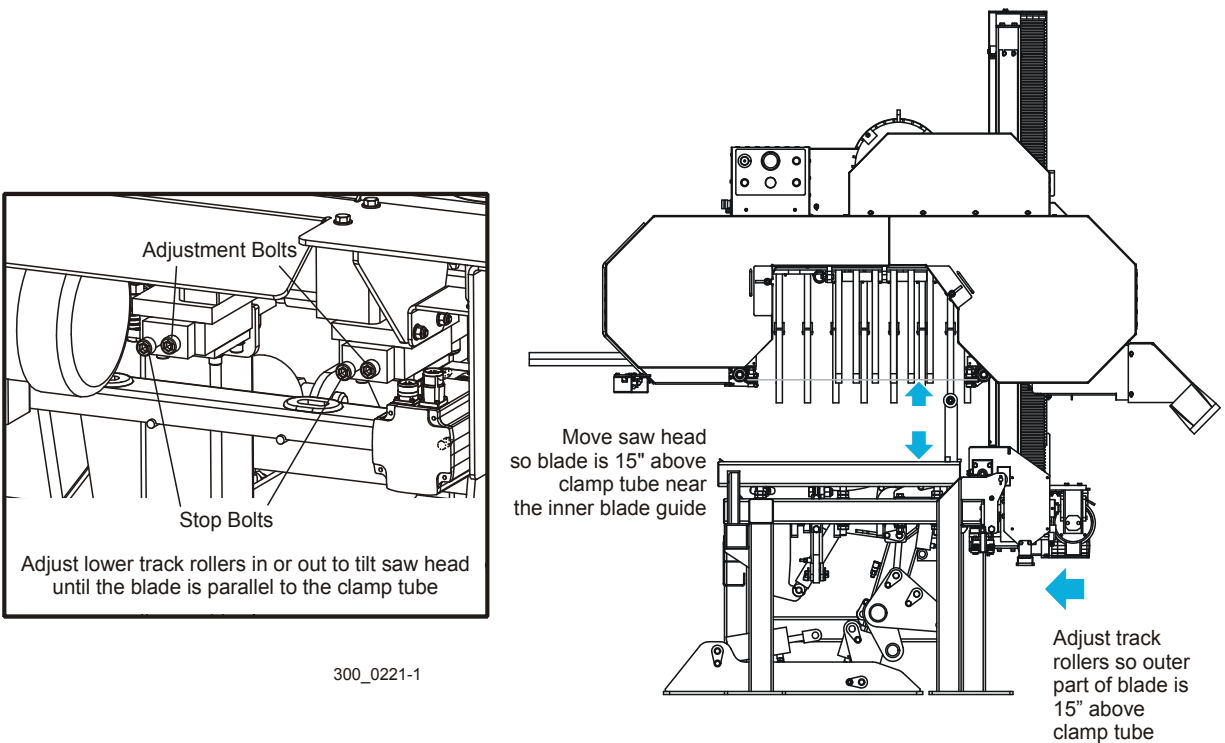


FIG. 7-4

7

Alignment Level Bed Rails

7.1.4 Level Bed Rails

See Figure 7-5. Move the log clamp in until it is 10" from the clamp stop. Adjust the clamp down to its lowest position. Raise the saw head until the blade measures 17 5/16" above the top of the clamp. Move the saw carriage so the blade is positioned over the front bed rail. Measure the distance from the bottom of the blade to the bed rail at each end of the bed rail. Both measurements should be 15" (2 5/16" above the clamp [$\pm 1/16$ "]). Turn the bed rail adjustment nuts to raise or lower the bed rail, if necessary. Repeat for the remaining bed rails.

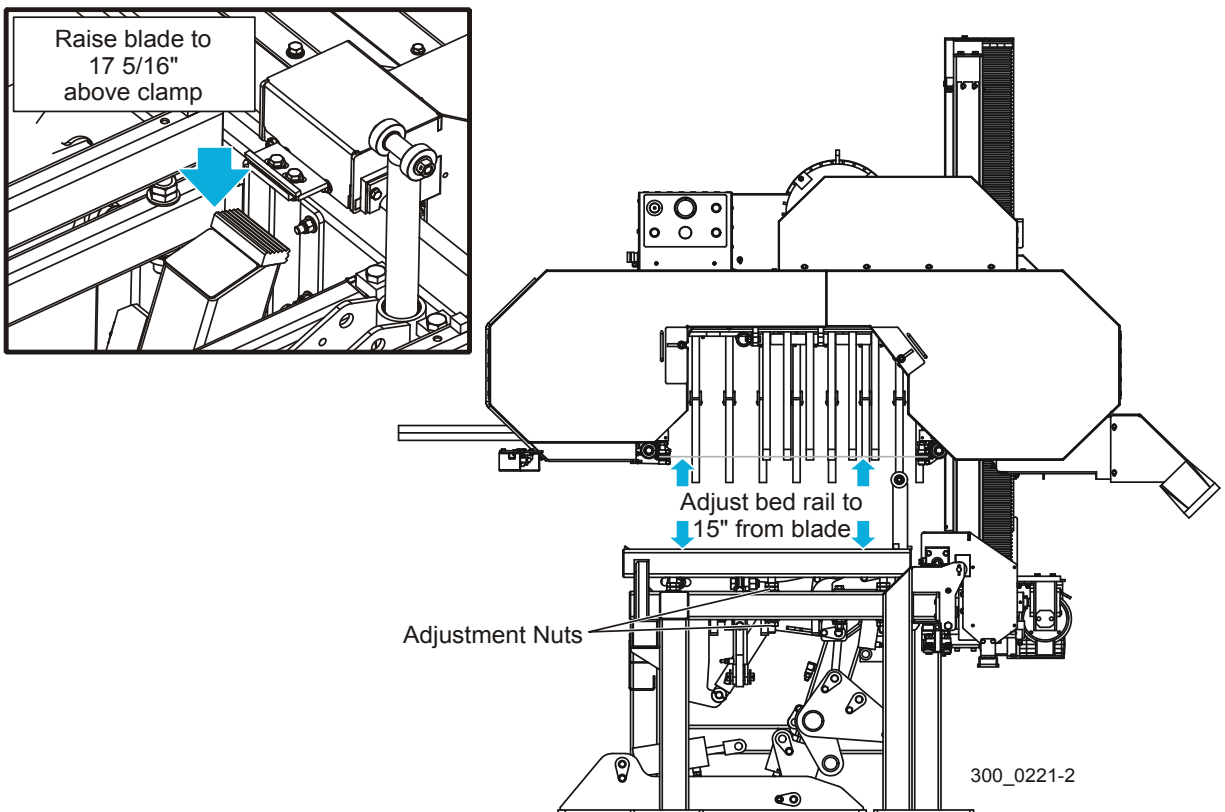


FIG. 7-5

7.1.5 Align Side Supports

See Figure 7-6. Place square alignment tubes (Part No. S12831 - 2 required) across the bed rails in front of one of the side supports. Use the controls to raise the side supports all the way up. Set a square on the tubes and place against the side support. The side support should be square to the bed or tilted slightly forward $1/32$ " (0.8 mm). Adjust the tilt of the side support if necessary.

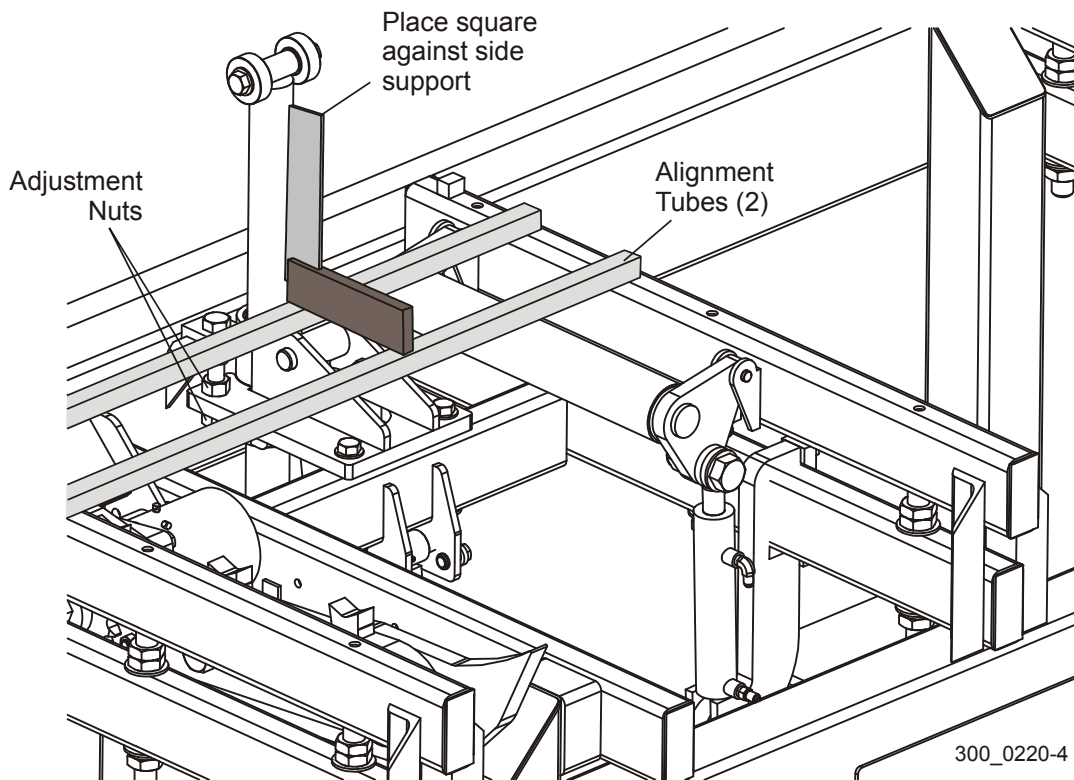


FIG. 7-6

To tilt the side support forward, loosen the top adjustment nuts and tighten the lower adjustment nuts. Adjust both sets of adjustment nuts on each side of the side support evenly. To tilt the side support back, loosen the bottom adjustment nuts and tighten the top adjustment nuts.

7 Alignment

Blade Guides (Standard Block/Roller Guides)

7.2 Blade Guides (Standard Block/Roller Guides)

NOTE: Block/Roller Guides are standard on the WM4000.



WARNING! Blade guide alignment is essential for optimal cutting performance, blade life and safety. Failure to check and maintain proper blade guide alignment will result in stress cracks forming in the blade. These cracks will lead to premature blade breakage. If the blade breaks during operation and the blade has multiple stress cracks, the blade could shatter into several pieces and escape from the protective guards of the sawmill. Small blade pieces projected into the area around the sawmill creates a safety hazard for the operator and any bystanders surrounding the mill.

WARNING! DO NOT use blades with stress cracks. Blades with stress cracks can shatter causing bodily injury and/or machine damage.

7.2.1 Blade Guide Adjustment Overview

Proper blade guide alignment is critical to optimum machine performance. It is important to understand and follow the procedures in this section to properly align the blade guides.

See Figure 7-7. The major components of the blade guide assemblies are the bottom guide block and guide roller.

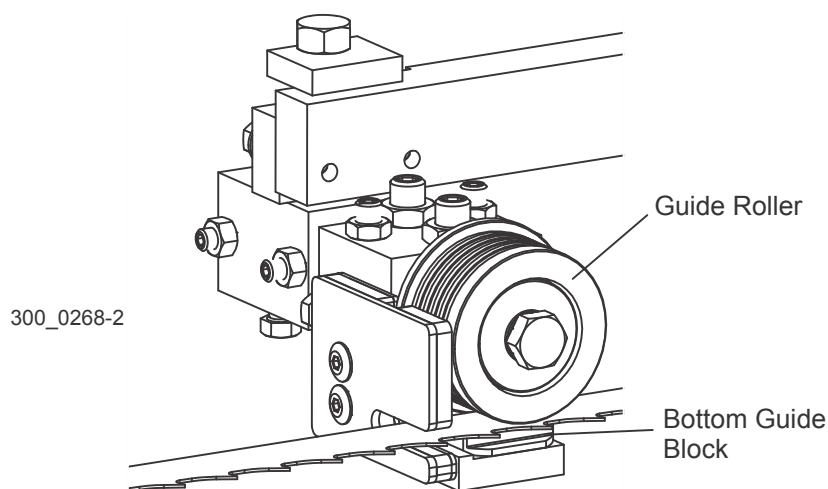


FIG. 7-7

See Figure 7-8. The objective to aligning the blades guides is to properly position the guide blocks and guide roller in relation to the blade. The roller should deflect the blade down $1/4"$. The flange of the roller should be positioned $1/16"$ from the back edge of the blade at the inner guide assembly and $1/8"$ from the blade at the outer guide assembly. The blocks should be adjusted to $.008"$ - $.010"$ from the blade.

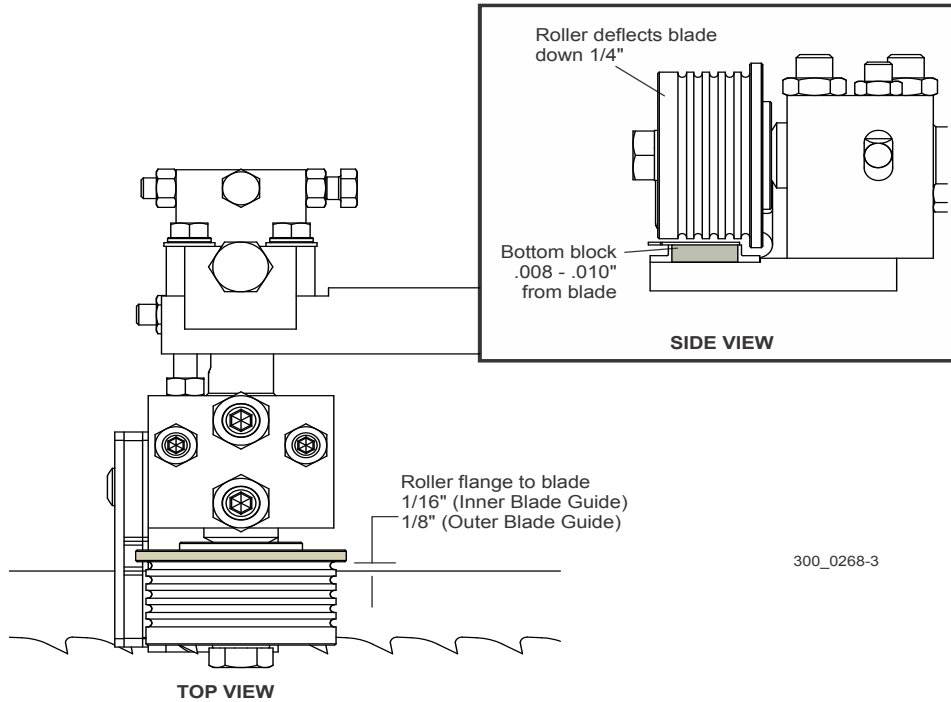


FIG. 7-8

7 Alignment

Blade Guide Adjustment Overview

See Figure 7-9. Adjustment bolts are provided to obtain the proper blade guide alignment. The various blade guide adjustments are described below.

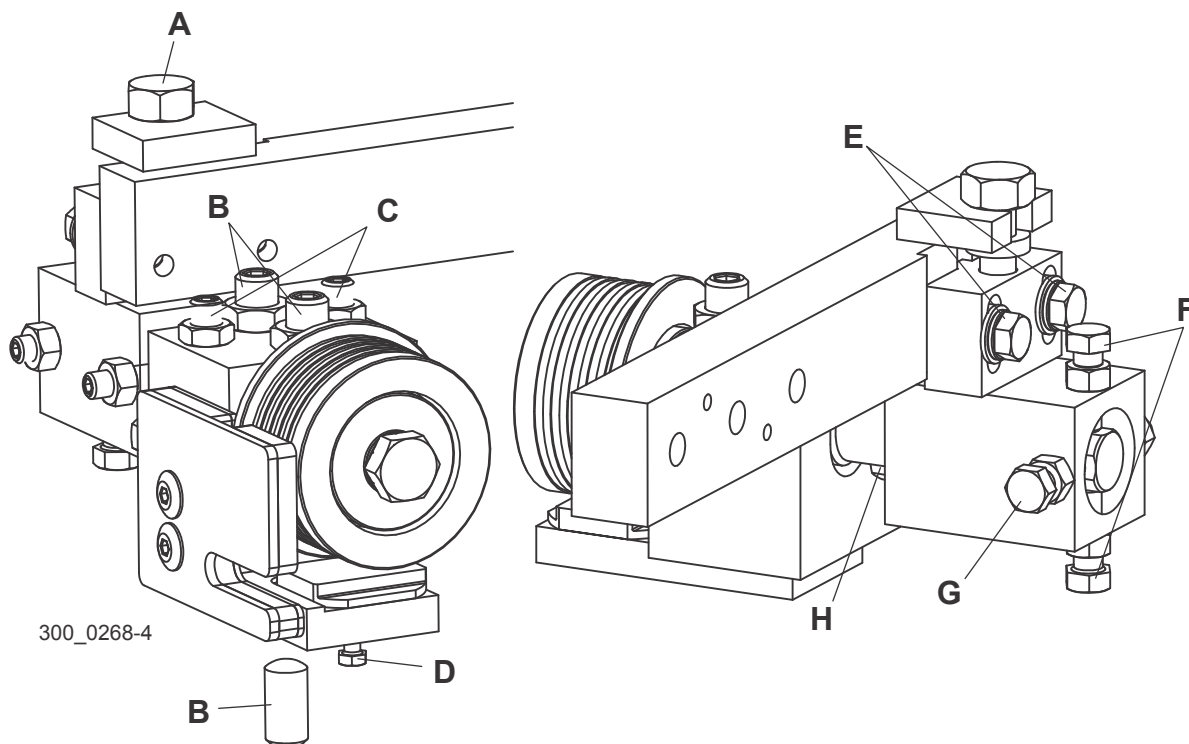


FIG. 7-9

| | |
|----------|--|
| A | Vertical Adjustment Bolt - Use to adjust entire blade guide assembly up or down. Use a 1" wrench to turn the bolt. Turning clockwise will raise assembly; counterclockwise will lower assembly. This adjustment may be made without loosening clamp bolts (F) if assembly is properly lubricated. |
| B | Blade Guide Up/Down/Tilt Adjustment Screws - Adjust screws to adjust blade guide block up or down and tilt position. |
| C | Blade Guide Side Tilt Adjustment Screws - Adjust screws to adjust blade guide block side tilt position. |
| D | Bottom Guide Block Bolt - Use to disassemble bottom guide block. |
| E | Blade Guide Assembly Clamp Bolts - Used to secure vertical adjustment of entire blade guide assembly. Loosening these bolts is not normally required when adjusting the vertical adjustment bolt (A). Make sure these bolts are tight after making vertical adjustment. |
| F | Vertical Tilt Adjustment Bolts - Use the bolts to tilt the entire blade so it is parallel to the bed rails. Use a 1/2" wrench to loosen the jam nuts. Adjust the bolts up to tilt the blade down; adjust bolts down to tilt blade up. Retighten the jam nuts. |
| G | Blade Guide Clamp Bolt - Holds blade guide assembly securely in mounting bracket. Loosen this bolt and one tilt bolt (G) to allow movement of the blade guide assembly in or out. Use a 1/2" wrench to loosen the jam nut and adjust the clamp bolt. |

| | |
|---|--|
| H | Blade Guide Stop Bolt - Provides a stop to prevent the guide assembly from getting pushed back during operation. Use a 9/16" wrench to loosen the jam nut and adjust the bolt until it touches the end of the blade guide shaft after adjusting blade guide assembly in/out. Retighten the jam nut. |
|---|--|

7.2.2 Preparing For Blade Guide Alignment

Recommended tools:

- Wrenches: 1/2", 9/16", 3/4", & 1"
 - 5/16" Nut Driver
 - 5/32" Hex Wrench
 - Blade Guide Alignment Blocks
 - Bottom Guide Block Adjustment Tool
 - Blade Guide Alignment Tool
 - Blade Guide Arm Alignment Tool
 - Flashlight
1. Remove the blade and replace the blade wheel belts. New blade wheel belts are required to perform the complete alignment procedure.
 2. Blow sawdust off of the blade guide assemblies. Remove sawdust from the blade housings.
 3. Remove the blade guide assemblies.

NOTE: To remove the blade guide assemblies and maintain the tilt adjustments, only loosen one side screw and the top screw. Leaving the other side screw and bottom screw in position will insure you will return the rollers to their original tilt adjustment.

4. Adjust the outer blade guide arm in or out until the outer blade guide is approximately 24" from the inner blade guide.
5. Install a new blade and apply the appropriate tension ([See Section 4.6](#)).
6. Close the blade housing covers and make sure all persons are clear of the saw head.
7. Start the engine (or motor).
8. Engage the blade, rotating the blade until the blade positions itself on the wheels.

7

Alignment

Blade Wheel Vertical Alignment



WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

9. Disengage the blade. Turn the engine off and remove the key.

7.2.3 Blade Wheel Vertical Alignment

1. Use the blade guide alignment tool to check the vertical alignment of each blade wheel. Attach the tool to the blade near the inner blade guide. Be sure the tool does not rest on a tooth or burr, and is lying flat on the bottom of the blade.

See Figure 7-10.

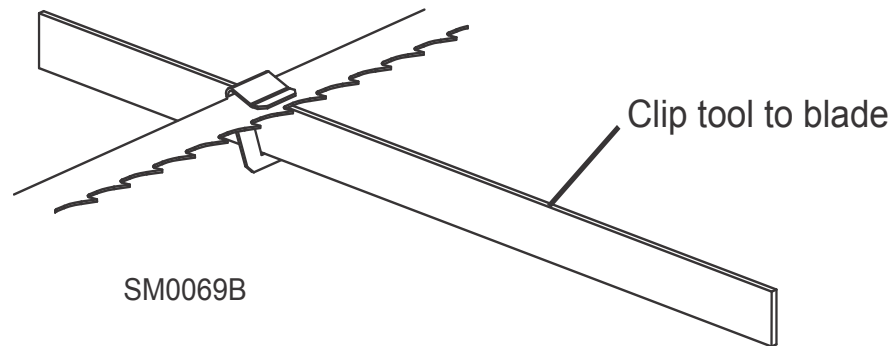


FIG. 7-10

2. Move the saw carriage so the front end of the tool is positioned over the first bed rail. Measure from the bottom of the tool to the top surface of the bed rail.
3. Move the saw carriage so the rear of the tool is positioned over the bed rail. Again, measure from the bottom of the tool to the bed rail.
4. If the two measurements are not equal within 1/16", adjust the vertical tilt of the drive-side blade wheel. Remove the drive-side cover and locate the vertical tilt adjustment bolts. Loosen the jam nuts on each bolt. Adjust the bolts down to tilt the blade up. Adjust the bolts up to tilt the blade down. Retighten the jam nuts and recheck the tilt of the blade with the blade guide alignment tool.

See Figure 7-11.

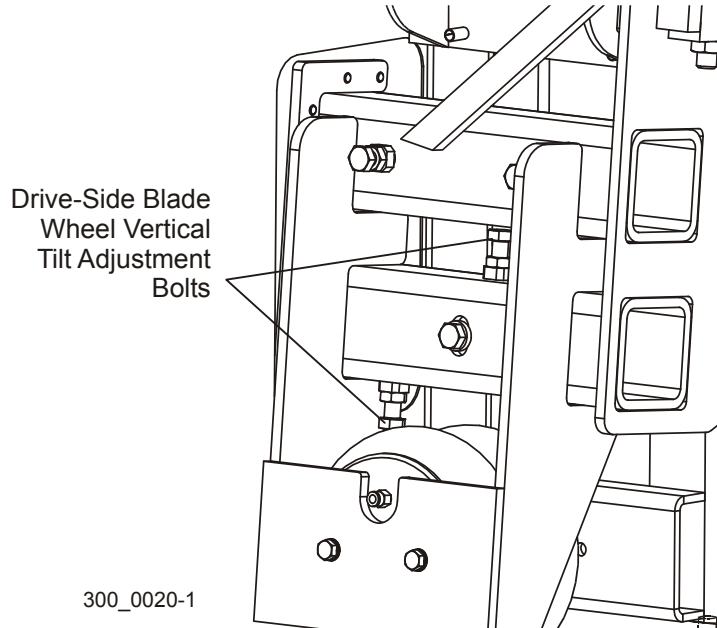


FIG. 7-11

5. Remove the tool from the blade and reattach it near the outer blade guide assembly.
6. Measure from the tool to the bed rail at both ends of the tool. If the measurements at the front and rear ends of the tool are not equal within 1/16", adjust the vertical tilt of the idle-side blade wheel. Loosen the jam nuts on each bolt. Adjust the bolts down to tilt the blade up. Adjust the bolts up to tilt the blade down. Retighten the jam nuts and recheck the tilt of the blade with the blade guide alignment tool.

See Figure 7-12.

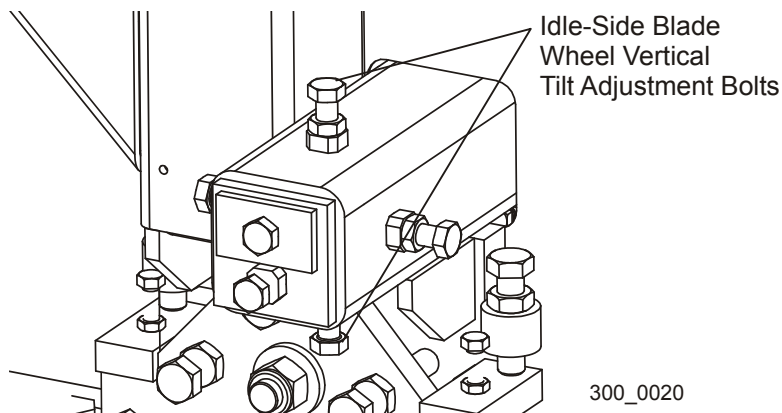


FIG. 7-12

7 Alignment

Blade Guide Arm Alignment

7.2.4 Blade Guide Arm Alignment

Adjust the blade guide arm all the way in toward the inner blade guide assembly.

See Figure 7-13. Attach the blade guide arm alignment tool to the blade guide arm, near the outer blade housing. Measure the distance from the back edge of the blade to the tool. Move the tool to the end of the arm near the blade guide. Measure again from the back edge of the blade to the tool. The two measurements at each end of the arm should be the same within 1/32". To adjust the horizontal tilt of the arm parallel to the blade, adjust the bolts (A & B) on the blade guide arm mounting plate. Loosen the jam nuts. Adjust bolt (A) out and bolt (B) in to move the arm away from the blade. Adjust bolt (B) out and bolt (A) in to move the arm toward the blade. Recheck the distance from the back edge of the blade to the tool at both ends of the arm. Readjust if necessary. Tighten the jam nuts.

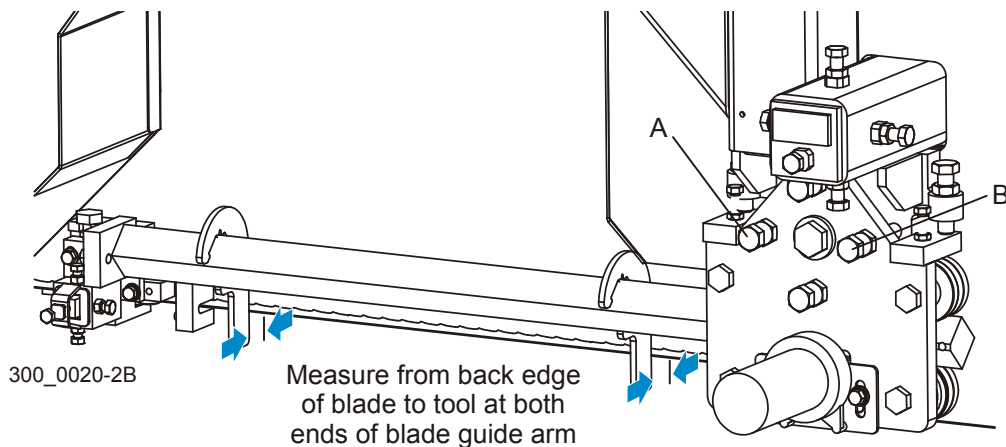


FIG. 7-13

See Figure 7-14. With the blade guide arm adjusted in near the inner blade guide, measure the distance from the top of the blade to the top blade guide block. Adjust the blade guide arm all the way out and measure again. If the two measurements are not equal with $1/32$ ", adjust the vertical tilt of the blade guide arm. To adjust the vertical tilt of the arm, adjust the bolts (C & D) on the blade guide arm mounting plate. Loosen the jam nuts. Adjust bolt (C) up and bolt (D) down to tilt the arm up. Adjust bolt (D) up and bolt (C) in to move the arm toward the blade. Recheck the distance from the blade to the top block at both ends of the arm. Readjust if necessary. Tighten the jam nuts.

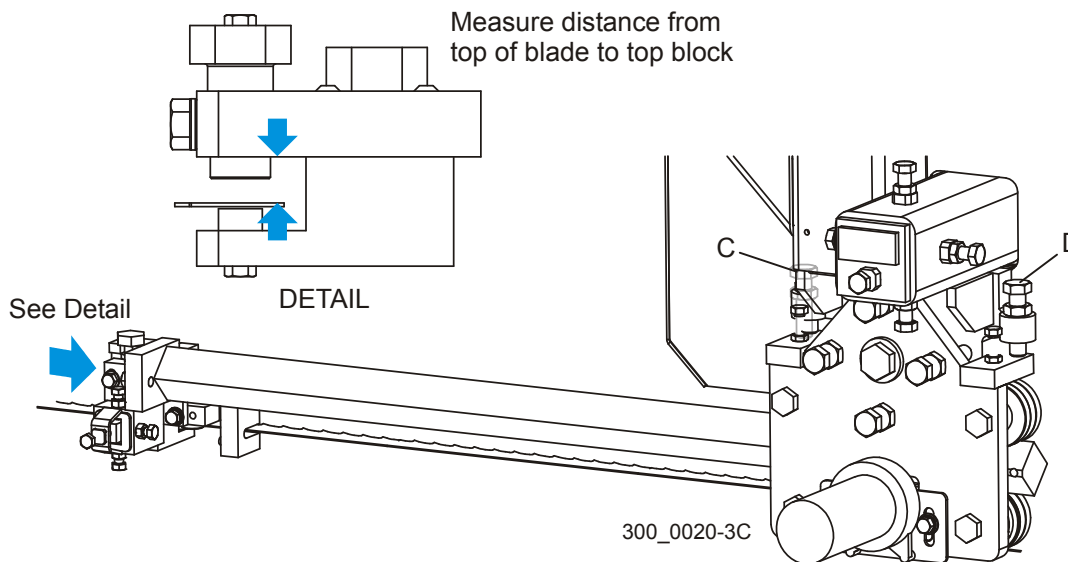


FIG. 7-14

7.2.5 Blade Guide Alignment

Each Wood-Mizer sawmill has two blade guide assemblies that help the blade maintain a straight cut. The two blade guide assemblies are positioned on the saw head to guide the blade on each side of the material being cut.

One blade guide assembly is mounted in a stationary position on the drive side of the saw head. This assembly is referred to as the "inner" blade guide assembly.

The other blade guide assembly is mounted on the idle side of the saw head. It is referred to as the "outer" assembly and is adjustable for various widths of materials to be processed.

NOTE: Before installing the blade guide assemblies, remove the blade guide adjusting screws and apply a lubricating oil such as 10W30 or Dexron III to each screw. This will prevent the screws and threaded holes from corroding and make screw adjustments easier.

7

Alignment

Blade Guide Alignment

1. Inspect the guide blocks and repair or replace as necessary. Remove the blade from the sawmill.
2. Install each blade guide assembly to the mounting blocks and push all the way back.
3. Install, tension and track a new blade. Adjust the outer blade guide assembly so the roller flange is 1/8" from the back of the blade. Adjust the inner blade guide assembly so the roller flange is 1/16" from the blade.

See Figure 7-6. Turn the top adjustment bolt clockwise to raise the blade guide assembly so the roller does not contact the blade.

NOTE: Before adjusting the top bolt, unload pressure on the bolt by turning 1/2 turn in the opposite direction it was last adjusted.

With the roller flange positioned properly from the back of the blade, adjust the stop bolt so it touches the blade guide bracket.

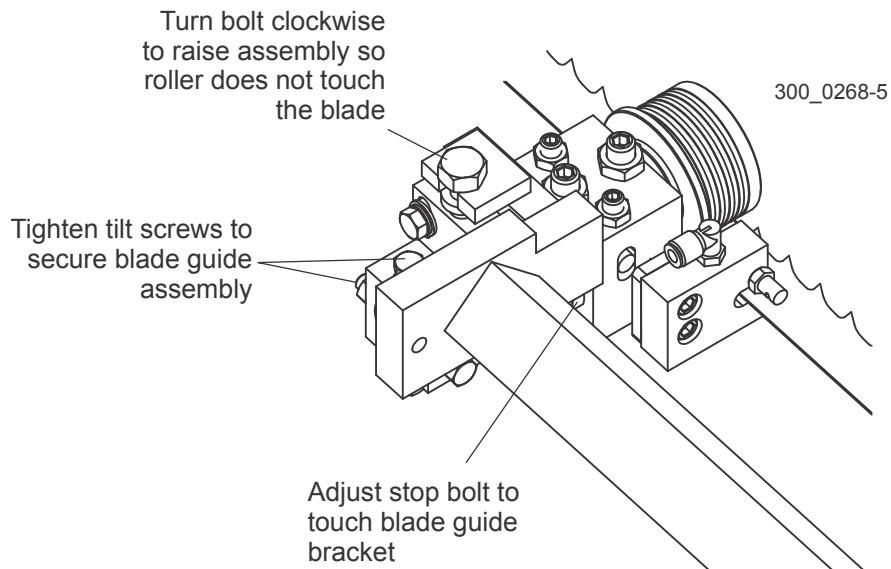


FIG. 7-6

Adjust the blade guide assemblies so the rollers deflect the blade down 1/4"

4. Raise the saw head until the blade is 15" (375 mm) above a bed rail. Measure the actual distance with a tape from the top of the rail to the bottom of the blade.

See Figure 7-7.

Turn the top adjustment bolt counterclockwise to lower the assembly until the blade guide

roller deflects the blade down until the bottom of the blade measures 14 3/4" (370 mm) from the bed rail.

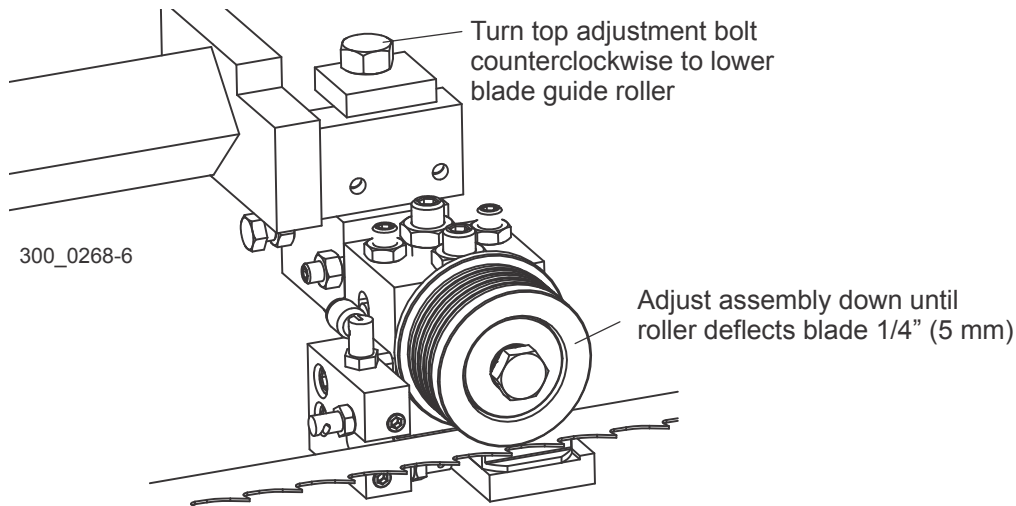


FIG. 7-7

NOTE: Before adjusting the top bolt, unload pressure on the bolt by turning 1/2 turn in the opposite direction it was last adjusted.

5. Repeat for the other blade guide.

Check the blade guides are adjusted properly in the vertical plane. If the blade guides are tilted vertically, the blade will try to travel in the tilted direction.

A Blade Guide Alignment Tool (BGAT) is provided to help you measure the vertical tilt of the blade.

6. Open the adjustable blade guide arm 1/2" (15 mm) from full open.
7. Clamp the alignment tool on the blade. Position the tool close to the outer blade guide roller. Be sure the tool does not rest on a tooth or burr, and is lying flat on the blade.

See Figure 7-8.

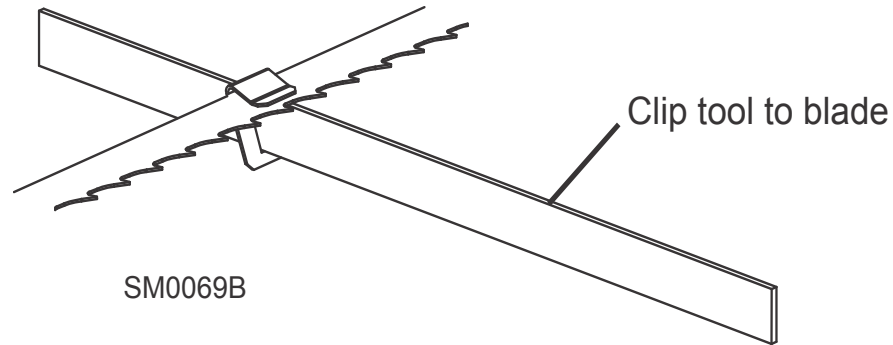


FIG. 7-8

8. Move the carriage so that the front end of the tool is positioned above the bed rail. Measure the distance from the bed rail to the bottom edge of the tool.
9. Move the carriage so that the back end of the tool is positioned above the bed rail. Measure the distance from the bed rail to the bottom edge of the tool.
10. If the measurement from the tool to the bed rail is not equal within 1/32" (.75 mm), adjust the vertical tilt of the outer blade guide roller.
11. Loosen one set screw at the side of the blade guide assembly.

See Figure 7-9. Loosen the jam nuts on the top and bottom vertical tilt adjustment screws. To tilt the roller up, loosen the bottom screw and tighten top screw. To tilt the roller down, loosen the top screw and tighten the bottom screw. Tighten the jam nuts and recheck the tilt of the blade.

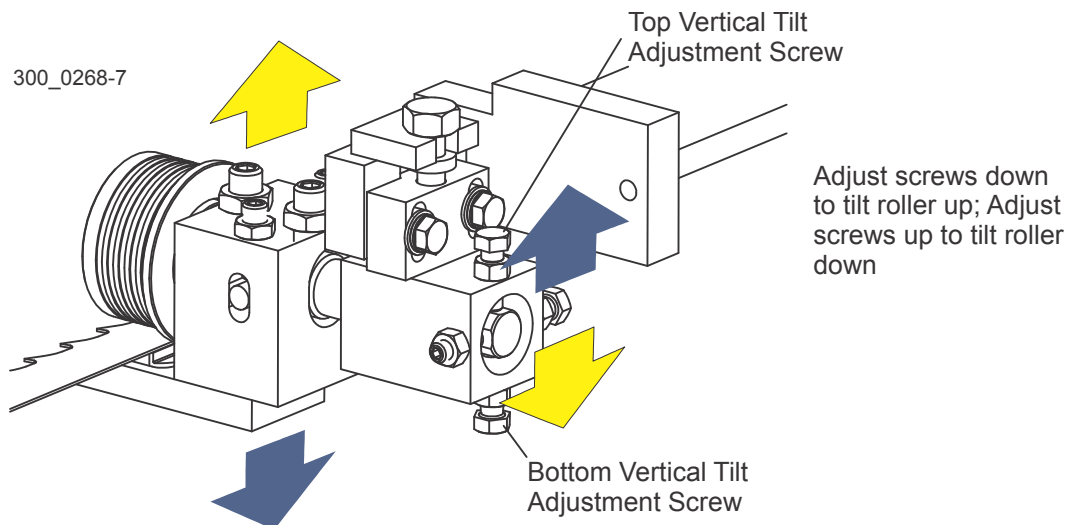


FIG. 7-9

12. Move the blade guide alignment tool close to the inner blade guide roller assembly and repeat the above steps. Adjust the vertical tilt of the inner blade guide if necessary.
13. After adjusting the vertical tilt of the blade guides, recheck the blade deflection and adjust if necessary.

If the blade guides are tilted in the wrong direction horizontally, the back of the blade may contact the flange as the roller is spinning down, causing it to push the blade away from the guide roller.

14. Remove the blade guide alignment tool from the blade and adjust the blade guide arm halfway in.
15. Remove the clip from the blade guide alignment tool. Place the tool against the face of the outer blade guide roller.

See Figure 7-10.

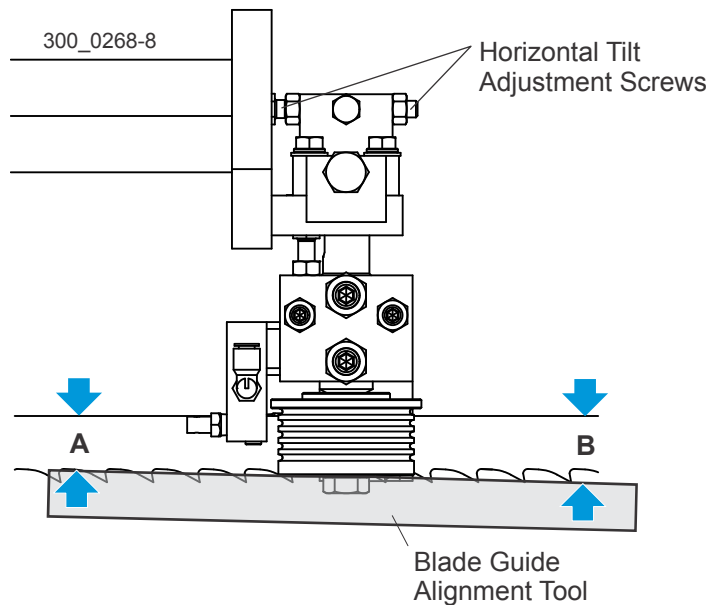


FIG. 7-10

16. Measure between the back edge of the blade and the tool at the end closest to the inner blade guide ("B").
17. Measure between the back edge of the blade and the other end of the tool ("A").

The roller should be tilted slightly to the left ('A' 1/8" [3 mm] less than 'B' $\pm 1/8$ " [3 mm]).

See Figure 7-11. Loosen the jam nuts on the horizontal tilt adjustment screws. To tilt the roller left, loosen the right screw and tighten left screw. To tilt the roller right, loosen the left screw and tighten the right screw. Tighten the jam nuts and recheck the tilt of the blade.

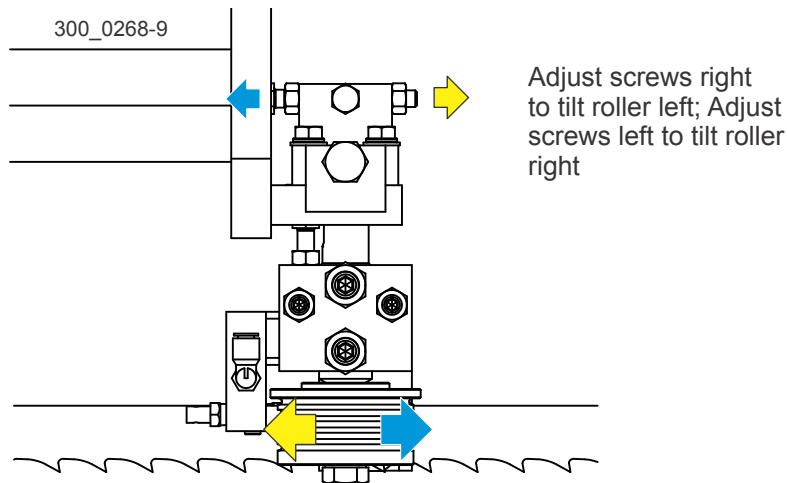


FIG. 7-11

18. Repeat the above steps for the inner blade guide roller assembly.

NOTE: Once the blade guides have been adjusted, any cutting variances are most likely caused by the blade. [See *Blade Handbook, Form #600.*](#)

Each blade guide must be adjusted so the roller flange is the correct distance from the back edge of the blade. If the flange is too close to or too far from the blade, the sawmill will not cut accurately.

HINT: When adjusting blade guide spacing, loosen the top set screw and one side set screw only. This will ensure horizontal and vertical tilt adjustments are maintained when the adjustment screws are retightened.

19. Measure the distance between the flange on the inner blade guide roller to the back edge of the blade. This distance should measure 1/16" (1.5 mm). Adjust the roller back or forward if necessary.

7

Alignment

Blade Guide Alignment

See Figure 7-12. Loosen the top and one side screw shown. Back the stop bolt out of the way if necessary. Tap the blade guide forward or backward until properly positioned. Retighten the screws and jam nuts. Adjust the stop bolt against the blade guide assembly.

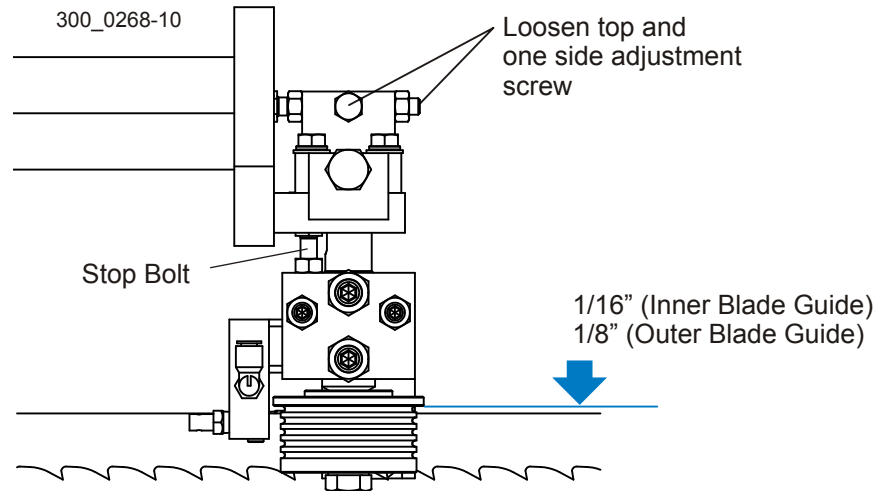


FIG. 7-12

20. Measure the distance between the flange on the outer blade guide roller to the back edge of the blade. This distance should measure 1/8" (3.0 mm). Adjust the roller back or forward if necessary.

SECTION 8 HYDRAULIC INFORMATION

8.1 Hydraulic Schematics (WM4000)

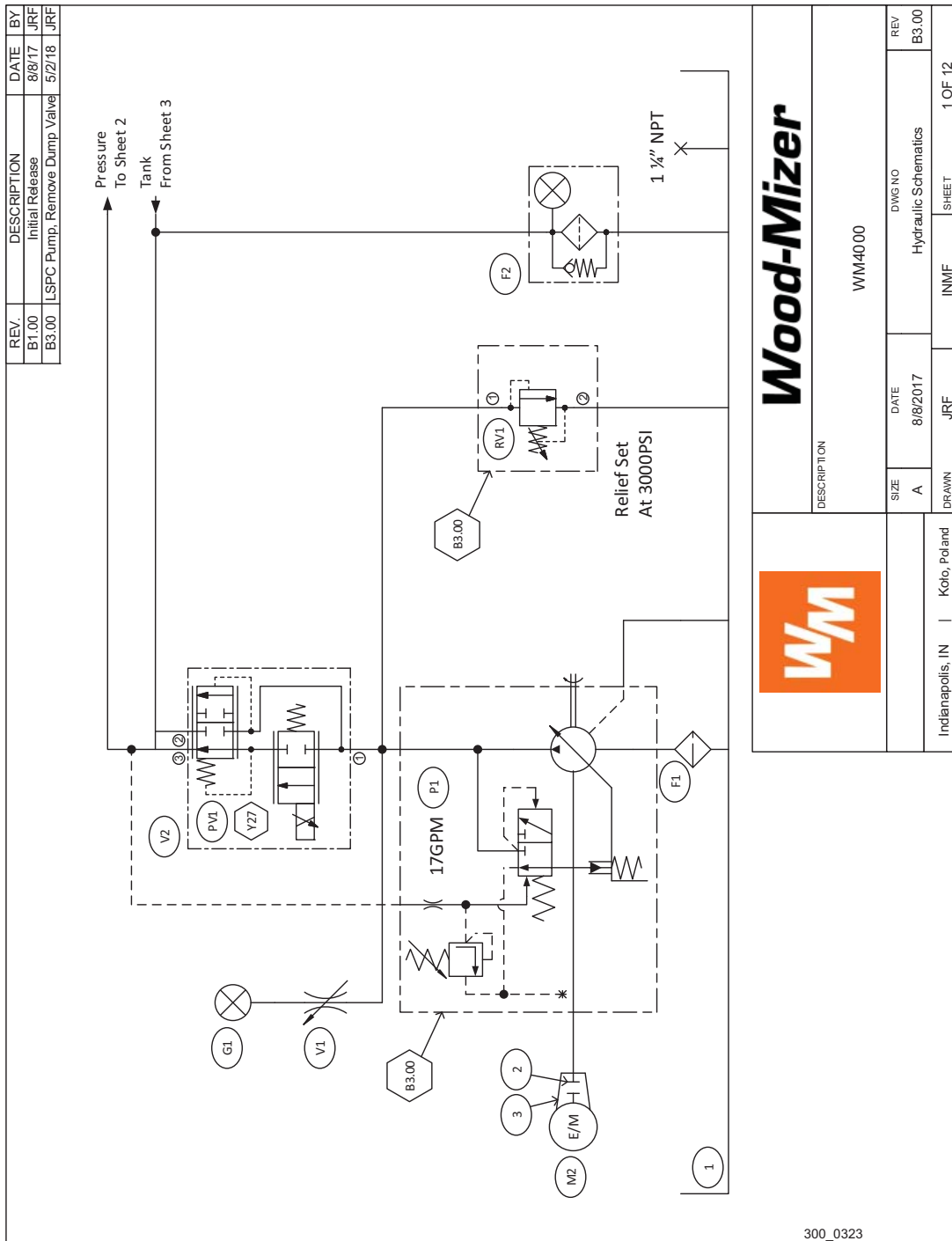


FIG. 8-1 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

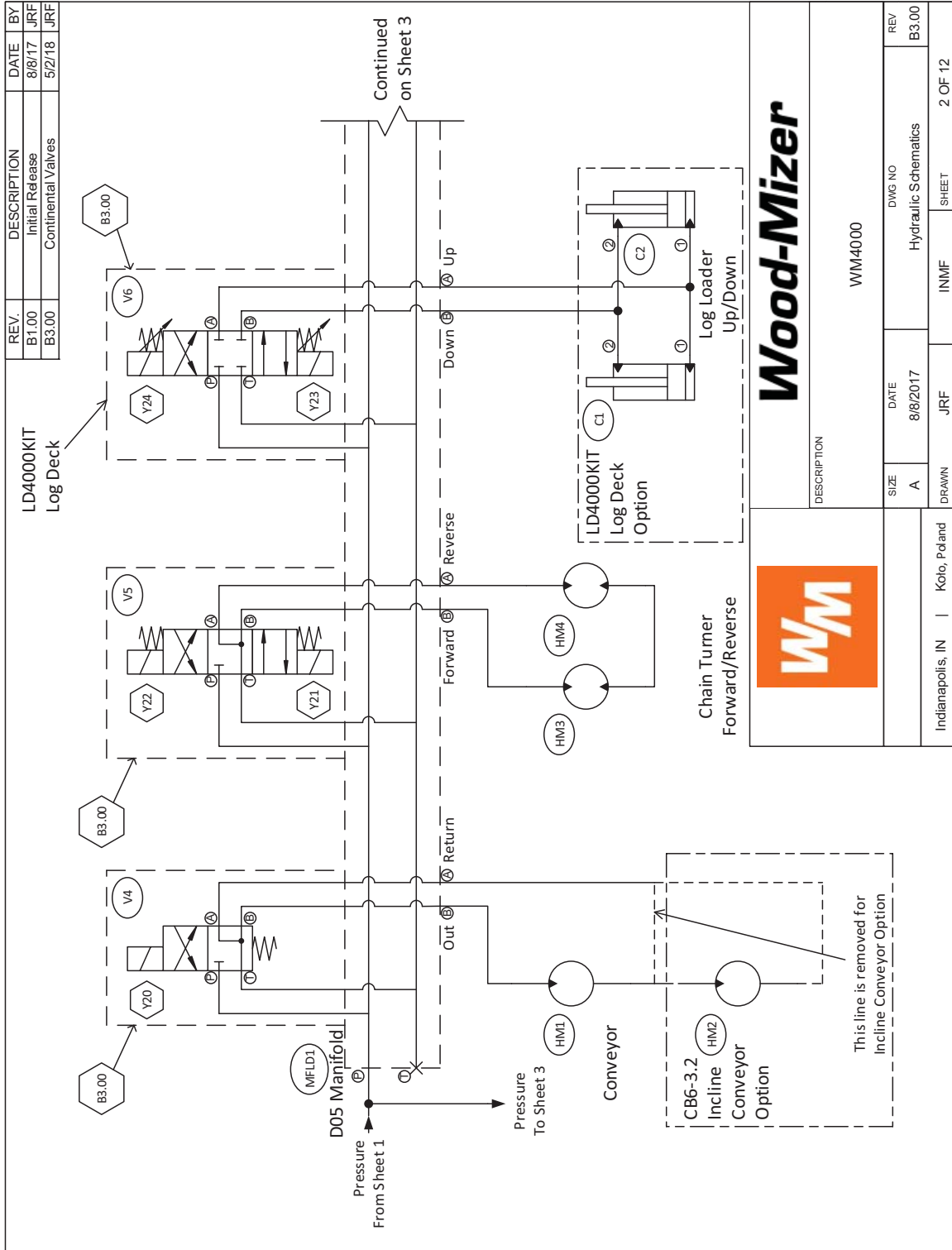


FIG. 8-2 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

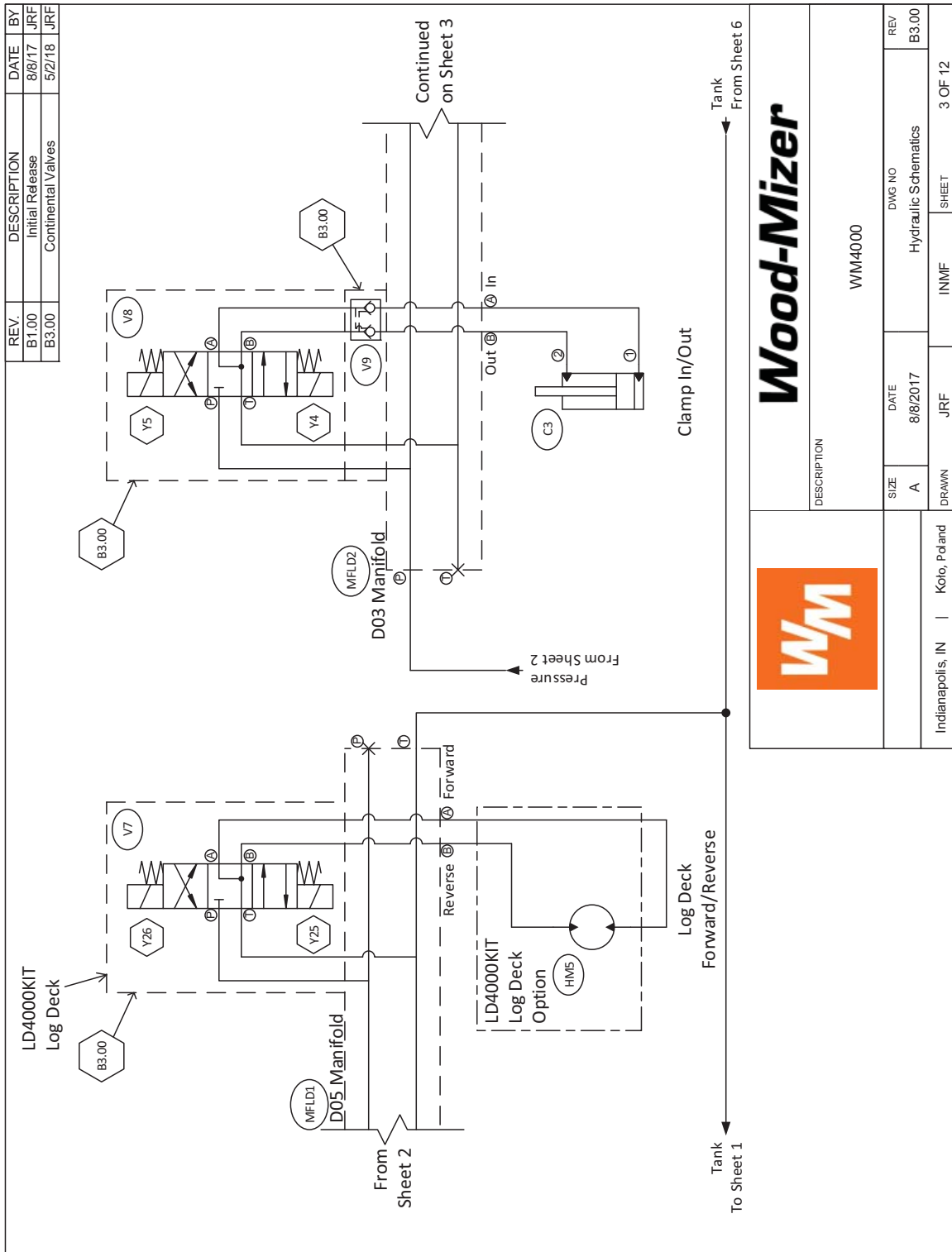


FIG. 8-3 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

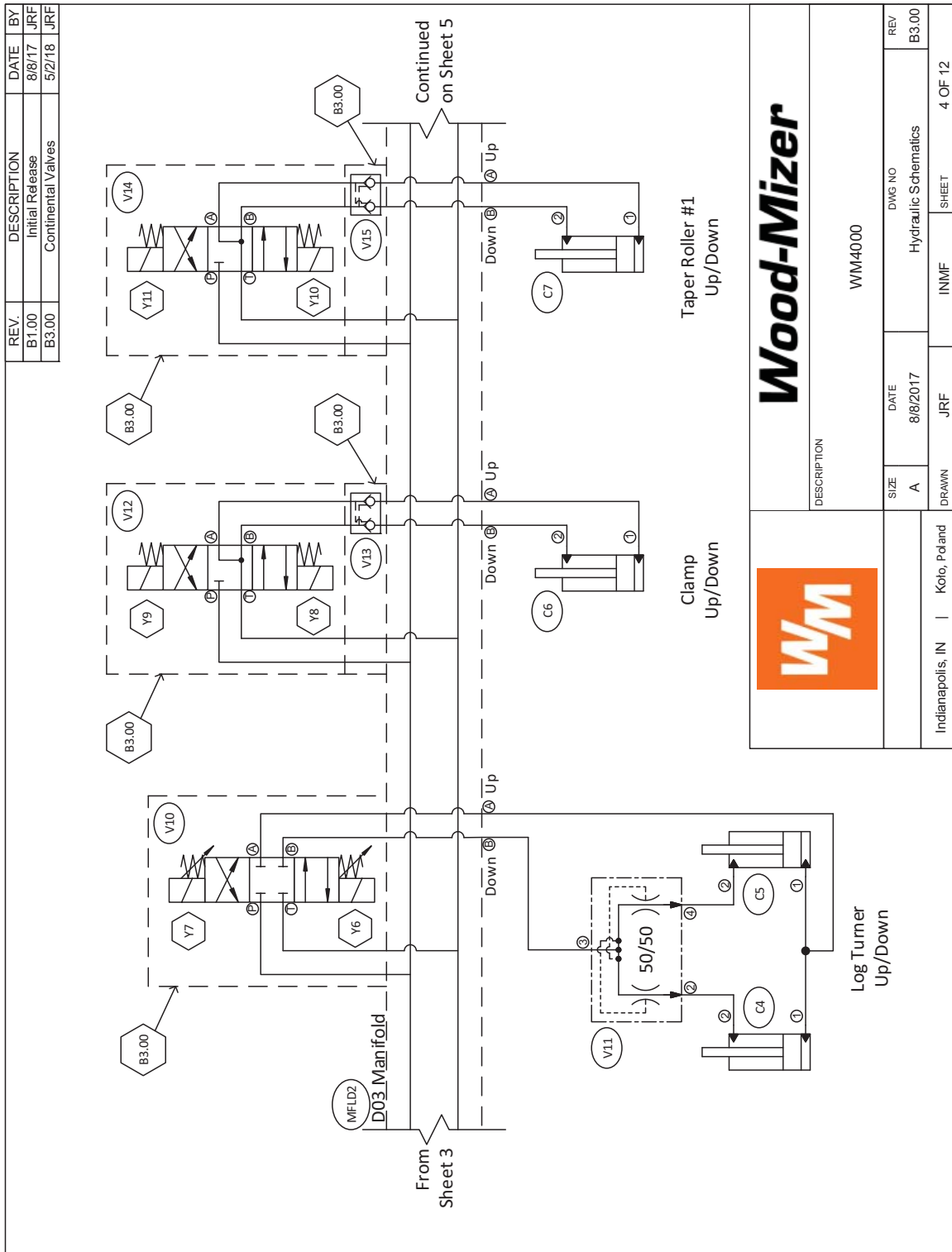


FIG. 8-4 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

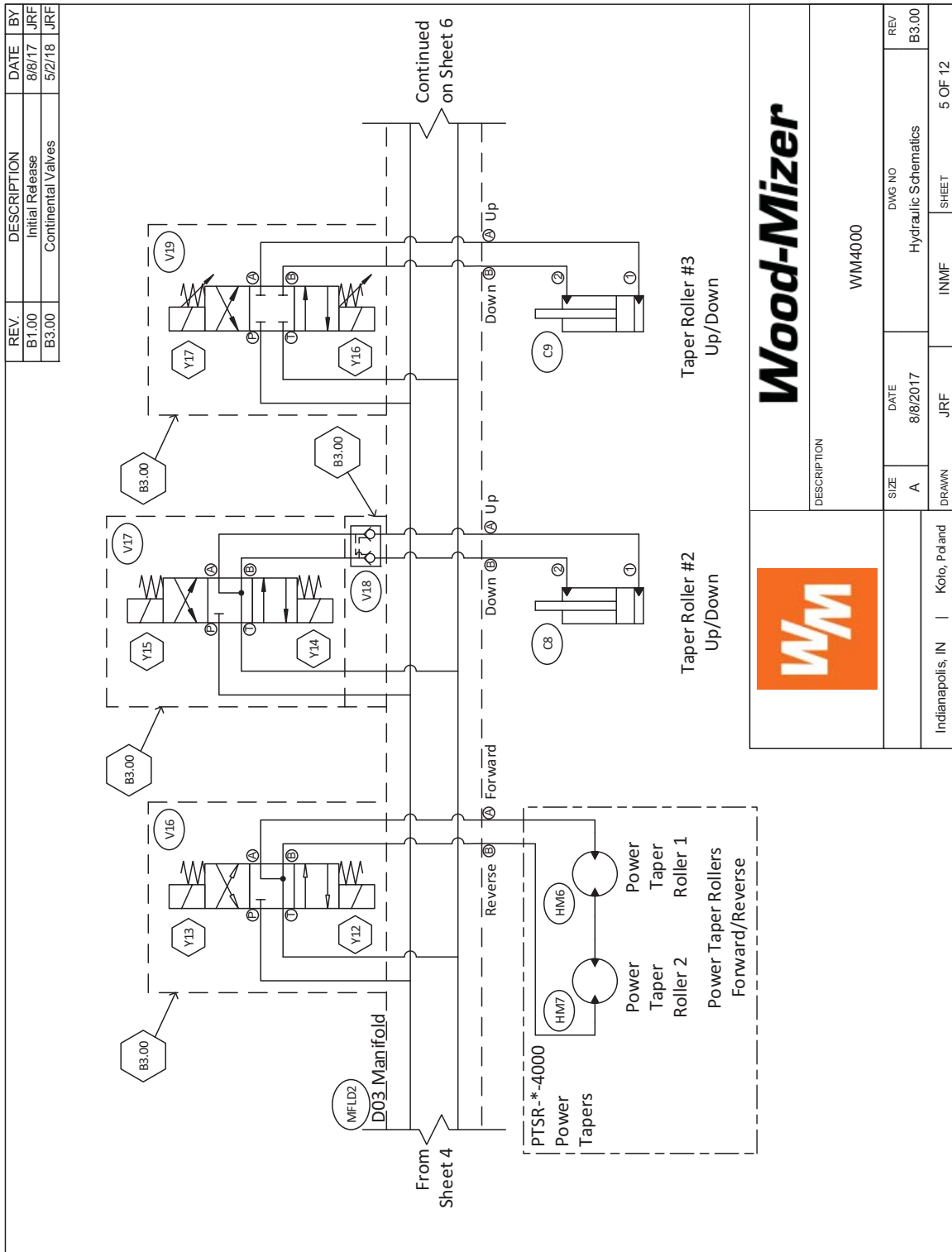


FIG. 8-5 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

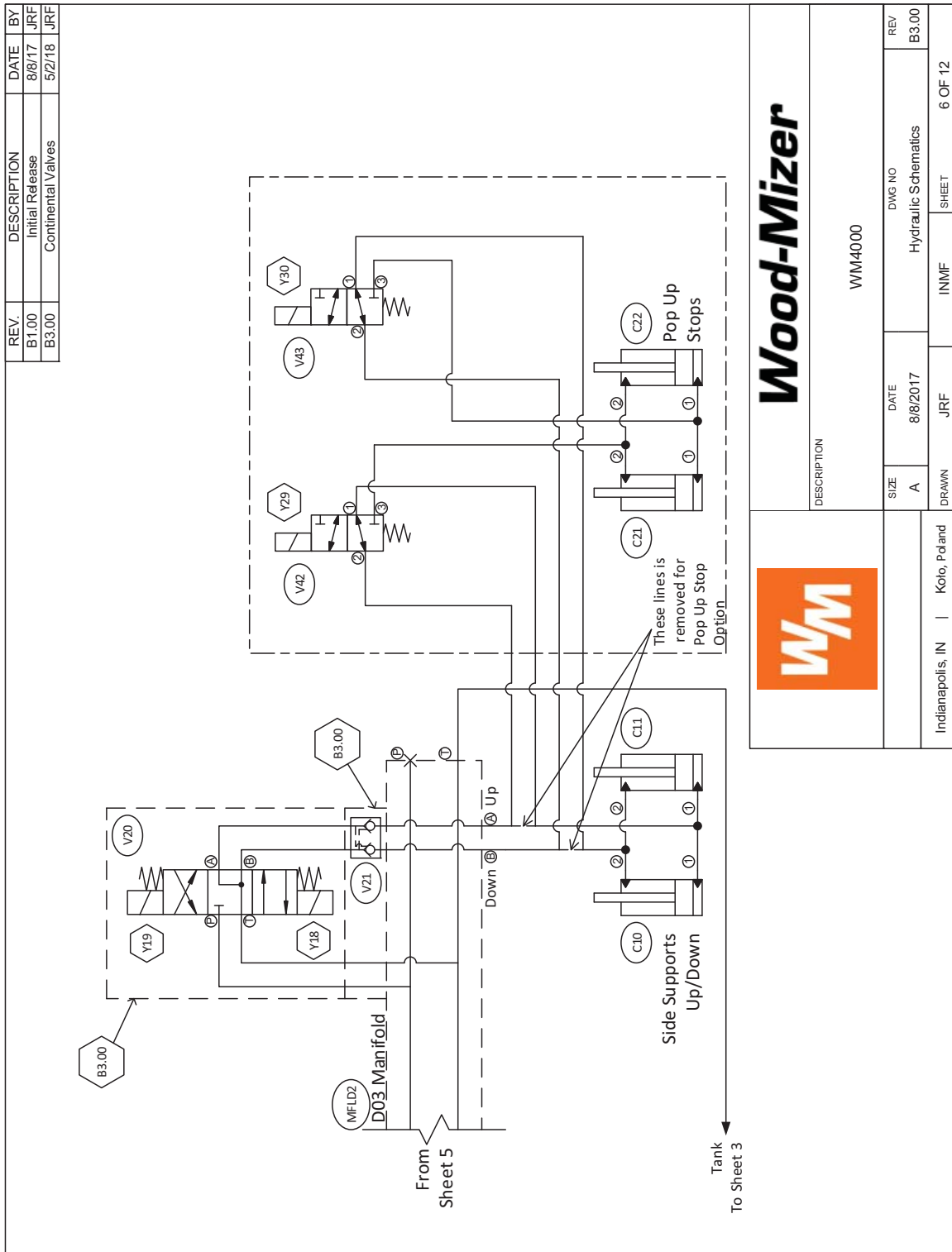


FIG. 8-6 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

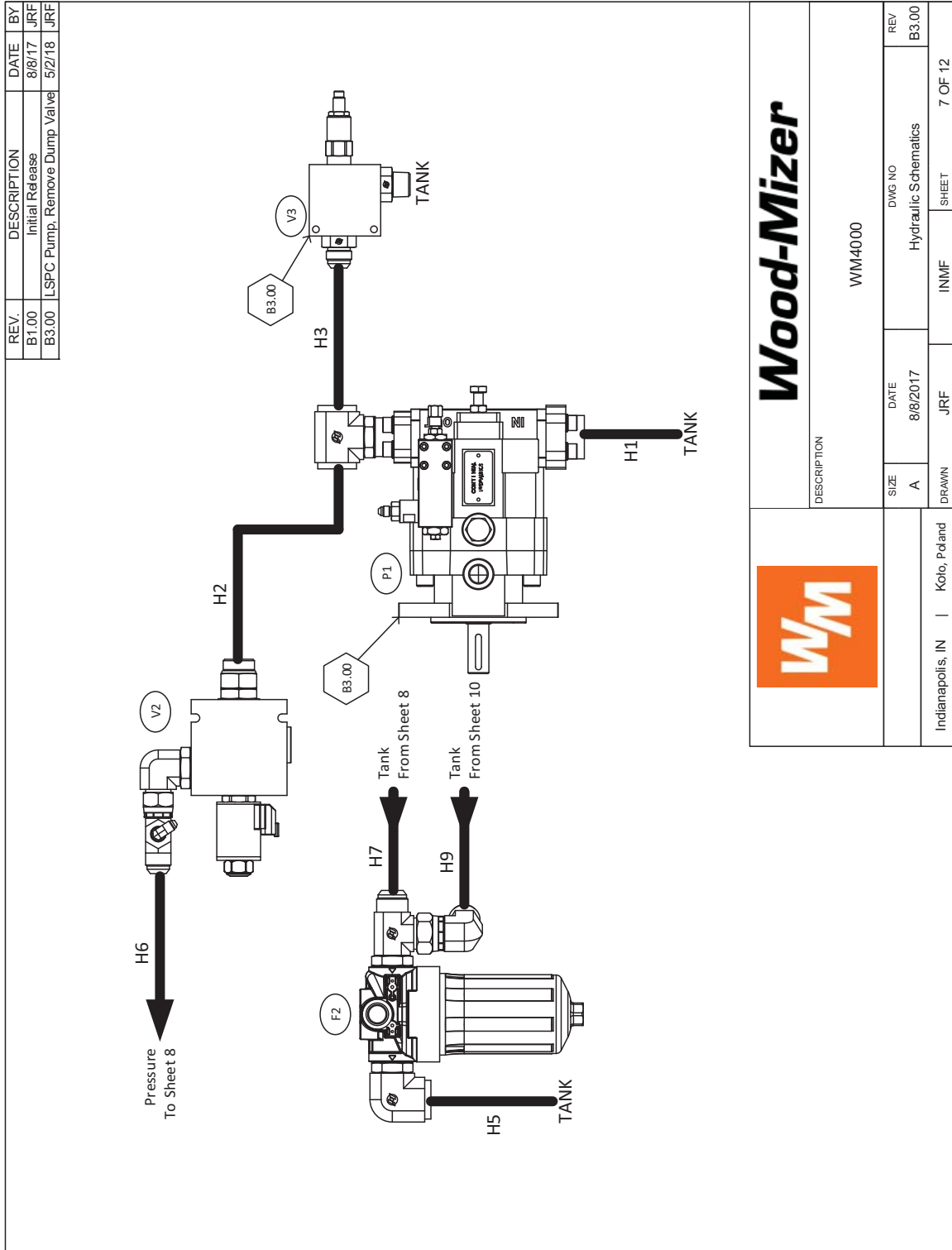


FIG. 8-7 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

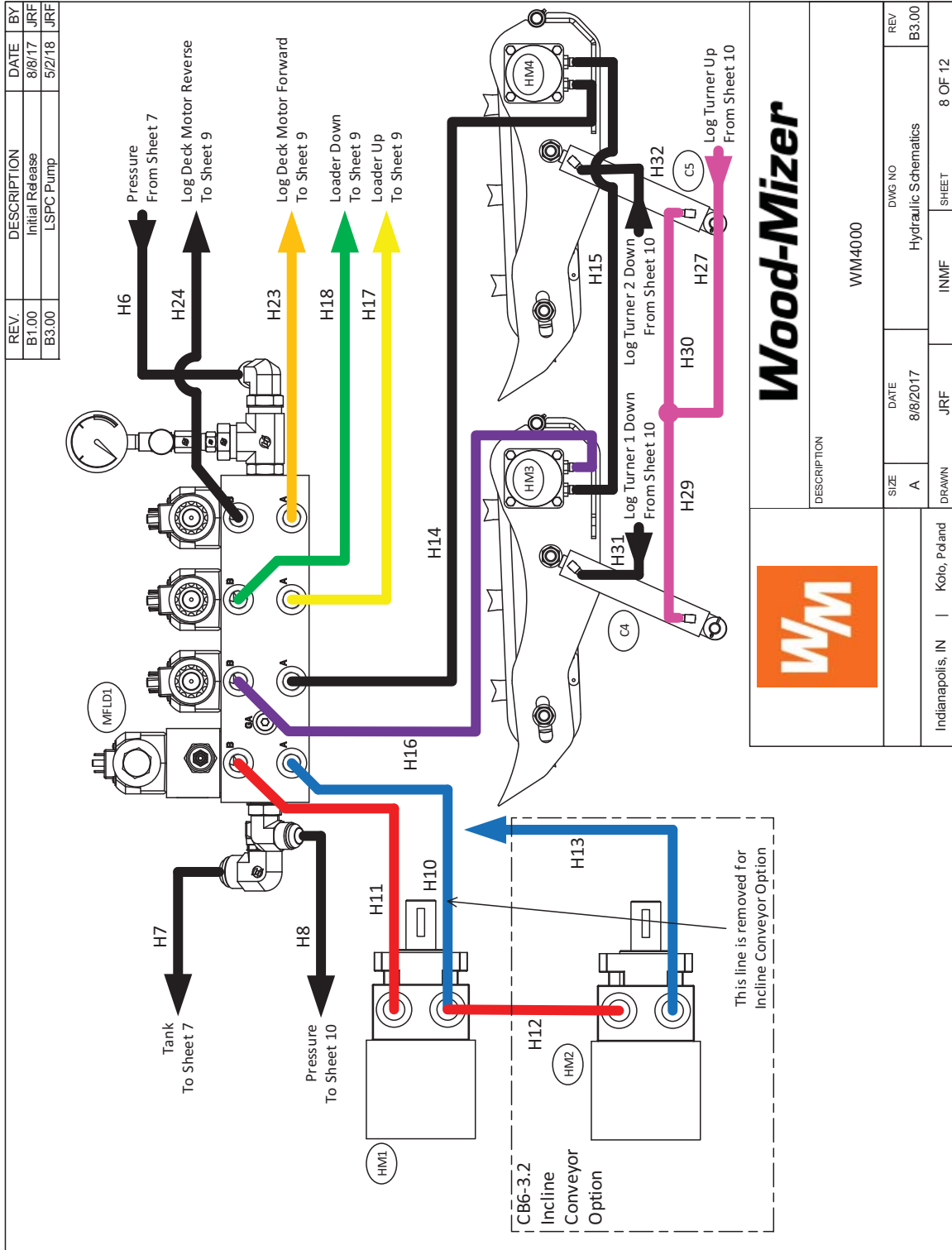


FIG. 8-8 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

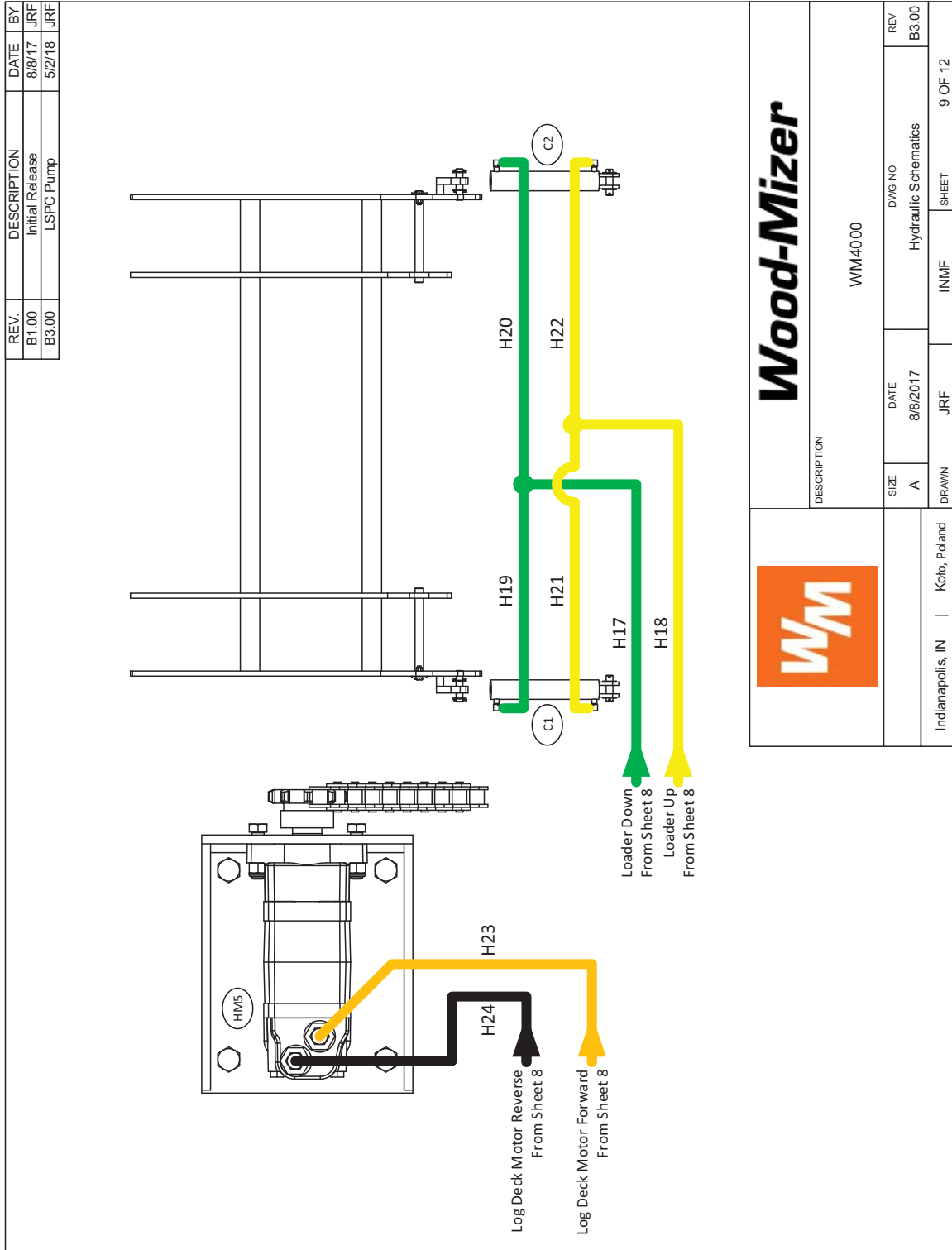
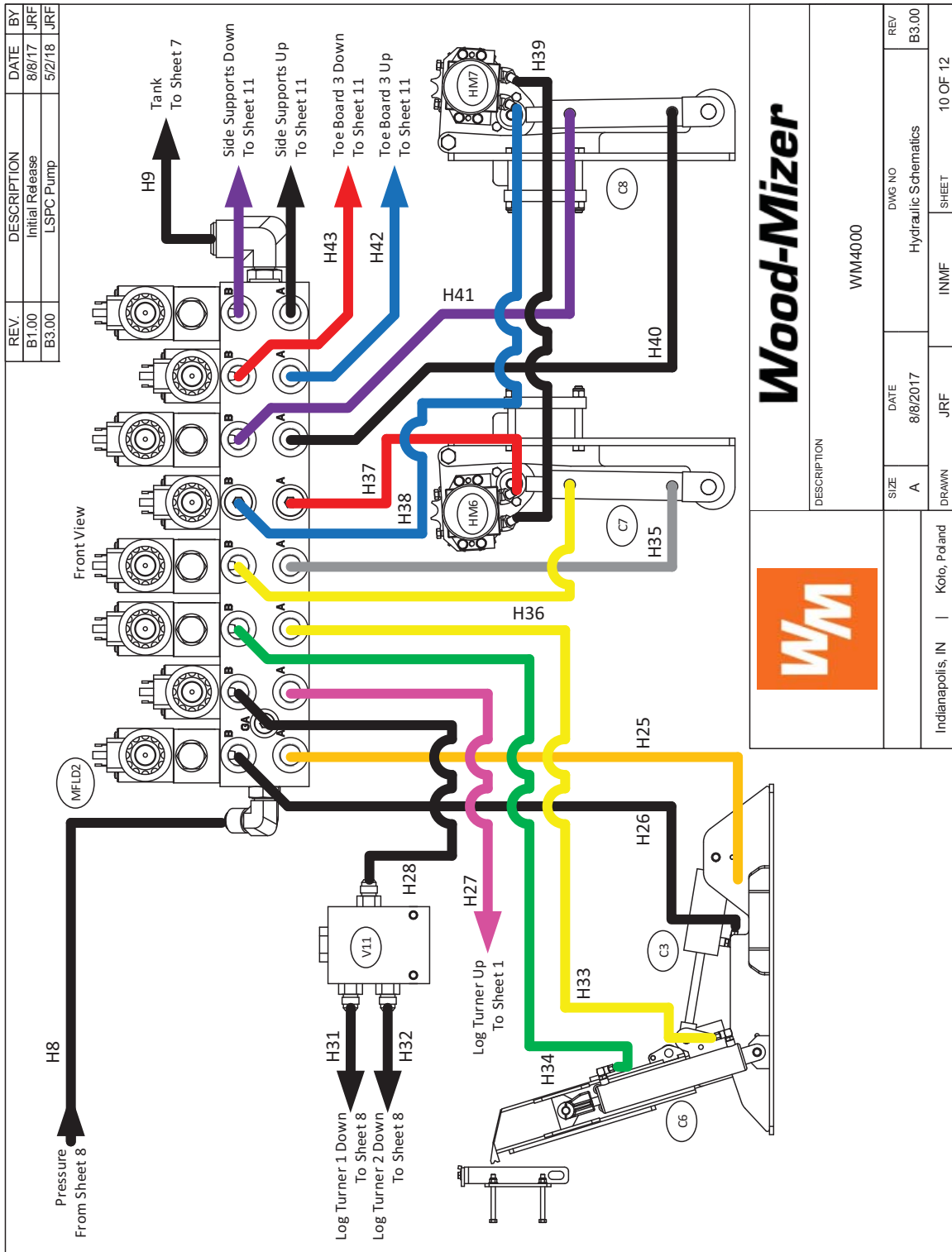


FIG. 8-9 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)



Wood-Mizer



| | | | |
|------------------|--------------|----------------------|----------|
| DESCRIPTION | | WM4000 | |
| SIZE | DATE | DWG NO | REV |
| A | 8/8/2017 | Hydraulic Schematics | B3.00 |
| DRAWN | JRF | INMF | SHEET |
| Indianapolis, IN | Kolo, Poland | | 10 OF 12 |

FIG. 8-10 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

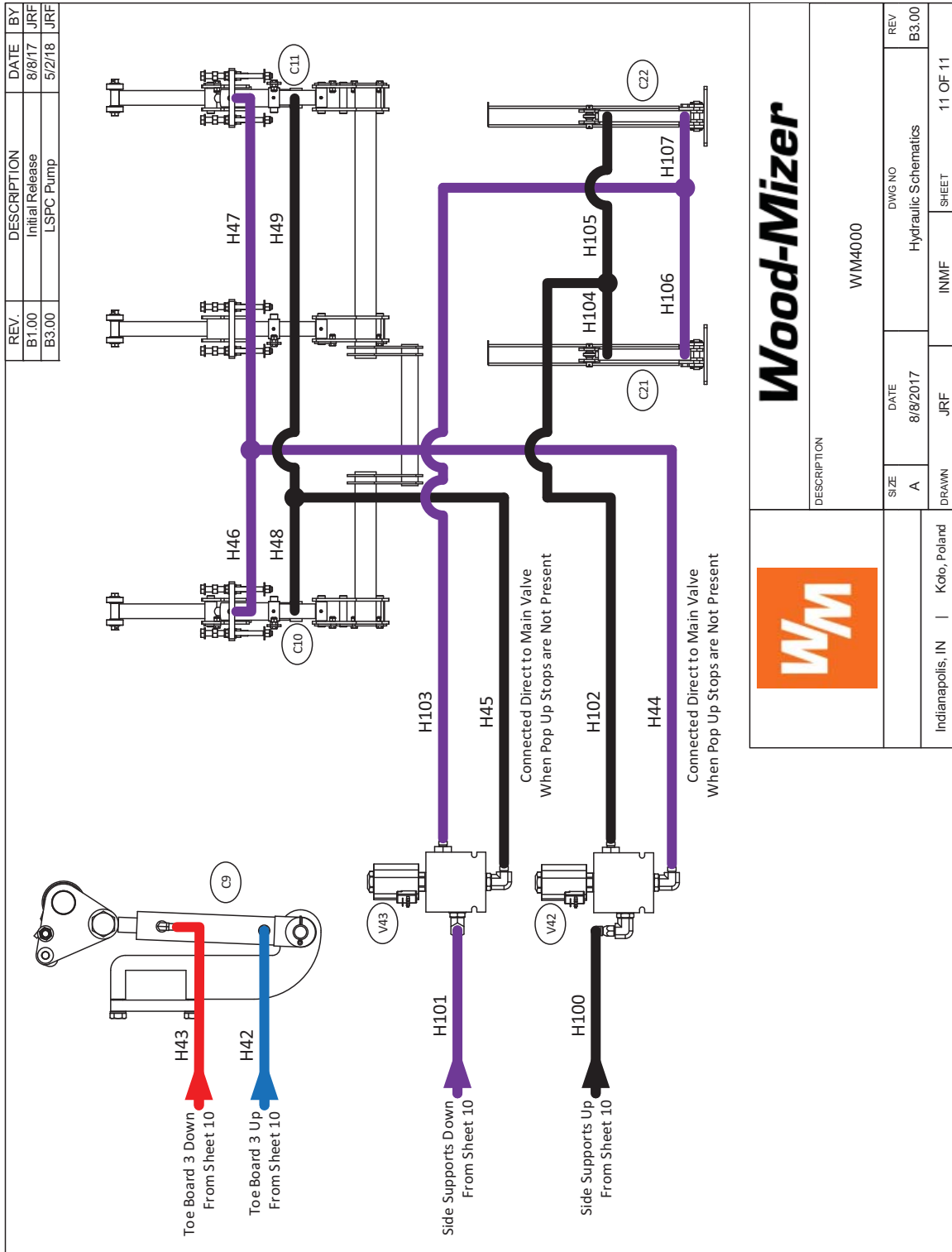


FIG. 8-11 HYDRAULIC DIAGRAM (WM4000 W/O BED EXTENSION)

8.2 Hydraulic Schematics (WM4000 w/BX12)

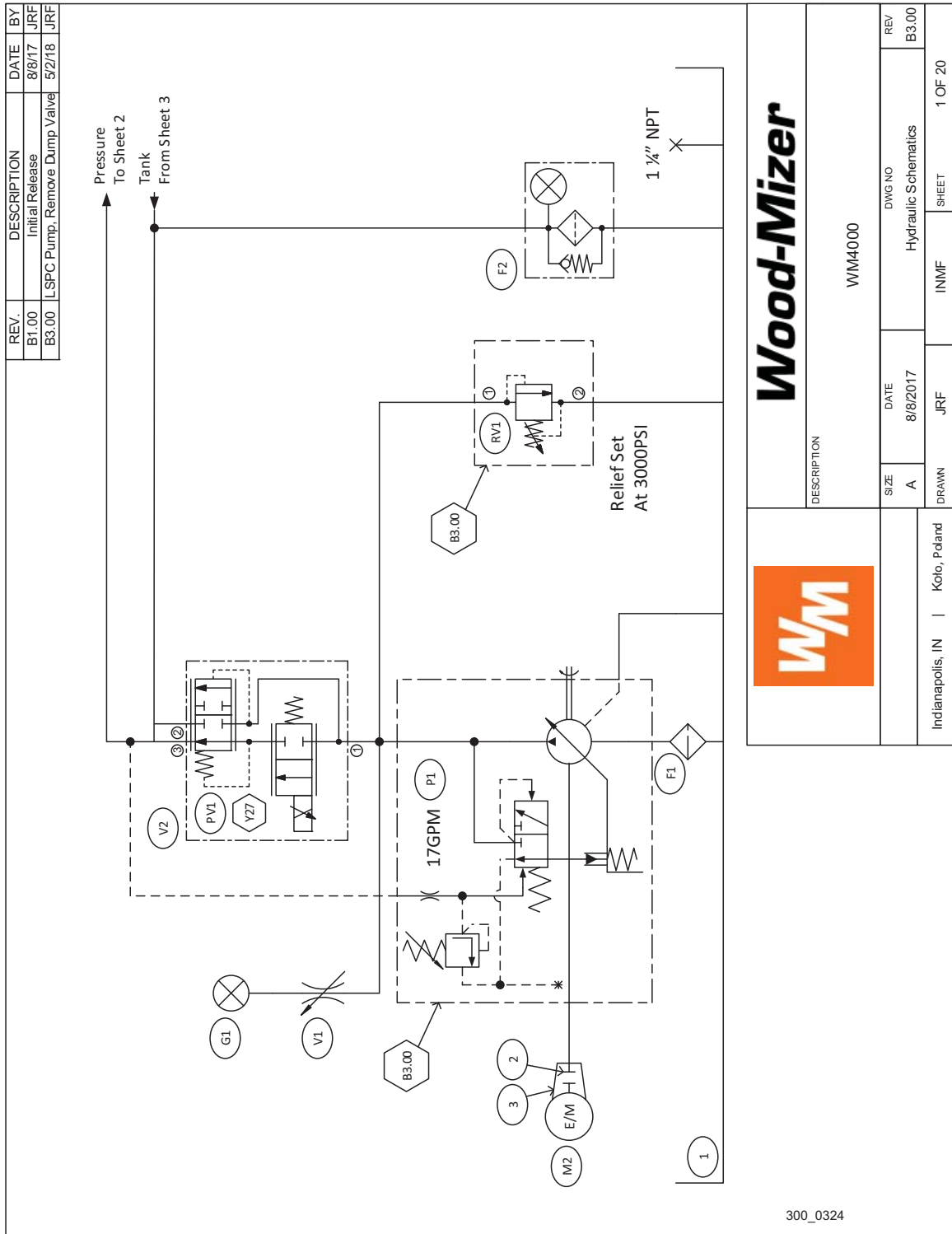


FIG. 8-12 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

Wood-Mizer

DESCRIPTION

WM4000

| REV | DESCRIPTION | DATE | DWG NO | REV |
|-------|----------------------|----------|--------|-------|
| B3.00 | Hydraulic Schematics | 8/8/2017 | | B3.00 |

| | | | | | |
|------------------|--------------|-----|-------|-------|---------|
| INDIANAPOLIS, IN | KOLO, POLAND | JRF | INM/F | SHEET | 1 OF 20 |
|------------------|--------------|-----|-------|-------|---------|

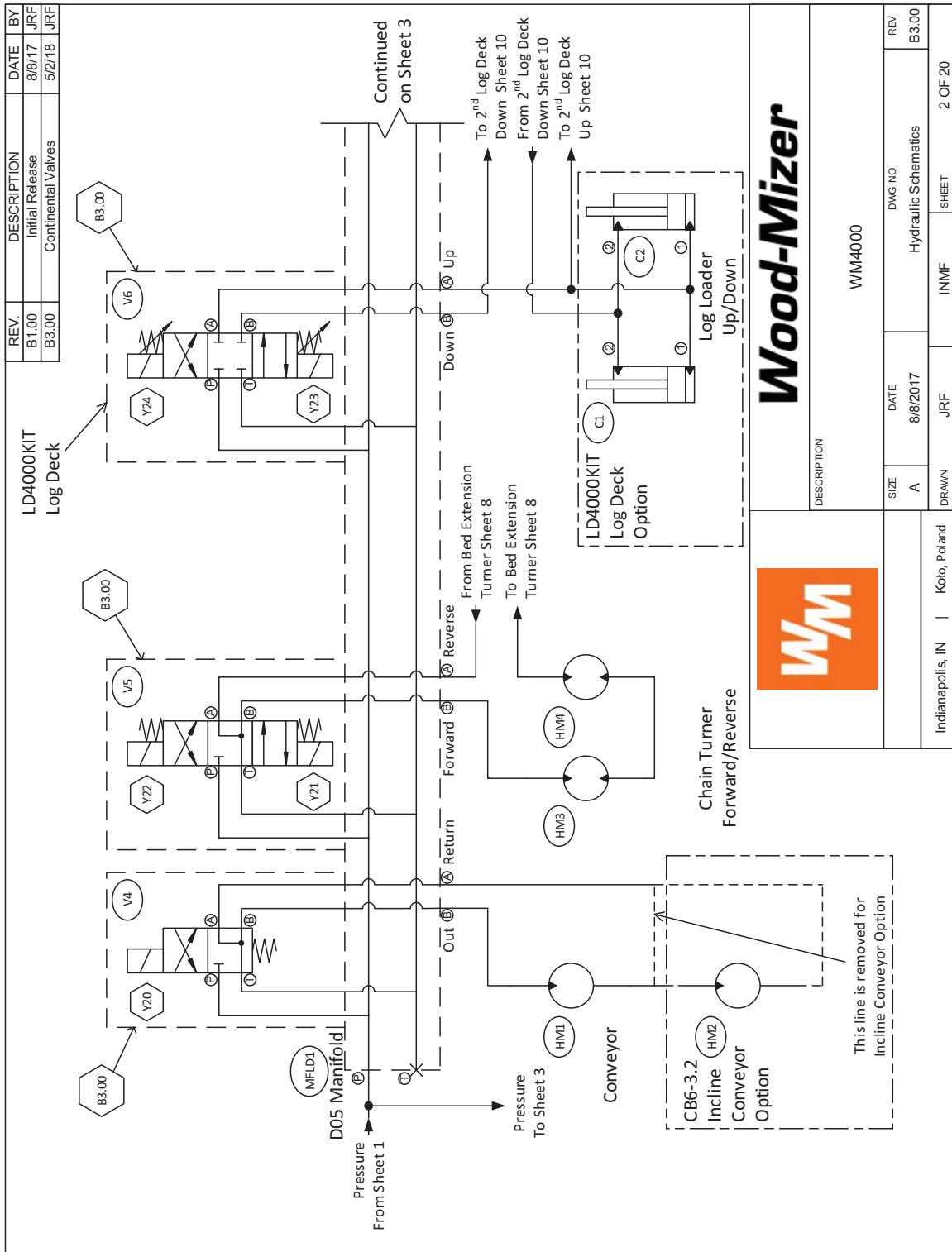


FIG. 8-13 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

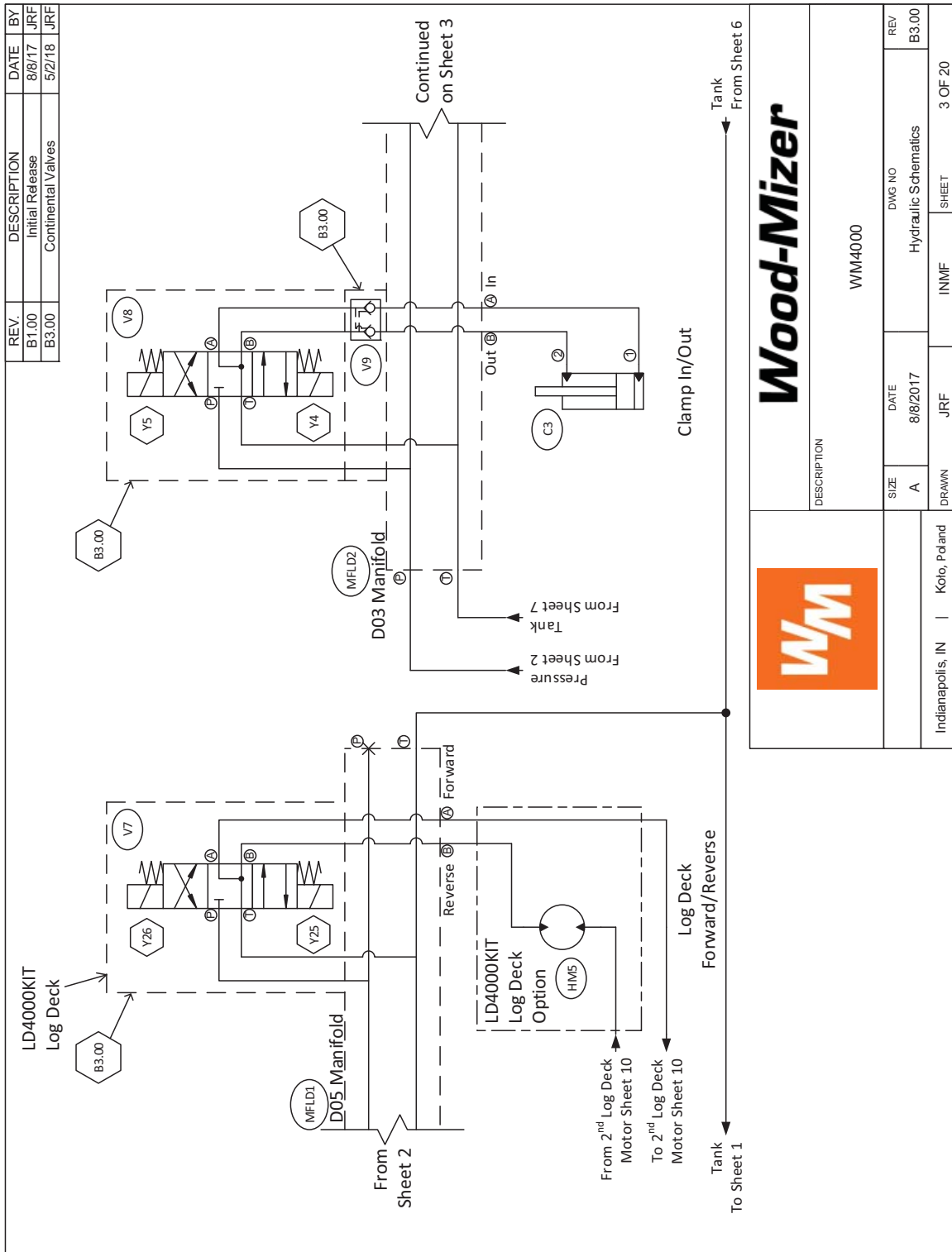


FIG. 8-14 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

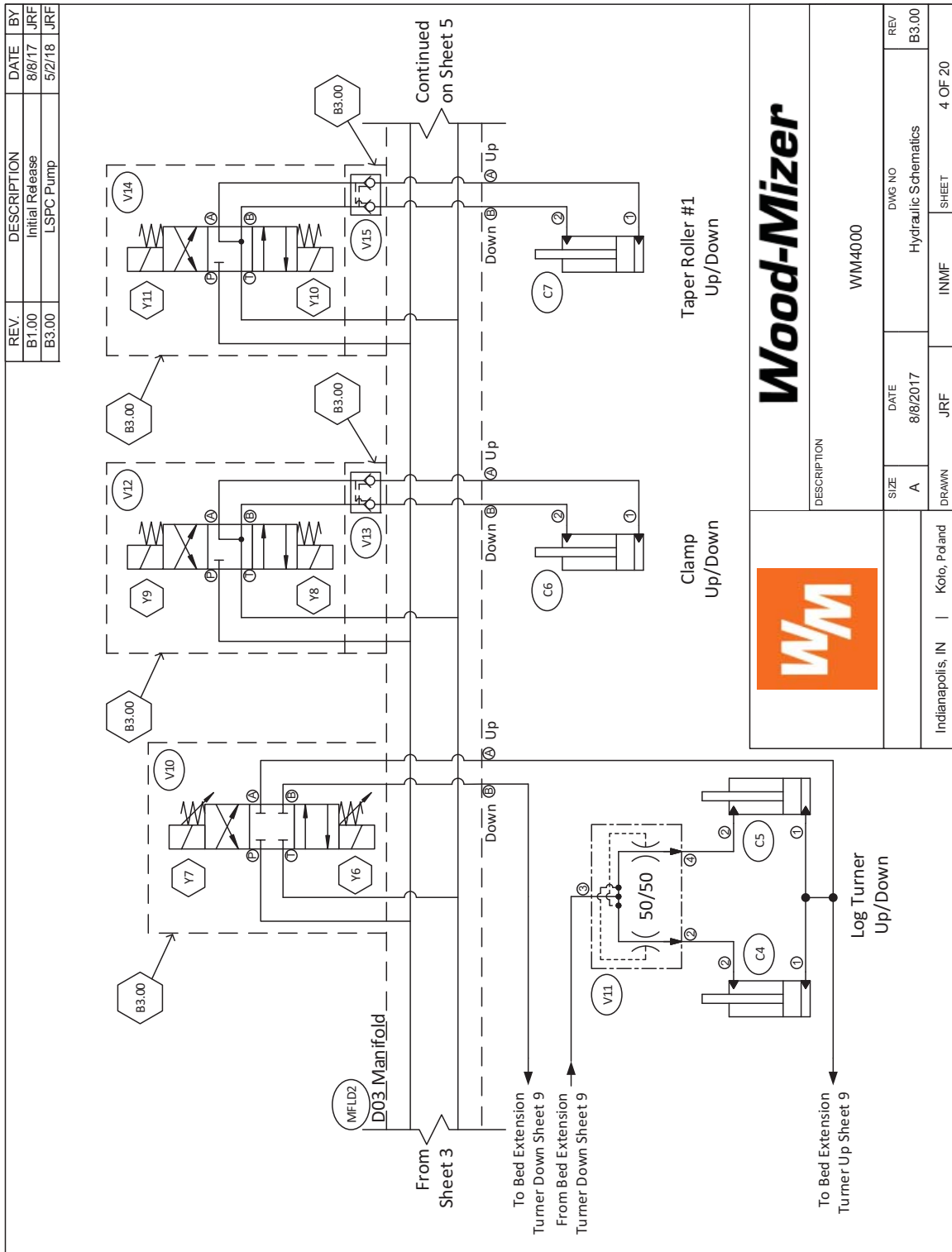


FIG. 8-15 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

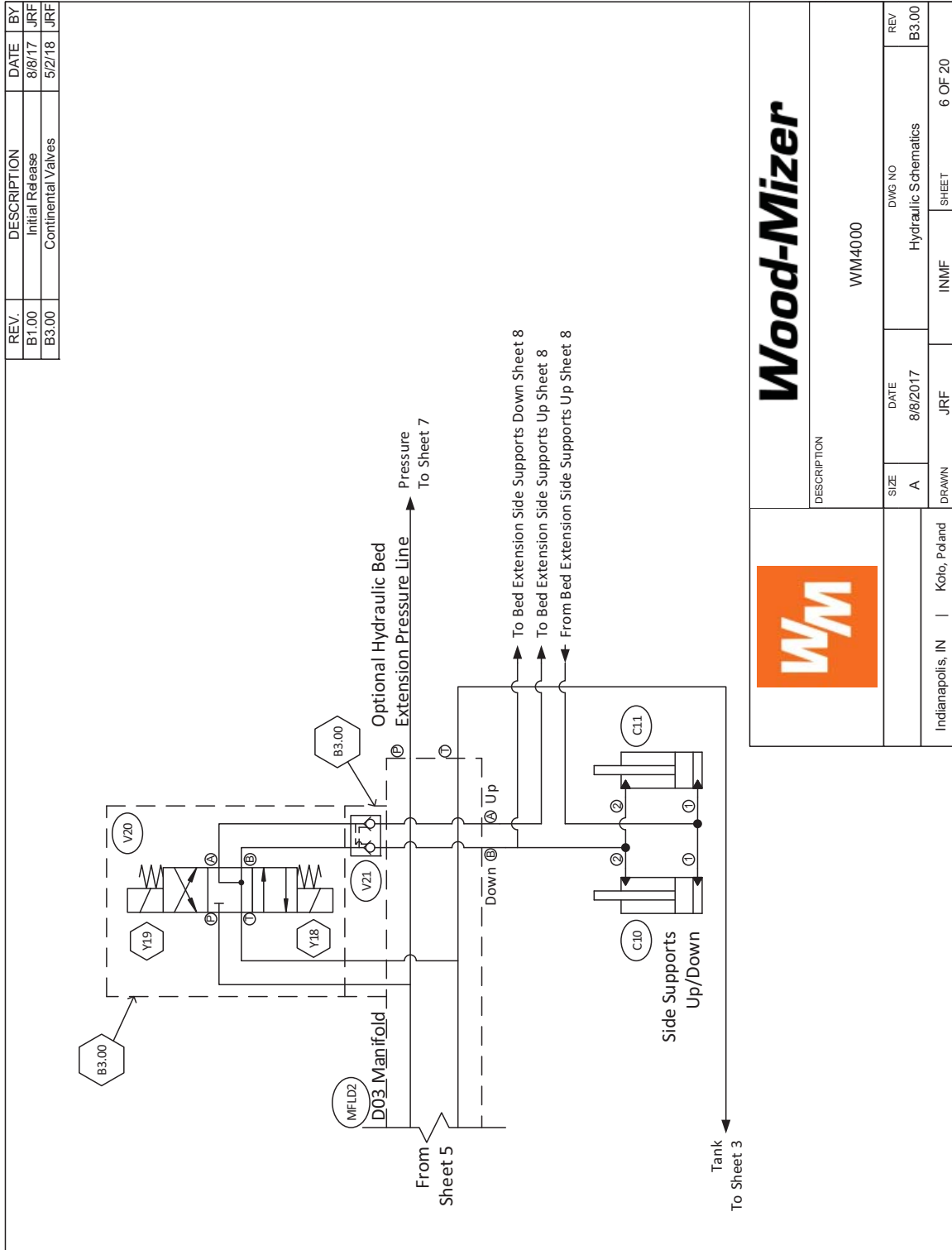
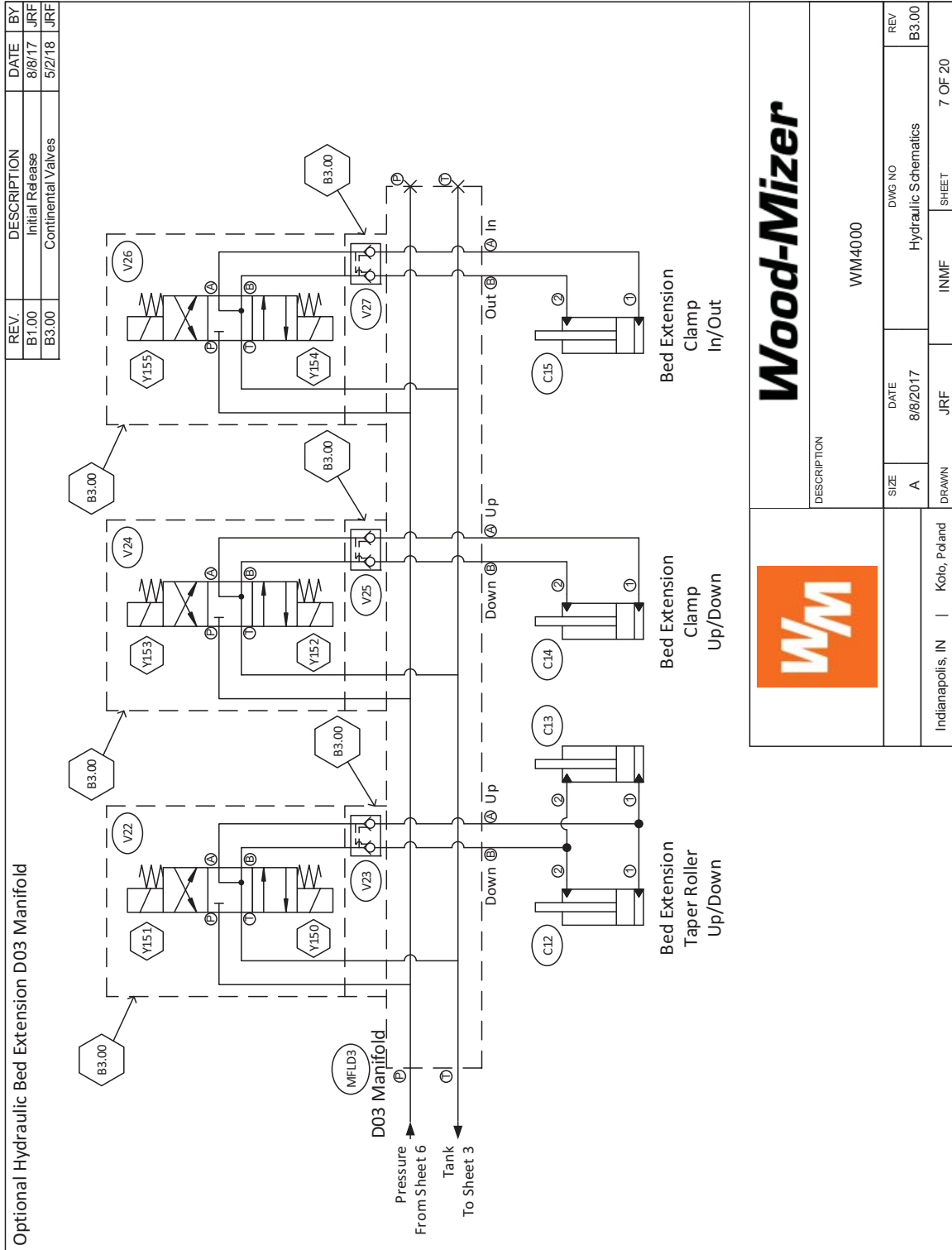


FIG. 8-17 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)



Wood-Mizer



| | | | |
|------------------|--------------|----------------------|---------|
| DESCRIPTION | | WM4000 | |
| SIZE | DATE | DWG NO | REV |
| A | 8/8/2017 | Hydraulic Schematics | B3.00 |
| DRAWN | JRF | INMF | SHEET |
| Indianapolis, IN | Kolo, Poland | | 7 OF 20 |

FIG. 8-18 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

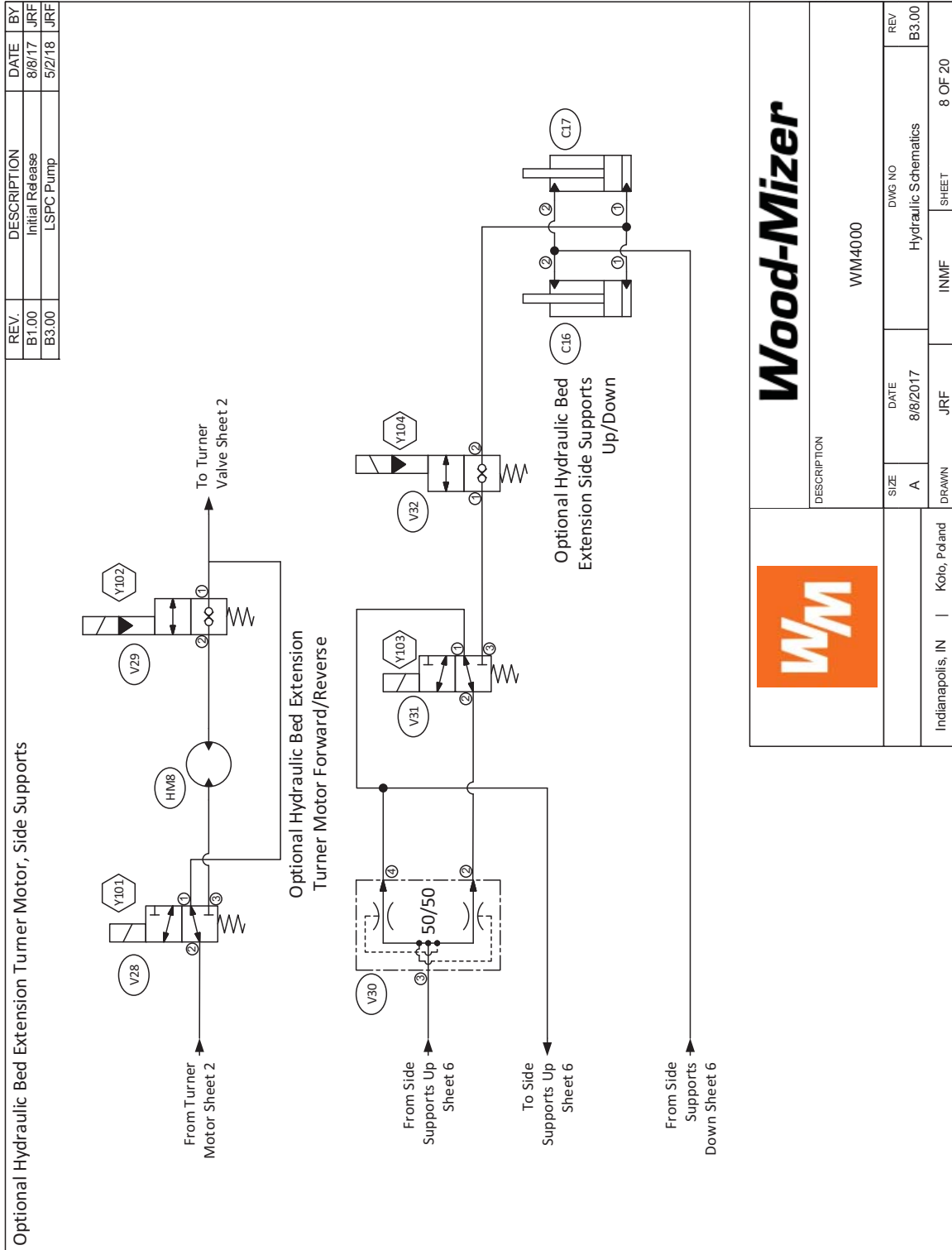


FIG. 8-19 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

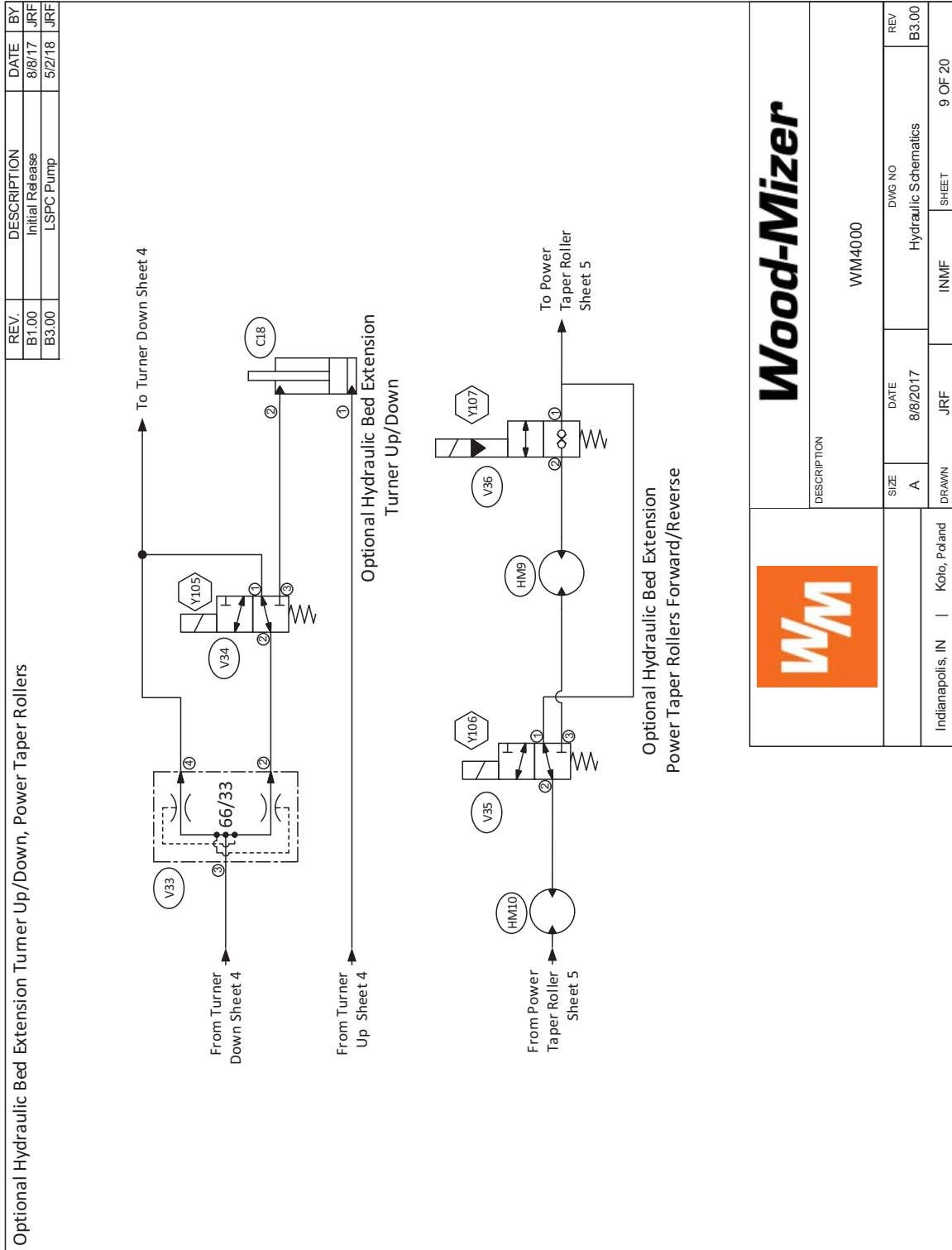


FIG. 8-20 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

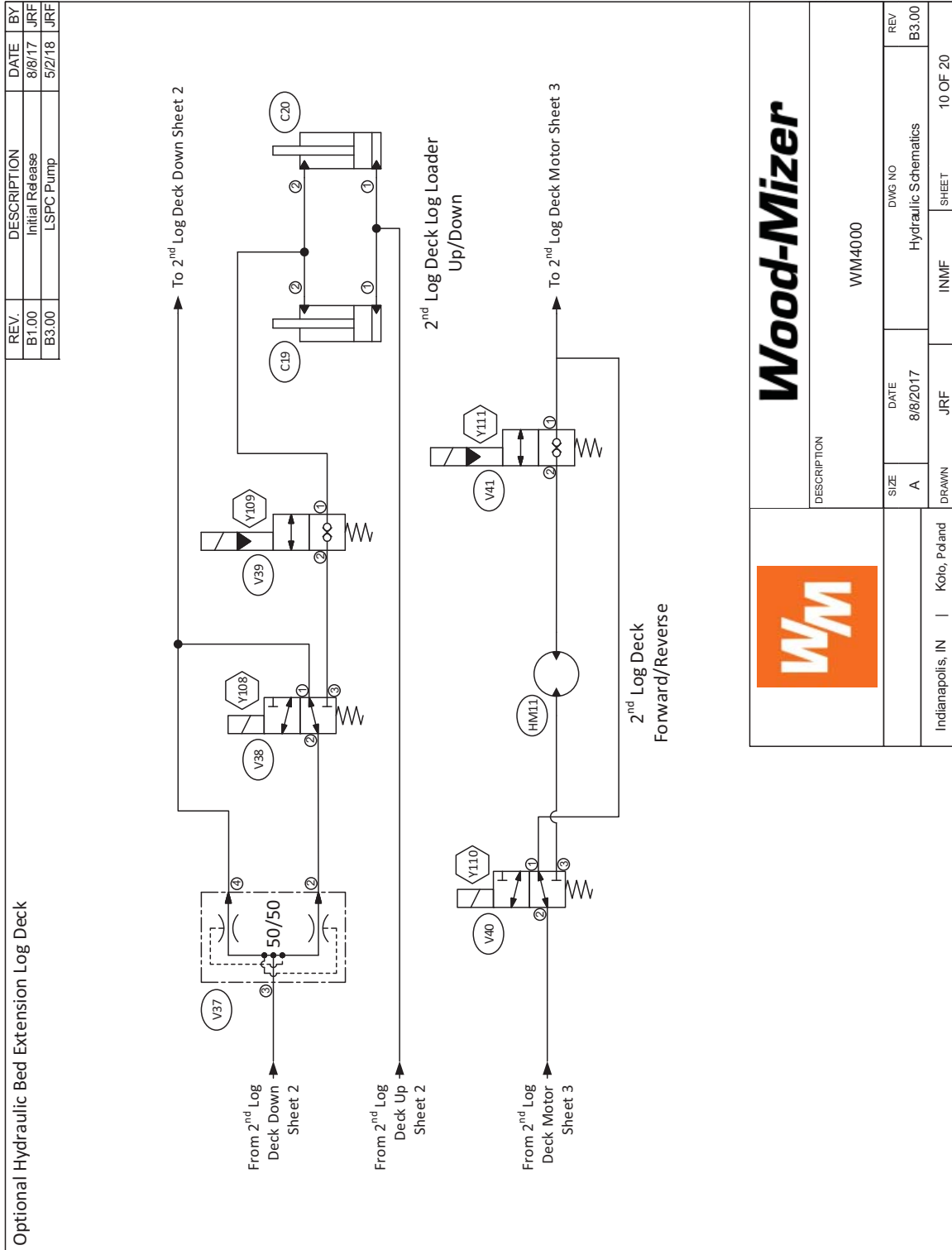


FIG. 8-21 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

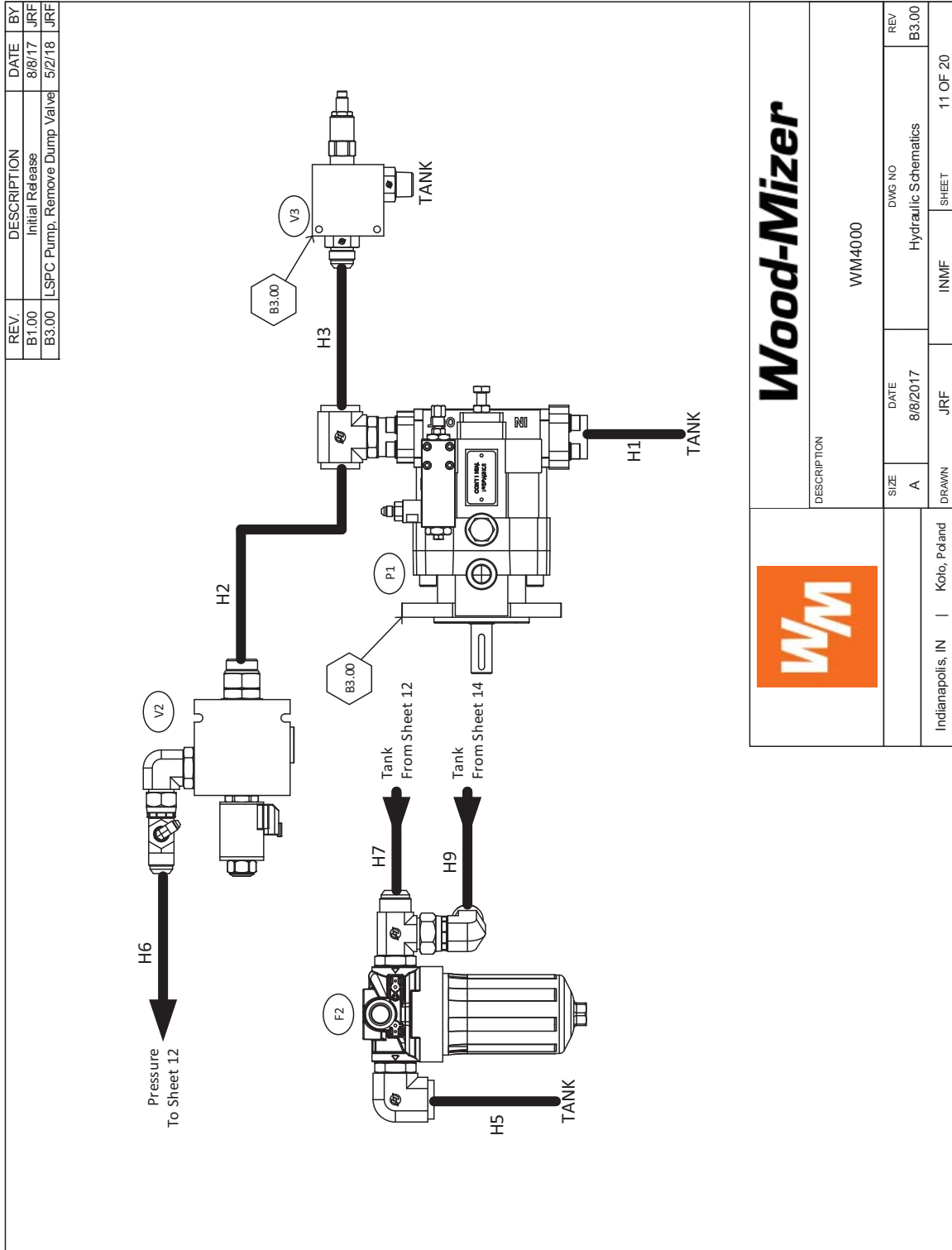


FIG. 8-22 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

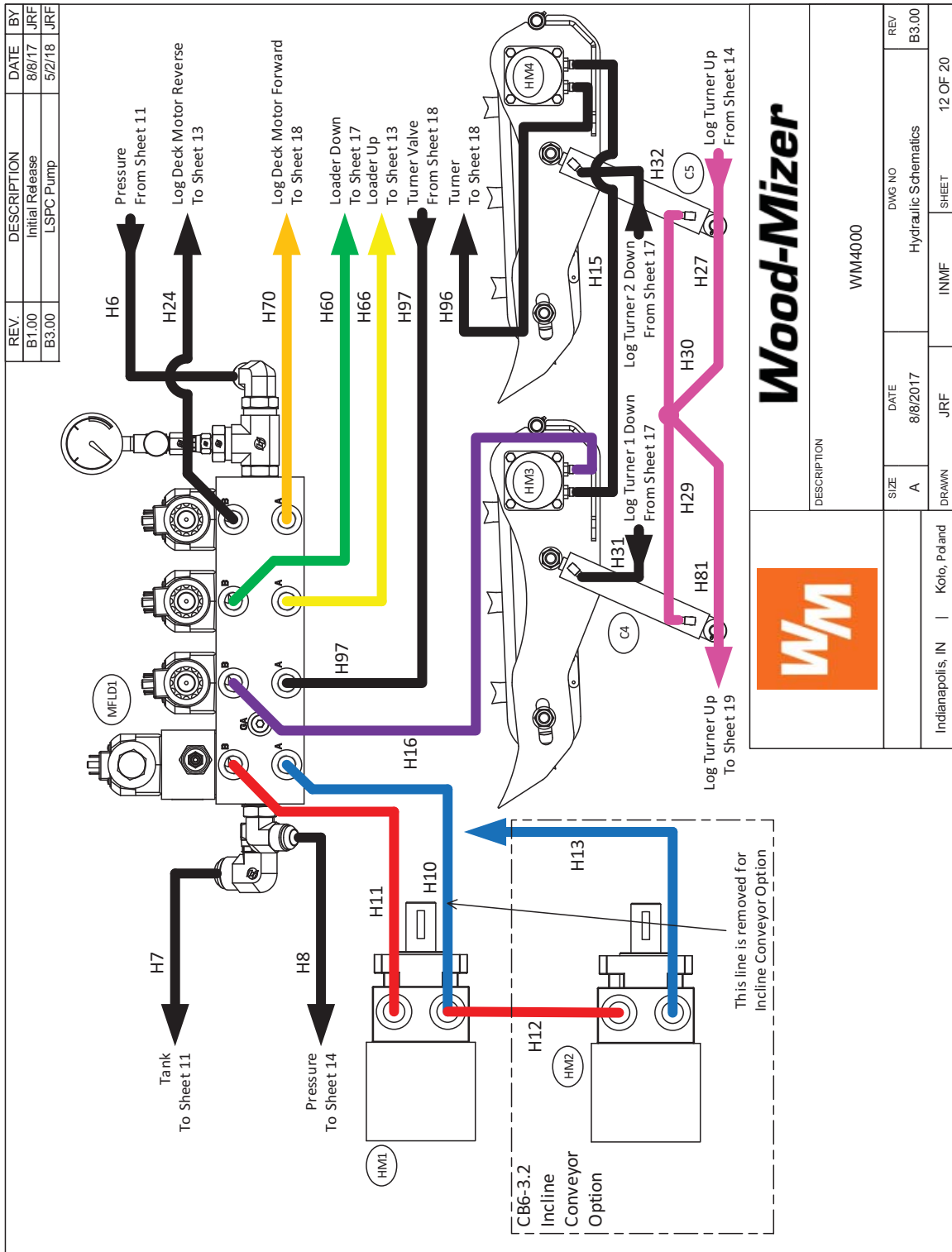


FIG. 8-23 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

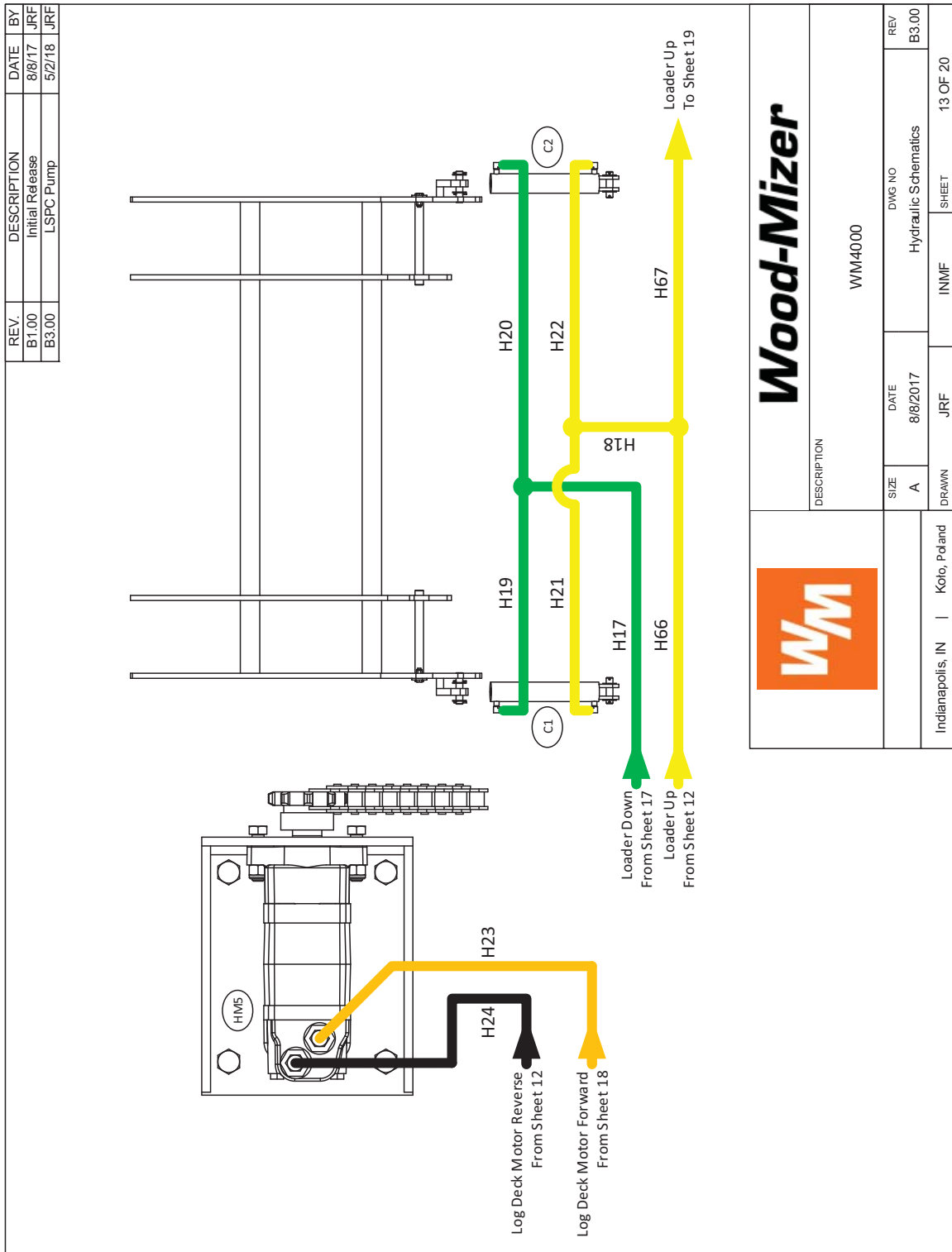


FIG. 8-24 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

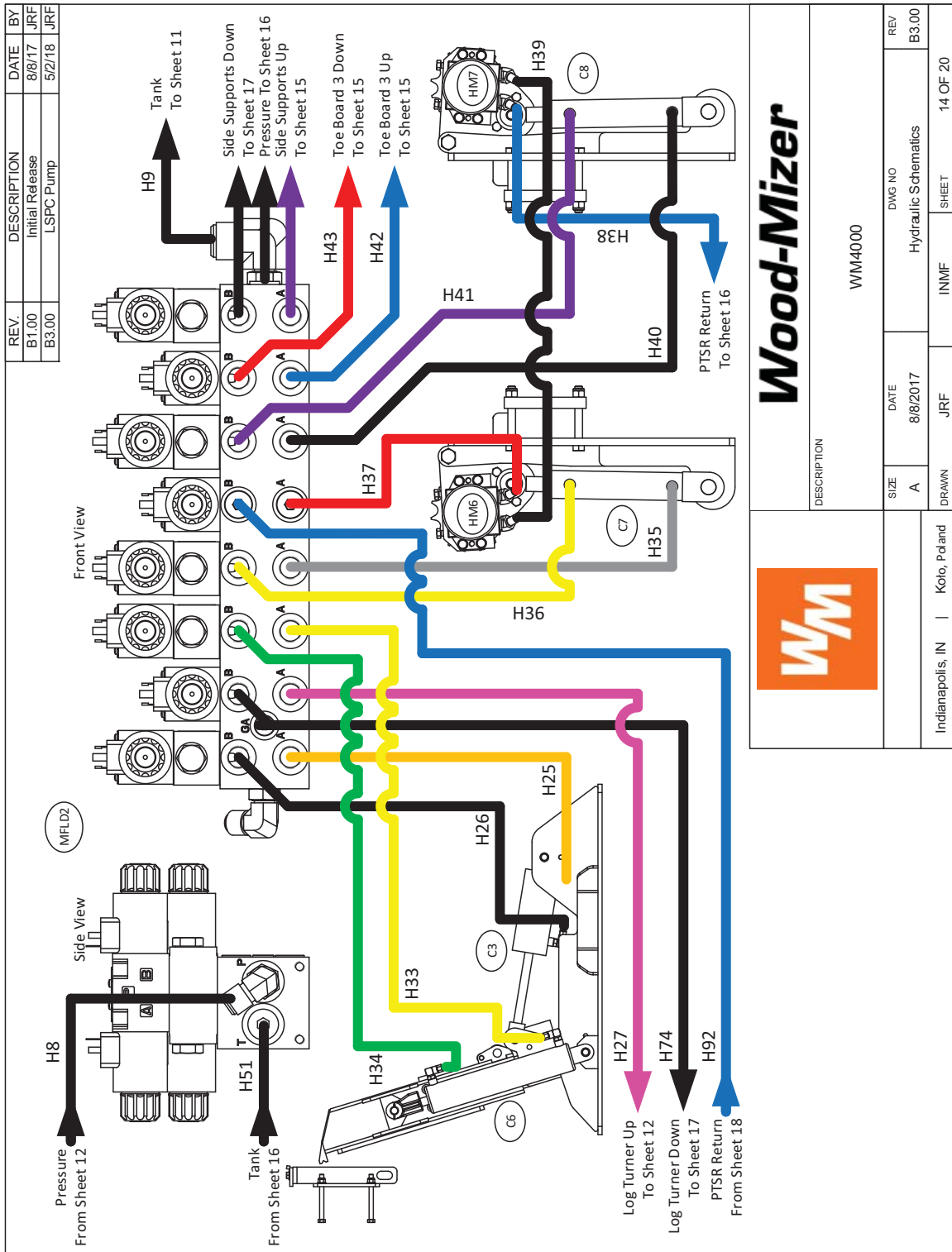


FIG. 8-25 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

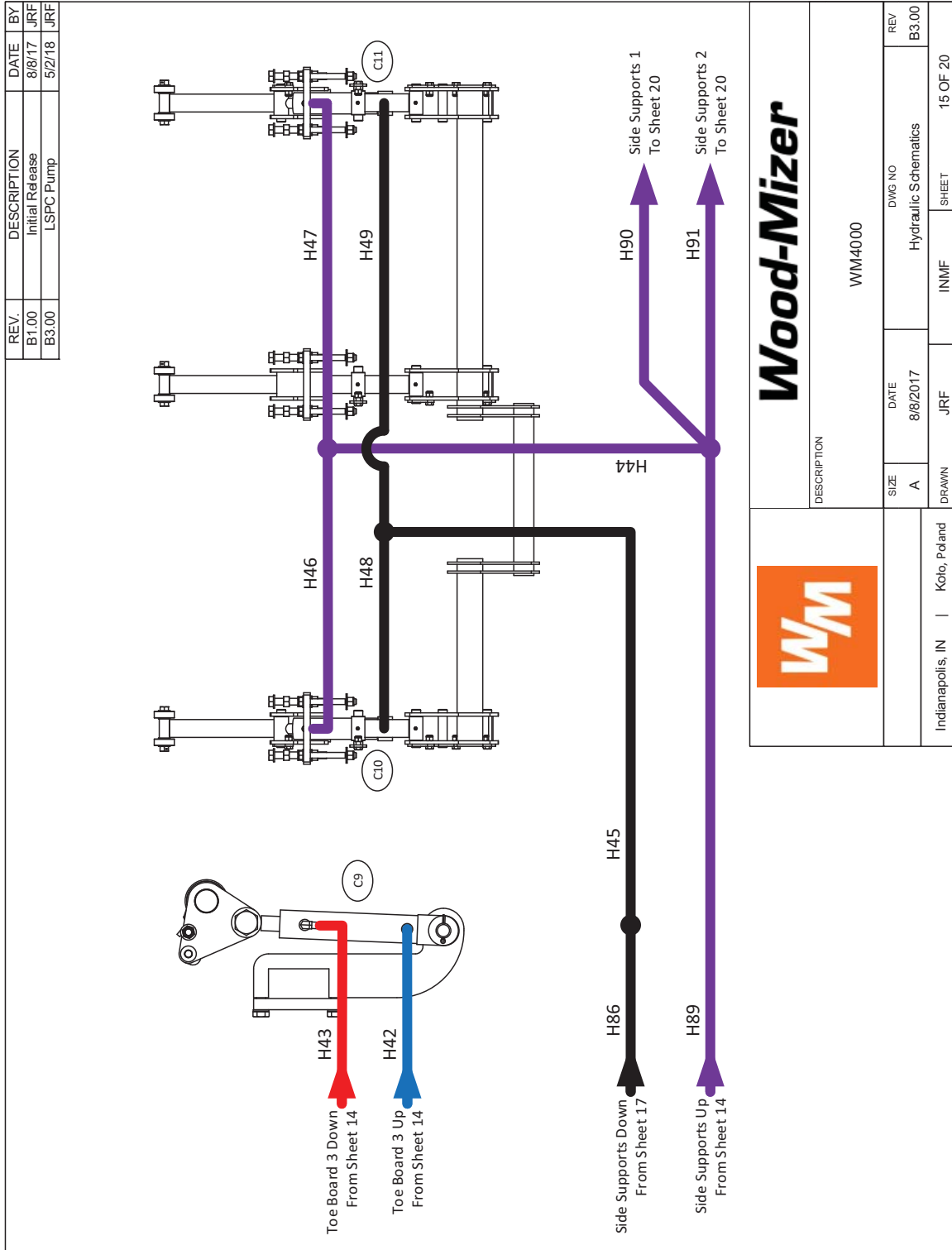


FIG. 8-26 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

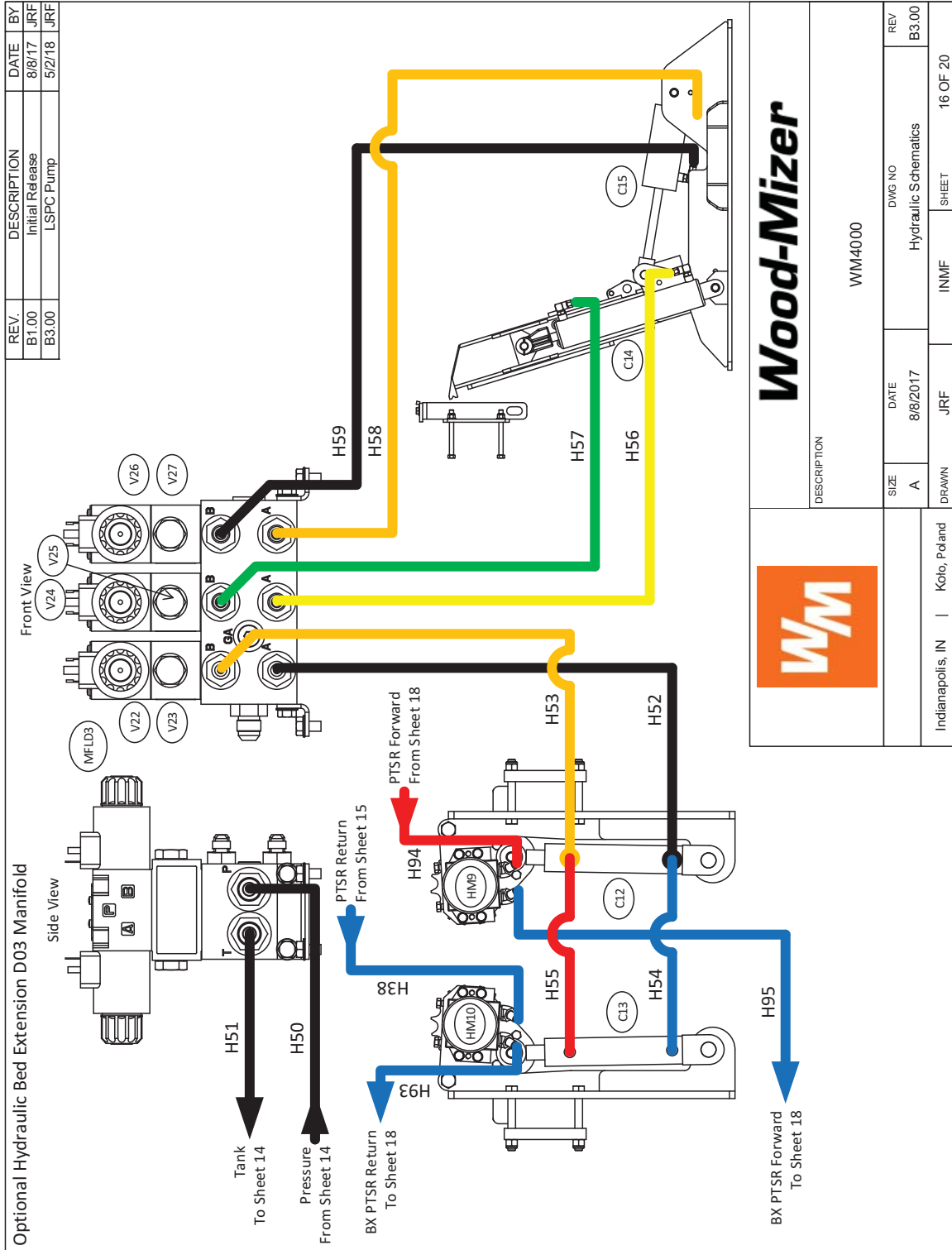


FIG. 8-27 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

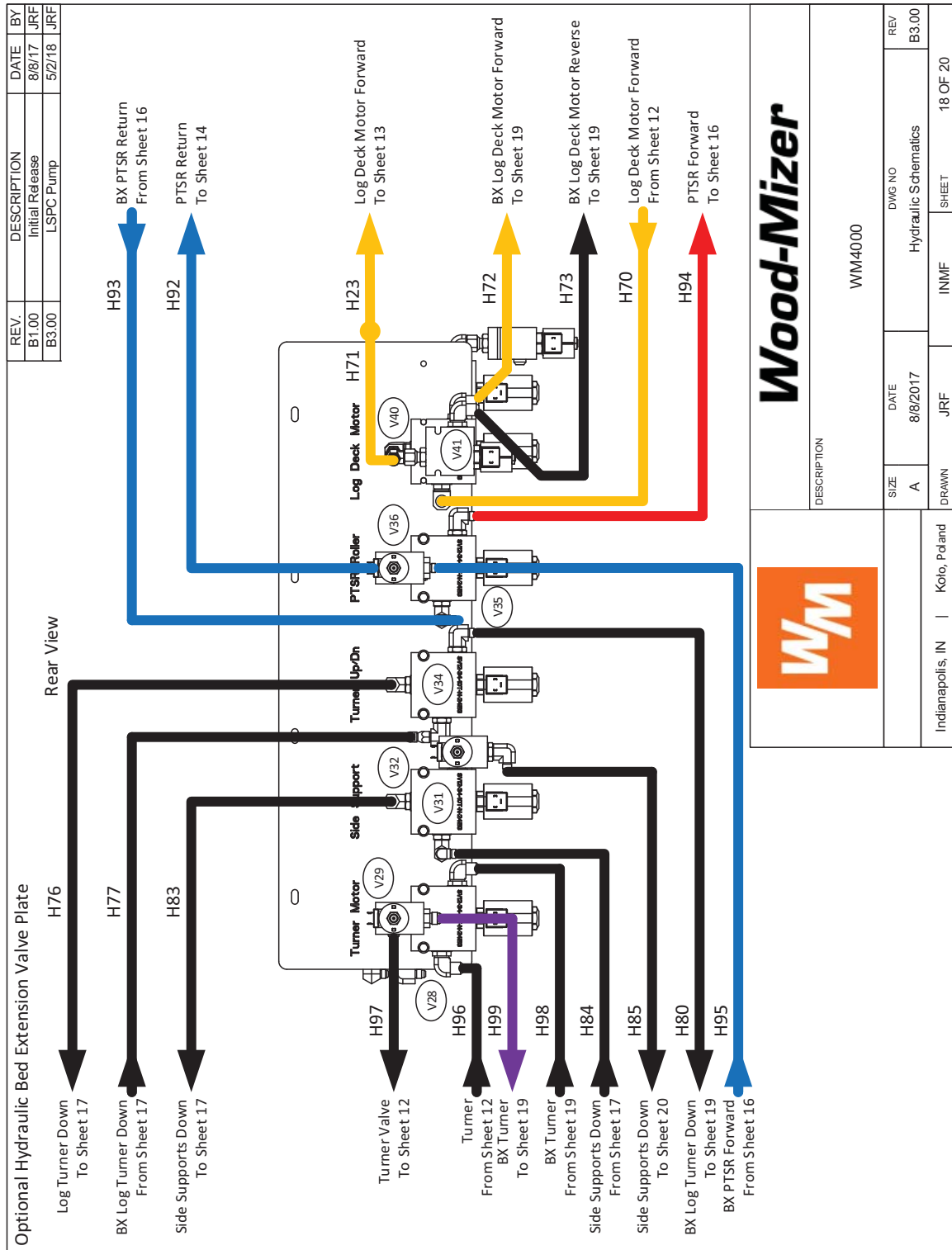


FIG. 8-29 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

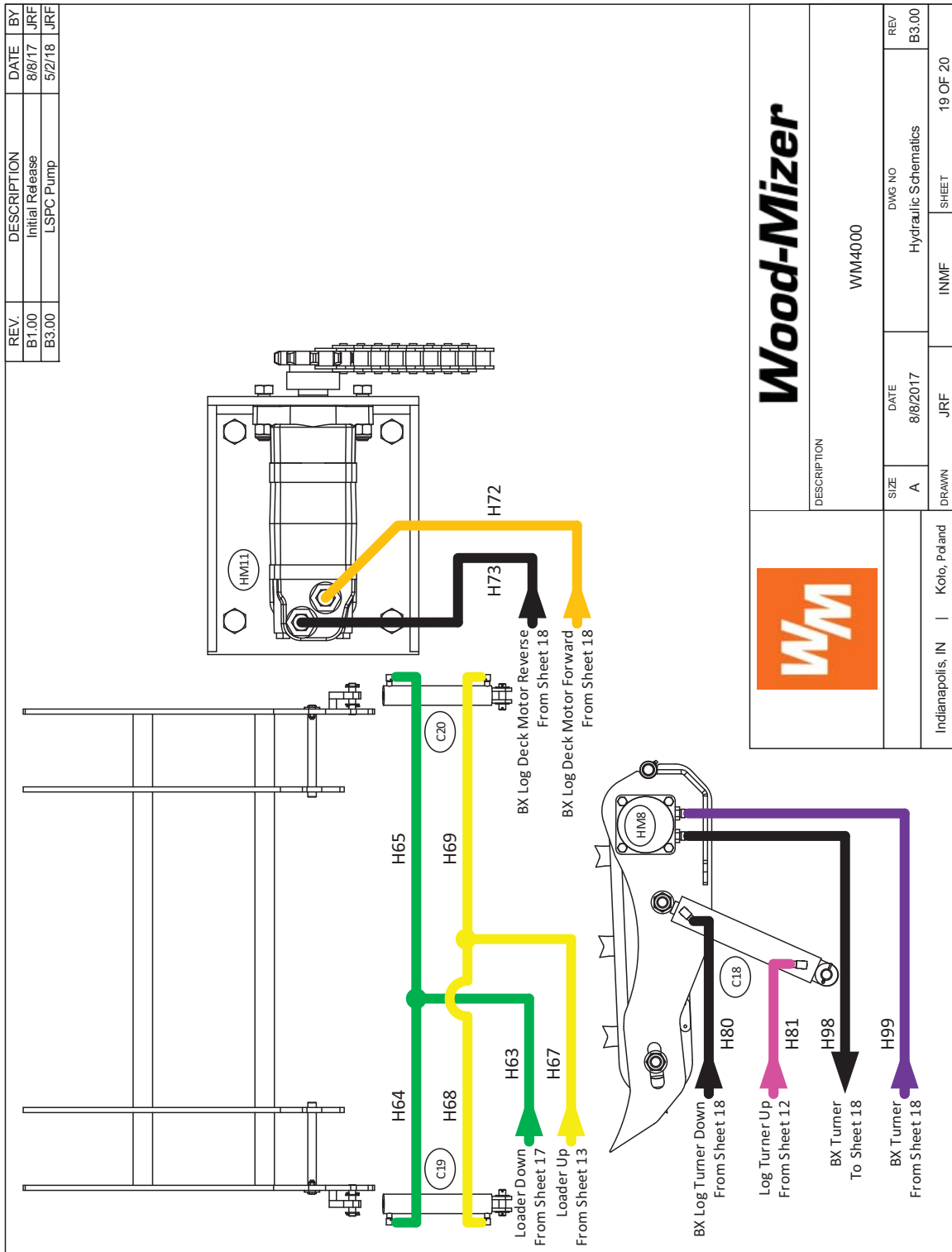


FIG. 8-30 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

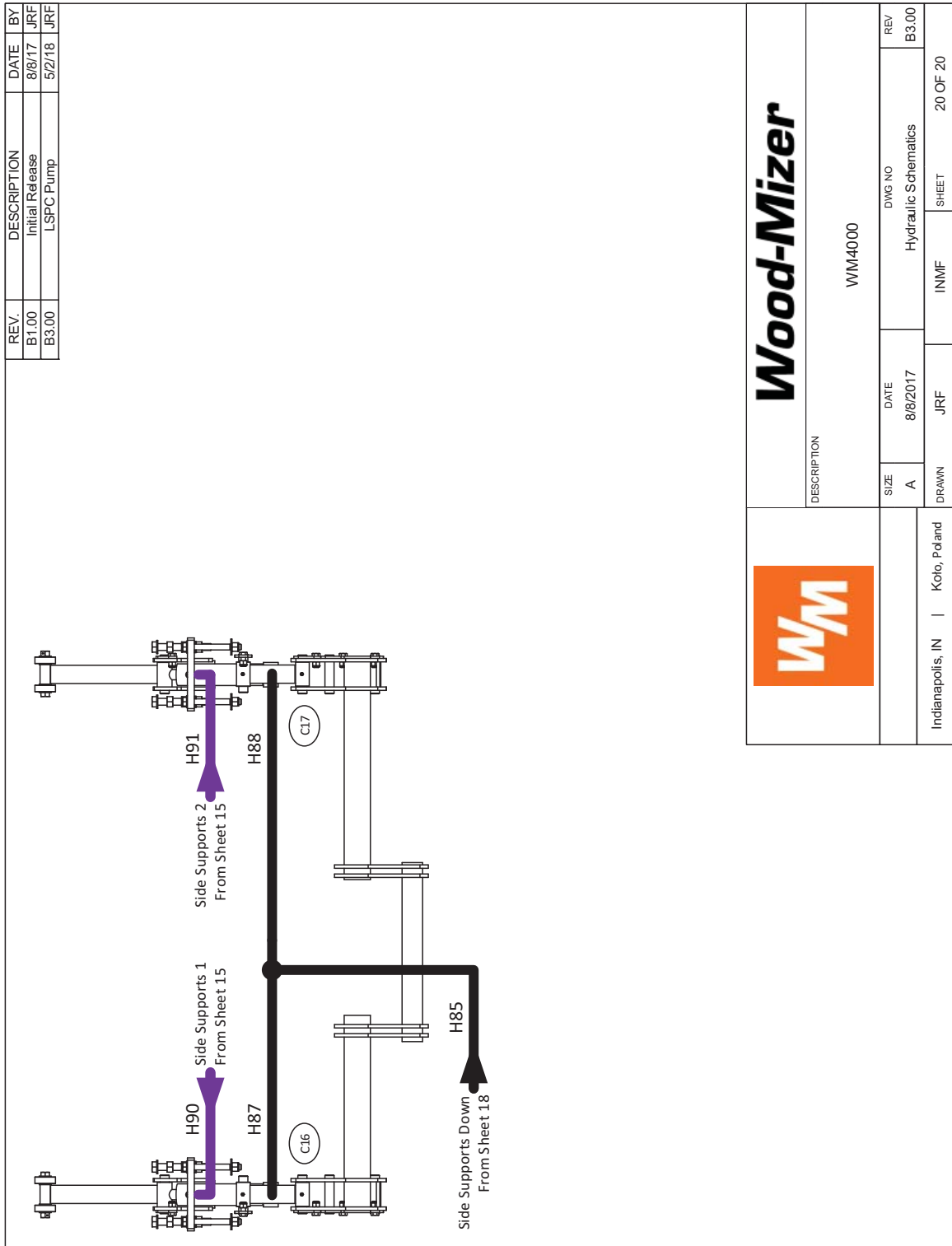


FIG. 8-31 HYDRAULIC DIAGRAM (WM4000 W/BX12 BED EXTENSION)

8 Hydraulic Information

Hydraulic Components (WM4000)

8.3 Hydraulic Components (WM4000)

7/20/2018

WM4000 -
Hydraulic Component List

Wood-Mizer P/N WM4000
Rev. A

| Component List | | | | | |
|----------------|-------------|---|---|--|--------|
| ID | Description | | | Wood-Mizer Part # | |
| PU | | | Power Unit, Hyd, 40Gal, 15HP, 3000PSI | 065938-1 | |
| | 1 | | Tank, Hydraulic Reservoir Custom | N/A | |
| | 2 | | Coupling, Pump | 068252 | |
| | | | Coupling, Motor | 068253 | |
| | | | Coupling, Insert | 068254 | |
| | 3 | | Adapter, C-Face Pump Mtr SAE B | 078397 | |
| | F1 | | Strainer, Suction w/Bypass | 078690 | |
| | F2 | | Filter, Hyd Cstr 35GPM 725psi w/nd SAE16 (Includes Element) | 078395 | |
| | | | Filter, Hyd. Element 10 Micron 25psi Byp | 078341 | |
| | G1 | | Gauge, Pressure VPG25N3KL | 068265 | |
| | M1 | | Motor, 15HP 230/460 3PH 60Hz | 078670 | |
| | MFLD1 | | D05, 4-Station Manifold | 061190 | |
| | | V4 | Y20 | Valve, D05 2Pos A-B Tank (Includes Coils) | 078686 |
| | | V5 | Y21-22 | Valve, D05 3Pos A-B Tank (Includes Coils) | 078685 |
| | | V6 | Y23-24 | Valve, Loader Directional Up/Dn (Includes Coils) | 078756 |
| | | | | Plate, Cover D05 Valve | 078399 |
| | | V7 | Y25-26 | Valve, Log Deck Directional Fwd/Rev (Includes Coils) | 078685 |
| | | | | Plate, Cover D05 Valve | 078399 |
| | MFLD2 | | Manifold Shell Only, WM4000 AD03P082S | 061185 | |
| | V8 | Y4-5 | Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | | Valve, D03 PO Check | 078738 | |
| | | | Valve, D03 3Pos Blocked (Includes Coils) | 078684 | |
| | | | Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | | Valve, D03 PO Check | 078738 | |
| | | | Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | | Valve, D03 PO Check | 078738 | |
| | | | Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | | Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | | Valve, D03 PO Check | 078738 | |
| | | | Valve, D03 3Pos Blocked (Includes Coils) | 078684 | |
| | | | Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | | Valve, D03 PO Check | 078738 | |
| | P1 | | Pump, Hyd. 17GPM Piston Load Sense | 078671 | |
| | V1 | | Valve, Snubber MFG250BF | 068264 | |
| | V2 | | Valve, Proportional PV72-30A | 068273 | |
| | | | Block, Valve Body HF 7022350 | 061290 | |
| | | PV1 | | Valve, Proportional 15GPM PV72-30A | 078185 |
| | | Y27 | | Valve, Proportional Coil PV72-30A | 068258 |
| | | PV1/Y27 | | Valve, Proportional Cartridge PB72-30A (Includes Coil) | 068257 |
| | V3 | | Valve, Relief 250-3300psi RV10-20A Cmplt | 078735 | |
| | | | Valve, Body 10-Size 2-Way SAE12 | 078672 | |
| | | RV1 | | Valve, Relief 250-3300psi RV10-20A Ctg | 078673 |
| | C1-2 | | Cylinder, 2-1/2 Bore x 12x22-1/4 | 050105 | |
| | | | Seal Kit, 2 1/2x8 Hydraulic Cylinder | P12955 | |
| | C3 | | Cylinder, Hyd 3x6 | P12955 | |
| C4-5 | | Cylinder, 2x10 Rod End Welded 16" | 034267 | | |
| | | Seal Kit, Hyd Cylinder 2x10 (034267) | 003814 | | |
| C6 | | Cylinder, Hyd 2x14 | 062701 | | |
| C7-9 | | Cylinder, 1 1/2x6 Rod End In Line Ports | 014482 | | |
| | | Seal Kit, 1 1/2x6 Hyd Cyl | 014547 | | |
| C10-11 | | Cylinder, 2x6, 1/4 NPT Port | 035625 | | |
| | | Seal Kit, Hyd Cylinder , 2x6 (035625) | 003812 | | |

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Page 1 of 4

FIG. 8-32 WM4000 W/O BED EXTENSION

7/20/2018

WM4000 -
 Hydraulic Component List

Wood-Mizer P/N WM4000
 Rev. A

| Component List | | | | | |
|----------------|-----|--|--|---------------------------------------|-------------------|
| ID | | | | Description | Wood-Mizer Part # |
| C21-22 | | | | Cylinder, 2x6, 1/4 NPT Port | 035625 |
| | | | | Seal Kit, Hyd Cylinder , 2x6 (035625) | 003812 |
| HM1-2 | | | | Motor, Hydraulic TBO165FP100AAAA | P20206 |
| HM3-4 | | | | Motor, Hydraulic TG0475US080AAFU | 007331 |
| HM5 | | | | Motor, Hyd Log Deck | 056062 |
| HM6-7 | | | | Motor, Hydraulic, TB0130FP130AAAA | 074281 |
| | | | | Kit, Hydraulic Motor Seal | 061136 |
| V11 | | | | Flow Divider, Hydraulic | 025742 |
| V42 | | | | Valve, 3-Way Selector | 074286 |
| | | | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y29 | | | Coil, Series 12 DIN 24VDC EG | 078447 |
| V43 | | | | Valve, 3-Way Selector | 074286 |
| | | | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y30 | | | Coil, Series 12 DIN 24VDC EG | 078447 |

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Page 2 of 4

FIG. 8-33 WM4000 W/O BED EXTENSION

8 Hydraulic Information

Hydraulic Components (WM4000 w/BX12)

8.4 Hydraulic Components (WM4000 w/BX12)

7/20/2018

WM4000 w/BX12 -
Hydraulic Component List

Wood-Mizer P/N WM4000
Rev. A

| Component List | | | | | |
|----------------|---------------------|--|---|---|--------|
| ID | | Description | Wood-Mizer Part # | | |
| PU | | Power Unit, Hyd, 40Gal, 15HP, 3000PSI | 065938-1 | | |
| | 1 | Tank, Hydraulic Reservoir Custom | N/A | | |
| | 2 | | Coupling, Pump | 068252 | |
| | | | Coupling, Motor | 068253 | |
| | | | Coupling, Insert | 068254 | |
| | 3 | Adapter, C-Face Pump Mtr SAE B | 078397 | | |
| | F1 | Strainer, Suction w/Bypass | 078690 | | |
| | F2 | | Filter, Hyd Cstr 35GPM 725psi w/nd SAE16 (Includes Element) | 078395 | |
| | | | Filter, Hyd. Element 10 Micron 25psi Byp | 078341 | |
| | G1 | Gauge, Pressure VPG25N3KL | 068265 | | |
| | M1 | Motor, 15HP 230/460 3PH 60Hz | 078670 | | |
| | MFLD1 | | D05, 4-Station Manifold | 061190 | |
| | | V4 | Y20 Valve, D05 2Pos A-B Tank (Includes Coils) | 078686 | |
| | | V5 | Y21-22 Valve, D05 3Pos A-B Tank (Includes Coils) | 078685 | |
| | | V6 | Y23-24 | Valve, D05 3Pos Blocked (Includes Coils) | 078756 |
| | | | | Plate, Cover D05 Valve | 078399 |
| | | V7 | Y25-26 | Valve, D05 3Pos A-B Tank (Includes Coils) | 078685 |
| | | | | Plate, Cover D05 Valve | 078399 |
| | MFLD2 | | Manifold Shell Only, WM4000 AD03P082S | 061185 | |
| | | V8 | Y4-5 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | V9 | Valve, D03 PO Check | 078738 | |
| | | V10 | Y6-7 Valve, D03 3Pos Blocked (Includes Coils) | 078684 | |
| | | V12 | Y8-9 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | V13 | Valve, D03 PO Check | 078738 | |
| | | V14 | Y10-11 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | V15 | Valve, D03 PO Check | 078738 | |
| | | V16 | Y12-13 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | V17 | Y14-15 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | |
| | | V18 | Valve, D03 PO Check | 078738 | |
| V19 | | Y16-17 Valve, D03 3Pos Blocked (Includes Coils) | 078684 | | |
| V20 | | Y18-19 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 | | |
| V21 | Valve, D03 PO Check | 078738 | | | |

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Page 1 of 3

FIG. 8-34 WM4000 W/BX12 BED EXTENSION

7/20/2018

WM4000 w/BX12 -
Hydraulic Component List

Wood-Mizer P/N WM4000
Rev. A

| Component List | | | | |
|----------------|-------|---------|--|-------------------|
| | ID | | Description | Wood-Mizer Part # |
| | MFLD3 | | Manifold, AD03P032S 3-Section | 074293 |
| | | V22 | Y150-151 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 |
| | | V23 | Valve, D03 PO Check | 078738 |
| | | V24 | Y152-153 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 |
| | | V25 | Valve, D03 PO Check | 078738 |
| | | V26 | Y154-155 Valve, D03 3Pos A-B Tank (Includes Coils) | 078683 |
| | | V27 | Valve, D03 PO Check | 078738 |
| | | P1 | Pump, Hyd. 17GPM Piston Load Sense | 078671 |
| | | V1 | Valve, Snubber MFG250BF | 068264 |
| | | V2 | Valve, Proportional PV72-30A | 068273 |
| | | | Block, Valve Body HF 7022350 | 061290 |
| | | PV1 | Valve, Proportional 15GPM PV72-30A | 078185 |
| | | Y27 | Valve, Proportional Coil PV72-30A | 068258 |
| | | PV1/Y27 | Valve, Proportional Cartridge PB72-30A (Includes Coil) | 068257 |
| | | V3 | Valve, Relief 250-3300psi RV10-20A Cmplt | 078735 |
| | | | Valve, Body 10-Size 2-Way SAE12 | 078672 |
| | | RV1 | Valve, Relief 250-3300psi RV10-20A Ctg | 078673 |
| C1-2 | | | Cylinder, 2-1/2 Bore x 12x22-1/4 | 050105 |
| | | | Seal Kit, 2 1/2x8 Hydraulic Cylinder | P12955 |
| C3 | | | Cylinder, Hyd 3x6 | P12955 |
| C4-5 | | | Cylinder, 2x10 Rod End Welded 16" | 034267 |
| | | | Seal Kit, Hyd Cylinder 2x10 (034267) | 003814 |
| C6 | | | Cylinder, Hyd 2x14 | 062701 |
| C7-9 | | | Cylinder, 1 1/2x6 Rod End In Line Ports | 014482 |
| | | | Seal Kit, 1 1/2x6 Hyd Cyl | 014547 |
| C10-11 | | | Cylinder, 2x6, 1/4 NPT Port | 035625 |
| | | | Seal Kit, Hyd Cylinder , 2x6 (035625) | 003812 |
| C12-13 | | | Cylinder, 1 1/2x6 Rod End In Line Ports | 014482 |
| | | | Seal Kit, 1 1/2x6 Hyd Cyl | 014547 |
| C14 | | | Cylinder, Hyd 2x14 | 062701 |
| C15 | | | Cylinder, Hyd 3x6 | P12955 |
| C16-17 | | | Cylinder, 2x6, 1/4 NPT Port | 035625 |
| | | | Seal Kit, Hyd Cylinder , 2x6 (035625) | 003812 |
| C18 | | | Cylinder, 2x10 Rod End Welded 16" | 034267 |
| | | | Seal Kit, Hyd Cylinder 2x10 (034267) | 003814 |
| C19-20 | | | Cylinder, 2-1/2 Bore x 12x22-1/4 | 050105 |
| | | | Seal Kit, 2 1/2x8 Hydraulic Cylinder | P12955 |
| HM1-2 | | | Motor, Hydraulic TBO165FP100AAAA | P20206 |
| HM3-4 | | | Motor, Hydraulic TG0475US080AAFU | 007331 |
| HM5 | | | Motor, Hyd Log Deck | 056062 |
| HM6-7 | | | Motor, Hydraulic, TB0130FP130AAAA | 074281 |
| | | | Kit, Hydraulic Motor Seal | 061136 |
| HM8 | | | Motor, Hydraulic TG0475US080AAFU | 007331 |
| HM9-10 | | | Motor, Hydraulic, TB0130FP130AAAA | 074281 |
| | | | Kit, Hydraulic Motor Seal | 061136 |
| HM11 | | | Motor, Hyd Log Deck | 056062 |
| V11 | | | Valve, 50/50 Flow Divider/Combiner | 074289 |
| V28 | | | Valve, 3-Way Selector | 074286 |
| | | | Valve, Spool 3-Way Cartridge | 078448 |
| | | Y101 | Coil, Series 12 DIN 24VDC EG | 078447 |

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Page 2 of 3

FIG. 8-35 WM4000 W/BX12 BED EXTENSION

8 Hydraulic Information

Hydraulic Components (WM4000 w/BX12)

7/20/2018

WM4000 w/BX12 -
Hydraulic Component List

Wood-Mizer P/N WM4000
Rev. A

| Component List | | | |
|----------------|------|---|-------------------|
| ID | | Description | Wood-Mizer Part # |
| V29 | | Valve, 2-Way Normally Closed Blockin | 074287 |
| | Y102 | Coil, Hyd Valve 24VDC | 025835 |
| V30 | | Valve, 50/50 Flow Divider/Combiner | 074289 |
| V31 | | Valve, 3-Way Selector | 074286 |
| | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y103 | Coil, Series 12 DIN 24VDC EG | 078447 |
| V32 | | Valve, 2-Way Normally Closed Blockin | 074287 |
| | Y104 | Coil, Hyd Valve 24VDC | 025835 |
| V33 | | Valve, 66/33 Flow Divider/Combiner | 074290 |
| V34 | | Valve, 3-Way Selector | 074286 |
| | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y105 | Coil, Series 12 DIN 24VDC EG | 078447 |
| V35 | | Valve, 3-Way Selector | 074286 |
| | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y106 | | |
| V36 | | Valve, 2-Way Normally Closed Blockin | 074287 |
| | Y107 | Coil, Hyd Valve 24VDC | 025835 |
| V37 | | Flow Divider, 2 Section Bailey 50/50 | 074325 |
| V38 | | Valve, 3-Way Selector | 074286 |
| | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y108 | Coil, Series 12 DIN 24VDC EG | 078447 |
| V39 | | Valve, 2-Way Normally Closed Blockin | 074287 |
| | Y109 | Coil, Hyd Valve 24VDC | 025835 |
| V40 | | Valve, 3-Way Selector | 074286 |
| | | Valve, Spool 3-Way Cartridge | 078448 |
| | Y110 | Coil, Series 12 DIN 24VDC EG | 078447 |
| V41 | | Valve, 2-Way Normally Closed Blockin | 074287 |
| | Y111 | Coil, Hyd Valve 24VDC | 025835 |
| | | Fluid, Univis HVI 26 Hydraulic 1 Gallon(Sytem Holds 20 Gal. of Oil) | 074744 |
| | | Fluid, Univis HVI 26 Hydraulic 5 Gallon(Sytem Holds 20 Gal. of Oil) | 061164 |

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Page 3 of 3

FIG. 8-36 WM4000 W/BX12 BED EXTENSION

8.5 Hydraulic Hoses (WM4000)

7/20/2018

WM4000-
Hose List

Wood-Mizer P/N WM4000
Rev. A

| Hose List | | | | |
|-----------|------------|--------|---|------------------|
| ID | Color | Length | Description | Wood-Mizer PN |
| H1 | Steel Line | | Tube, 1-1/4" Suction to Pump | 078736 |
| H2 | Steel Line | | Tube, 1/4" Hyd. Load Sense | 078761 |
| H3 | Steel Line | | Tube, 3/4" Hyd. Prop to Relief | 078760 |
| H4 | N/A | N/A | Hose, 1/2" Case Drain | 078767 |
| H5 | Steel Line | | Tube, 1-1/4" Filter to Tank | 078764 |
| H6 | Steel Line | | Tube, 3/4" Hyd. Prop to Mfld1 | 078762 |
| H7 | Steel Line | | Tube, 1" Hyd. Mfld1 to Filter | 078765 |
| H8 | Steel Line | | Tube, 3/4" Hyd. Mfld1 to Mfld2 Pressure | 078763 |
| H9 | Steel Line | | Tube, 1" Hyd. Mfld2 to Filter | 078766 |
| H10 | Blue | 471" | 1/2" Conveyor Motor Return | 079004-471 |
| H11 | Red | 471" | 1/2" Conveyor Motor Drive | 079004-471 |
| H12 | Red | 156" | 1/2" Bed Conveyor Motor to Incline Conveyor Motor | 079004-156 |
| H13 | Blue | 156" | 1/2" Incline Conveyor Motor Return | 079004-156 |
| H14 | Black | 282" | 1/2" Turner (near) Motor | 079004-282 |
| H15 | Plain | 108" | 1/2" Turner Motor (near) to Turner Motor (far) | 079004-108 |
| H16 | Purple | 314" | 1/2" Turner (far) Motor | 079004-314 |
| H17 | Green | 310" | 1/2" Loader T Top | 079004-310 |
| H18 | Yellow | 310" | 1/2" Loader T Base | 079004-310 |
| H19 | Green | 72" | 3/8" Loader T Top to Cylinder Top | 079001-72 |
| H20 | Green | 72" | 3/8" Loader T Top to Cylinder Top | 079001-72 |
| H21 | Yellow | 72" | 3/8" Loader T Base to Cylinder Base | 079001-72 |
| H22 | Yellow | 72" | 3/8" Loader T Base to Cylinder Base | 079001-72 |
| H23 | Orange | 310" | 1/2" Log Deck Motor B | 079004-310 |
| H24 | White | 310" | 1/2" Log Deck Motor A | 079004-310 |
| H25 | Orange | 284" | 3/8" Clamp In/Out Base | 079001-284 |
| H26 | White | 294" | 3/8" Clamp In/Out Top | 079001-294 |
| H27 | Pink | 230" | 3/8" Turner T Base | 079001-230 |
| H28 | Plain | 85" | 3/8" Turner Flow Divider | 079001-85 |
| H29 | Pink | 19" | 3/8" Turner T Base to Cylinder 1 Base | 079001-19 |
| H30 | Pink | 58" | 3/8" Turner T Base to Cylinder 2 Base | 079001-58 |
| H31 | Plain | 150" | 3/8" Turner Flow Divinder to Cylinder 1 Top | 079001-150 |
| H32 | Plain | 192" | 3/8" Turner Flow Divinder to Cylinder 2 Top | 079001-192 |
| H33 | Yellow | 300" | 3/8" Clamp Up/Down Base | 079001-300 |
| H34 | Green | 300" | 3/8" Clamp Up/Down Top | 079001-300 |
| H35 | Grey | 219" | 1/4" Toe Board 1 Base | 079000-219 |
| H36 | Yellow | 222" | 1/4" Toe Board 1 Top | 079000-222 |
| H37 | Red | 223" | 3/8" Turner 1 Motor A | 079001-223 |
| H38 | Blue | 295" | 3/8" Turner 2 Motor B | 079001-295 |
| H39 | Plain | 114" | 3/8" Turner 1 Motor B to Turner 2 Motor A | 079001-114 |
| H40 | Black | 296" | 1/4" Toe Board 2 Base | 079000-296 |
| H41 | Purple | 299" | 1/4" Toe Board 2 Top | 079000-299 |
| H42 | Blue | 333" | 1/4" Toe Board 3 Base | 079000-333 |
| H43 | Red | 336" | 1/4" Toe Board 3 Top | 079000-336 |

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FIG. 8-37 WM4000 W/O BED EXTENSION

8 Hydraulic Information

Hydraulic Hoses (WM4000)

7/20/2018

WM4000-
Hose List

Wood-Mizer P/N WM4000
Rev. A

| Hose List | | | | |
|-----------|--------|--------|---|------------------|
| ID | Color | Length | Description | Wood-Mizer PN |
| H44 | Black | 224" | 3/8" Side Support T Base | 079001-224 |
| H45 | Purple | 224" | 3/8" Side Support T Top | 079001-224 |
| H46 | Black | 42" | 3/8" Side Support T to Cylinder 1 Base | 079001-42 |
| H47 | Black | 95" | 3/8" Side Support T to Cylinder 2 Base | 079001-95 |
| H48 | Purple | 40" | 3/8" Side Support T to Cylinder 1 Top | 079001-40 |
| H49 | Purple | 93" | 3/8" Side Support T to Cylinder 2 Top | 079001-93 |
| H100 | Black | 48" | 3/8" Pop Up Stop SV A Port 2 | 079001-48 |
| H101 | Purple | 48" | 3/8" Pop Up Stop SV B Port 2 | 079001-48 |
| H102 | Black | 224" | 3/8" Pop Up Stop SV A Port 3 to T | 079001-224 |
| H103 | Purple | 224" | 3/8" Pop Up Stop SV B Port 3 to T | 079001-224 |
| H104 | Black | 48" | 3/8" Pop Up Stop T to Cylinder 1 Top | 079001-48 |
| H105 | Black | 48" | 3/8" Pop Up Stop T to Cylinder 2 Top | 079001-48 |
| H106 | Purple | 48" | 3/8" Pop Up Stop T to Cylinder 1 Bottom | 079001-48 |
| H107 | Purple | 48" | 3/8" Pop Up Stop T to Cylinder 2 Bottom | 079001-48 |

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FIG. 8-38 WM4000 W/O BED EXTENSION

8.6 Hydraulic Hoses (WM4000 w/BX12 Bed Extension)

10/3/2017

WM4000 w/BX12 -
Hose List

Wood-Mizer P/N WM4000
Rev. A

| Hose List | | | | | | |
|-----------|------------|----------|--------------|---|------------------|----------------------|
| ID | Color | Length | | Description | Wood-Mizer Part# | |
| | | Std. Bed | 12' Bed Ext. | | Standard Bed | 12ft. Bed Extensions |
| H1 | Steel Line | | | Tube, 1" Suction to Pump | 078411 | |
| H2 | Steel Line | | | Tube, 3/4" Hyd. Press. Pump to Prop | 078403 | |
| H3 | Steel Line | | | Tube, 3/4" Hyd. Press. Prop to Relief | 078406 | |
| H4 | Steel Line | | | Tube, 1" Hyd. Tank Prop to Filter | 078407 | |
| H5 | Steel Line | | | Tube, 1-1/4" Tank Filter to Tank | 078410 | |
| H6 | Steel Line | | | Tube, 3/4" Hyd. Press. Prop to Mnfl1 | 078404 | |
| H7 | Steel Line | | | Tube, 1" Hyd. Tank Mnfl1 to Filter | 078408 | |
| H8 | Steel Line | | | Tube, 3/4" Hyd. Press. Mnfl1 to Mnfl2 | 078405 | |
| H9 | Steel Line | | | Tube, 1" Hyd. Tank Mnfl2 to Mnfl 1 | 078409 | |
| H10 | Blue | 471" | 144" | 1/2" Conveyor Motor Return | 079004-471 | 079004-144 |
| H11 | Red | 471" | 144" | 1/2" Conveyor Motor Drive | 079004-471 | 079004-144 |
| H12 | Red | 156" | | 1/2" Bed Conveyor Motor to Incline Conveyor Motor | 079004-156 | |
| H13 | Blue | 156" | | 1/2" Incline Conveyor Motor Return | 079004-156 | |
| H14 | Purple | 282" | 144" | 1/2" Turner (near) Motor | 079004-282 | 079004-144 |
| H15 | Plain | 108" | | 1/2" Turner Motor (near) to Turner Motor (far) | 079004-108 | |
| H16 | Black | 314" | | 1/2" Turner (far) Motor | 079004-314 | |
| H17 | Green | 310" | | 1/2" Loader T Top | 079004-310 | |
| H18 | Yellow | 310" | | 1/2" Loader T Base | 079004-310 | |
| H19 | Green | 72" | | 3/8" Loader T Top to Cylinder Top | 079001-72 | |
| H20 | Green | 72" | | 3/8" Loader T Top to Cylinder Top | 079001-72 | |
| H21 | Yellow | 72" | | 3/8" Loader T Base to Cylinder Base | 079001-72 | |
| H22 | Yellow | 72" | | 3/8" Loader T Base to Cylinder Base | 079001-72 | |
| H23 | Orange | 310" | | 1/2" Log Deck Motor B | 079004-310 | |
| H24 | White | 310" | 144" | 1/2" Log Deck Motor A | 079004-310 | 079004-144 |
| H25 | Orange | 284" | 144" | 3/8" Clamp In/Out Base | 079001-284 | 079001-144 |
| H26 | White | 294" | 144" | 3/8" Clamp In/Out Top | 079001-294 | 079001-144 |
| H27 | Pink | 230" | 144" | 3/8" Turner T Base | 079001-230 | 079001-144 |
| H28 | Plain | 85" | 144" | 3/8" Turner Flow Divider | 079001-85 | 079001-144 |
| H29 | Pink | 19" | | 3/8" Turner T Base to Cylinder 1 Base | 079001-19 | |
| H30 | Pink | 58" | | 3/8" Turner T Base to Cylinder 2 Base | 079001-58 | |
| H31 | Plain | 150" | | 3/8" Turner Flow Divinder to Cylinder 1 Top | 079001-150 | |
| H32 | Plain | 192" | | 3/8" Turner Flow Divinder to Cylinder 2 Top | 079001-192 | |
| H33 | Yellow | 300" | 144" | 3/8" Clamp Up/Down Base | 079001-300 | 079001-144 |
| H34 | Green | 300" | 144" | 3/8" Clamp Up/Down Top | 079001-300 | 079001-144 |
| H35 | Grey | 219" | 144" | 1/4" Toe Board 1 Base | 079000-219 | 079000-144 |
| H36 | Yellow | 222" | 144" | 1/4" Toe Board 1 Top | 079000-222 | 079000-144 |
| H37 | Red | 223" | 144" | 3/8" PTSR 1 Motor A | 079001-223 | 079001-144 |
| H38 | Blue | 295" | | 3/8" PTSR 2 Motor B | 079001-295 | |
| H39 | Plain | 114" | | 3/8" PTSR 1 Motor B to PTSR 2 Motor A | 079001-114 | |
| H40 | Black | 296" | 144" | 1/4" Toe Board 2 Base | 079000-296 | 079000-144 |
| H41 | Purple | 299" | 144" | 1/4" Toe Board 2 Top | 079000-299 | 079000-144 |
| H42 | Blue | 333" | 144" | 1/4" Toe Board 3 Base | 079000-333 | 079000-144 |
| H43 | Red | 336" | 144" | 1/4" Toe Board 3 Top | 079000-336 | 079000-144 |
| H44 | Black | 224" | | 3/8" Side Support T Base | 079001-224 | |
| H45 | Purple | 224" | | 3/8" Side Support T Top | 079001-224 | |
| H46 | Black | 42" | | 3/8" Side Support T to Cylinder 1 Base | 079001-42 | |
| H47 | Black | 95" | | 3/8" Side Support T to Cylinder 2 Base | 079001-95 | |
| H48 | Purple | 40" | | 3/8" Side Support T to Cylinder 1 Top | 079001-40 | |
| H49 | Purple | 93" | | 3/8" Side Support T to Cylinder 2 Top | 079001-93 | |

FIG. 8-39 WM4000 W/BX12 BED EXTENSION

10/3/2017

WM4000 w/BX12 -
Hose ListWood-Mizer P/N WM4000
Rev. A

| Hose List | | | | | | |
|-----------|--------|----------|--------------|--|------------------|----------------------|
| ID | Color | Length | | Description | Wood-Mizer Part# | |
| | | Std. Bed | 12' Bed Ext. | | Standard Bed | 12ft. Bed Extensions |
| H50 | Plain | | 5" | 1/2" BX D03 Manifold P | | 079004-5 |
| H51 | Plain | | 24" | 1/2" BX D03 Manifold T | | 079004-24 |
| H52 | White | | 211" | 1/4" BX Toe Board Front Base | | 079000-211 |
| H53 | Orange | | 241" | 1/4" BX Toe Board Front Top | | 079000-241 |
| H54 | Blue | | 129" | 1/4" BX Toe Board T to Rear Base | | 079000-129 |
| H55 | Red | | 129" | 1/4" BX Toe Board T to Rear Top | | 079000-129 |
| H56 | Yellow | | 229" | 3/8" BX Clamp Up/Down Base | | 079001-229 |
| H57 | Green | | 229" | 3/8" BX Clamp Up/Down Top | | 079001-229 |
| H58 | Orange | | 213" | 3/8" BX Clamp In/Out Base | | 079001-213 |
| H59 | White | | 223" | 3/8" BX Clamp In/Out Top | | 079001-223 |
| H60 | Green | | 144" | 1/2" Valve B to Loader Flow Divider | | 079004-144 |
| H61 | Green | | 120" | 1/2" Loader Flow Divider Port 1 to Diverter Port 2 | | 079004-120 |
| H62 | Green | | 120" | 1/2" Loader Flow Divider Port 2 to Diverter Port 1 | | 079004-120 |
| H63 | Green | | 240" | 1/2" BX Loader T Top | | 079004-240 |
| H64 | Green | | 72" | 3/8" BX Loader T Top to Cylinder Top | | 079001-72 |
| H65 | Green | | 72" | 3/8" BX Loader T Top to Cylinder Top | | 079001-72 |
| H66 | Yellow | | 144" | 1/2" Valve A to Loaders T Base | | 079004-144 |
| H67 | Yellow | | 120" | 1/2" Loaders T Base to BX Loader T Base | | 079004-120 |
| H68 | Yellow | | 72" | 3/8" BX Loader T Base to Cylinder Base | | 079001-72 |
| H69 | Yellow | | 72" | 3/8" BX Loader T Base to Cylinder Base | | 079001-72 |
| H70 | Orange | | 144" | 1/2" Valve A to LD Motors SV Port 2 | | 079004-144 |
| H71 | Orange | | 144" | 1/2" LD Motors SV Port 1 to LD Motor Port B Union | | 079004-144 |
| H72 | Orange | | 192" | 1/2" LD Motors SV Port 3 to BX LD Motor Port B | | 079004-192 |
| H73 | White | | 192" | 1/2" LD Motors BV Port 2 to BX LD Motor Port A | | 079004-192 |
| H74 | Plain | | 144" | 3/8" Turner Valve B to BX Turner FD Port 3 | | 079001-144 |
| H75 | Plain | | 24" | 3/8" BX Turner FD Port 4 to Turner FD Port 3 T | | 079001-24 |
| H76 | Plain | | 42" | 3/8" Turner FD Port 3 T to BX Turner SV Port 1 | | 079001-42 |
| H77 | Plain | | 42" | 3/8" BX Turner FD Port 2 to BX Turner SV Port 2 | | 079001-42 |
| H78 | Plain | | 168" | 3/8" Turner FD Port 4 to Cylinder 1 Top Union | | 079001-168 |
| H79 | Plain | | 168" | 3/8" Turner FD Port 2 to Cylinder 2 Top Union | | 079001-168 |
| H80 | Plain | | 120" | 3/8" BX Turner SV Port 3 to BX Turner Top | | 079001-120 |
| H81 | Pink | | 60" | 3/8" Turner Base T to BX Turner Base | | 079001-60 |
| H82 | Black | | 120" | 3/8" Valve B to Side Support FD Port 3 | | 079001-120 |
| H83 | Black | | 42" | 3/8" BX Side Support SV Port 1 to FD Port 4 T | | 079001-42 |
| H84 | Black | | 36" | 3/8" BX Side Support SV Port 2 to FD Port 2 | | 079001-36 |
| H85 | Black | | 108" | 3/8" BX Side Support BV Port 2 to BX Base T | | 079001-108 |
| H86 | Black | | 48" | 3/8" BX Side Support FD Port 4 to Side Support Union | | 079001-48 |
| H87 | Black | | 42" | 3/8" BX T to BX Cylinder 1 Base | | 079001-42 |
| H88 | Black | | 80" | 3/8" BX T to BX Cylinder 2 Base | | 079001-80 |
| H89 | Purple | | 144" | 3/8" Valve A to BX Side Support T | | 079001-144 |
| H90 | Purple | | 84" | 3/8" BX Side Support T to BX Cylinder 1 Top | | 079001-84 |
| H91 | Purple | | 122" | 3/8" BX Side Support T to BX Cylinder 2 Top | | 079001-122 |
| H92 | Blue | | 144" | 3/8" Valve B to BX PTRS SV Port 1 | | 079001-144 |
| H93 | Blue | | 259" | 3/8" BX PTRS Motor B to SV Port 2 | | 079001-259 |
| H94 | Red | | 204" | 3/8" BX PTRS SV Port 3 to BX PTRS Motor 1 Port A | | 079001-204 |
| H95 | Blue | | 204" | 3/8" BX PTRS Motor 1 Port B to BV Port 2 | | 079001-204 |
| H96 | Black | | 96" | 1/2" Turner Motor (far) to BX SV Port 2 | | 079004-96 |
| H97 | Black | | 96" | 1/2" Valve A to BX SV Port 1 | | 079004-96 |
| H98 | Black | | 178" | 1/2" BX Turner Motor Port B to BV Port 2 | | 079004-178 |

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Page 5 of 6

FIG. 8-40 WM4000 W/BX12 BED EXTENSION

Hydraulic Information

Hydraulic Hoses (WM4000 w/BX12 Bed Extension)

8

10/3/2017

WM4000 w/BX12 -
Hose List

Wood-Mizer P/N WM4000
Rev. A

| Hose List | | | | | | |
|-----------|--------|----------|--------------|--|------------------|----------------------|
| ID | Color | Length | | Description | Wood-Mizer Part# | |
| | | Std. Bed | 12' Bed Ext. | | Standard Bed | 12ft. Bed Extensions |
| H99 | Purple | | 178" | 1/2" BX Turner Motor Port A to SV Port 3 | | 079004-178 |

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Page 6 of 6

FIG. 8-41 WM4000 W/BX12 BED EXTENSION

INDEX

A

alignment

- align side supports 7-6
- bed frame length 7-1
- bed frame width 7-2
- level bed rails 7-5
- level saw head 7-3
- standard block/roller guides
 - blade guide 7-14
 - blade guide arm 7-13
 - blade guide overview 7-7
 - blade guide preparation 7-10
 - blade wheel vertical tilt 7-11

B

belt

- tension 5-15

C

chain

- feed tension 5-13
- maintenance 5-6
- turner tension 5-18

E

electrical installation

- blade motor cable 3-34
- head box cable 3-39

H

hydraulic

- component ID 8-32, 8-34
- hoses 8-37, 8-39
- schematic 8-1, 8-12

M

maintenance

- blade guide 5-1
- blade wheel bearings/scrapers 5-10
- drive belt 5-15
- hydraulic system 5-9
- miscellaneous 5-6
- power feed 5-13
- proximity sensors 5-7
- sawdust removal 5-3
- track rails/scrapers 5-4
- turner chain 5-18
- up/down 5-10
- up/down system 5-11

O

operation

- control overview 4-1
- distribution box overview 4-2
- installing a blade 4-26
- joystick overview 4-3
- loading a log 4-29
- programming the control 4-8
 - select language 4-13
 - system setup 4-8
- sawing the log 4-47
- setworks overview 4-32
- starting the machine 4-25

S

safety

- lockout procedure 1-8
- symbol definitions 1-1

Safety Instructions 1-2

service info

- customer/sawmill ID 2-2, 2-3
- getting service 2-1
- ordering parts 2-1

setup

- air installation 3-46
- blade lube installation 3-23
- electrical installation 3-27
- extension installation 3-7
- final sawmill 3-47
- hydraulic installation 3-40
- hydraulic log clamp installation 3-12
- initial control programming 3-56
- level bed rails 3-53
- level blade guide arm 3-54
- level saw head 3-50
- operator station installation 3-3
- sawmill installation 3-4
- site preparation 3-1

T

troubleshooting

- blade guides 6-1, 6-2