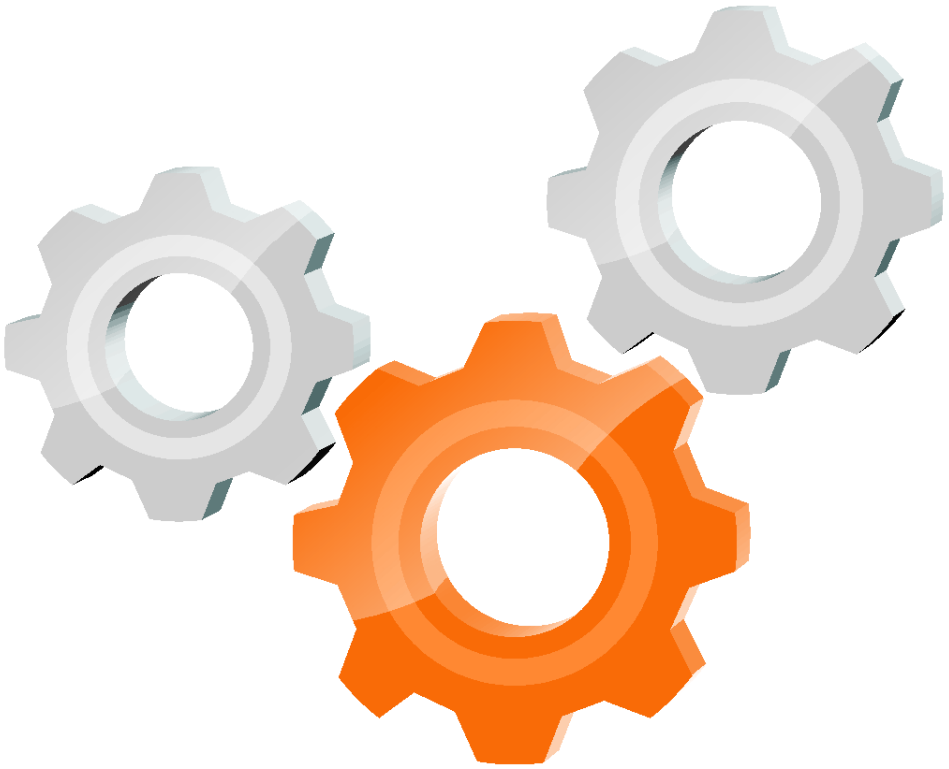
Wood-Mizer

from forest to final form



user manual

Instrukcja obsługi | Руководство полъзователя
Manuel de l'Utilisateur | Betriebsanweisung
Bruksanvisning | Manual del Usuario
Betjeningsvejledning | Gebruikershandleiding
Käyttöohjeet | Manual de utilizare | Bruksanvisning
Manuale d'uso | Příručka uživatele

Retain for future use
Zachować do przyszłego użytku
Сохраните для последующего использования
A conserver pour une utilisation future
Für zukünftige Benutzung aufbewahren
Behold for senere bruk
Säilytä nämä käyttöohjeet tulevaa tarvetta marten
Opbevar manualen til fremtidig brug
Bewaren voor gebruik in de toekomst
Conservare il presente manuale a l'uso futuro
Păstrați acest manual pentru utilizare viitoare
Conservar para futuras consultas
Behall för framtida användning
Uchovejte pro další použití

www.wood-mizer.eu

Safety, Setup & Operation Manual

WM4000 **rev. A1.06**

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

Form #2013

This is the original language for the manual.

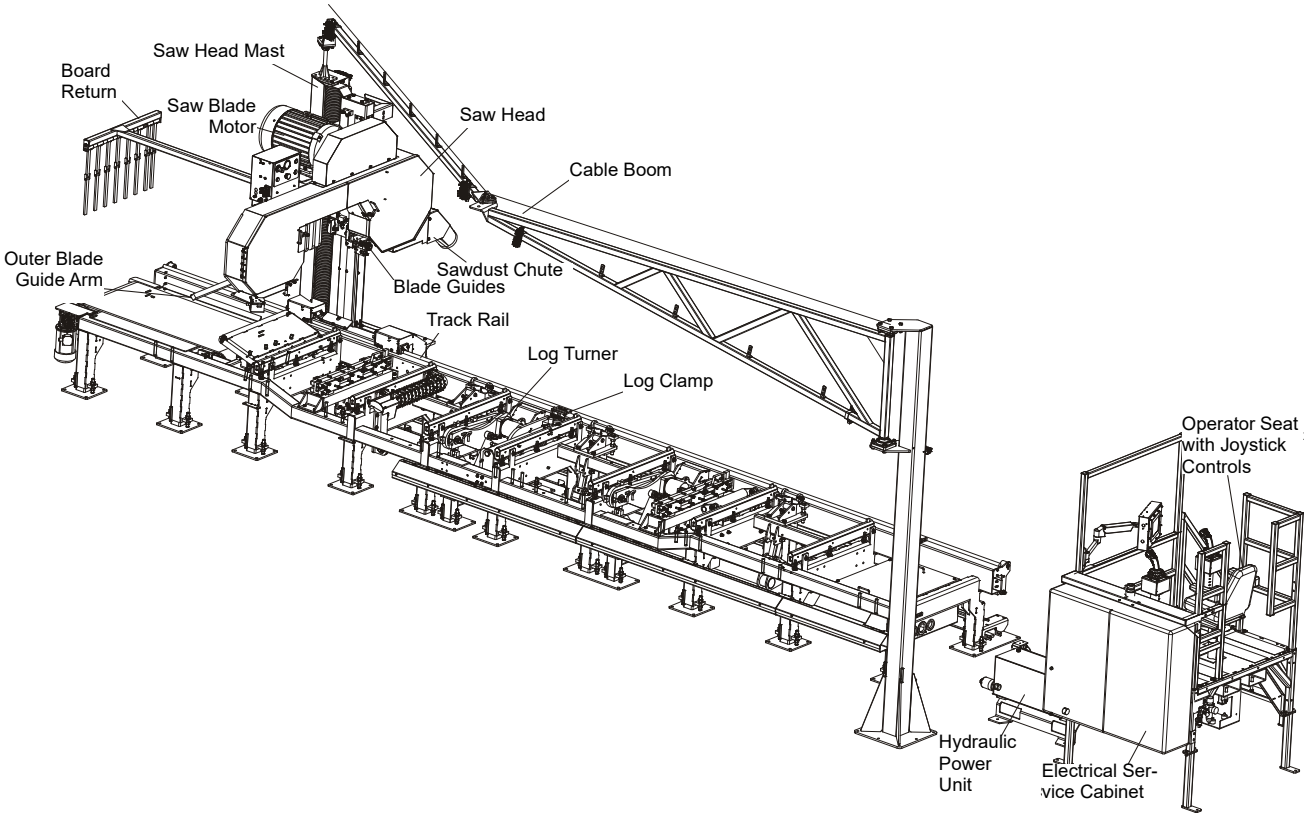
Table of Contents Section-Page

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.



MILL COMPONENTS

The WM4000 sawmill is intended for sawing wood only. The sawmill must not be used for other purposes such as cutting ice, metal or any other materials.

*Wood-Mizer® is a registered trademark of Wood-Mizer Products, Inc.
Sawmill U.S. Patent Nos.: 4,559,858, 4,878,411 & 4,930,386
Brevet au Canada Nos.: 1,200,180 & 1,211,684

Using the machine correctly, you will obtain a material of the highest quality and high degree of accuracy.

The WM4000 sawmill should be operated only by an adult who has read and understood the entire operator's manual.

The machine is built to be durable and easy to operate and maintain.

Getting Service

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.

General Contact Information

From Europe call your local distributor or our European Headquarters and Manufacturing Facility in Koło, Nagórna 114 St, Poland at **+48-63-2626000**. From the continental U.S., call our U.S. Headquarter 8180 West 10th St.Indianapolis, IN 46214, toll-free at ***1-800-525-8100.*** Ask to speak with a Customer Service Representative. Please have your machine identification number and your customer number ready when you call. The Service Representative can help you with questions about the operation and maintenance of your machine. He also can schedule you for a service call.

Office Hours:

Country	Monday - Friday	Saturday	Sunday
Poland	7 a.m.- 3 p.m.	Closed	Closed
US	8 a.m.- 5 p.m.	8 a.m.- 12 p.m	Closed

Please have your vehicle identification number and your customer number ready when you call.

Wood-Mizer will accept these methods of payment:

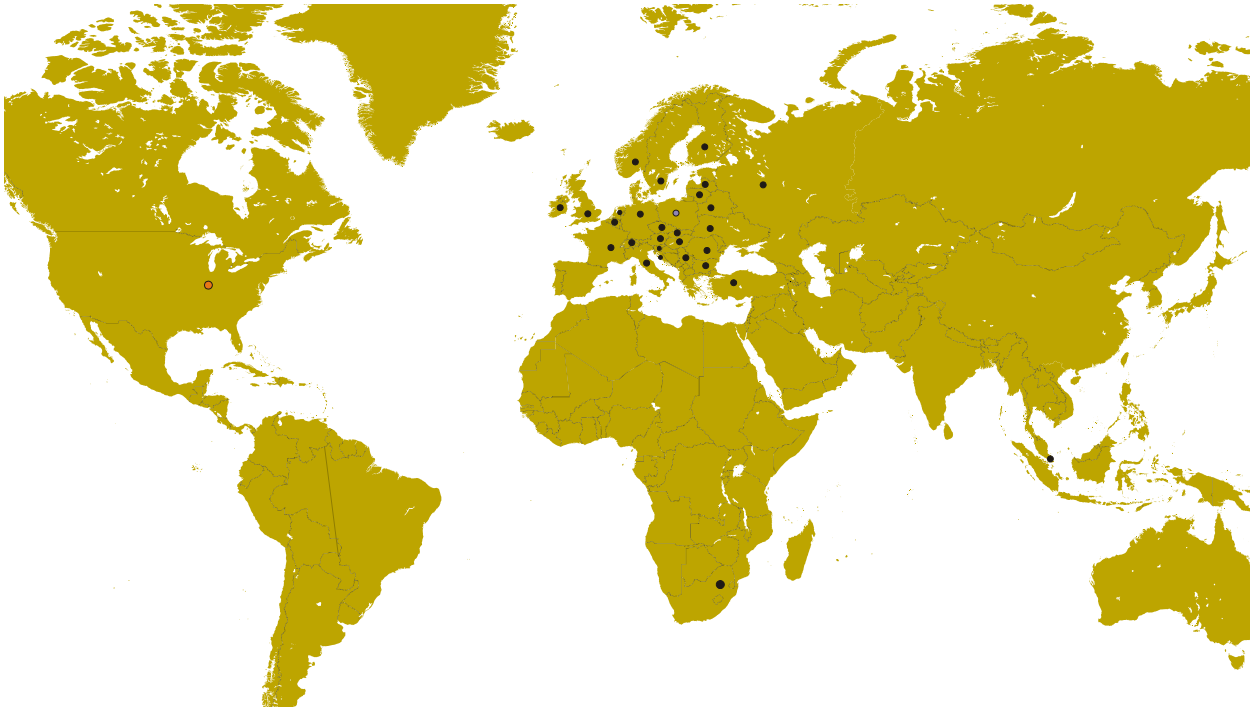
- Visa, Mastercard, or Discover
- COD
- Prepayment
- Net 15 (with approved credit)

Be aware that shipping and handling charges may apply. Handling charges are based on size and quantity of order.

Technical data are subject to change without prior notice.

Actual product may differ from product images. Some illustrations show machines with optional equipment.

Branches & Authorized Sales CentersWood-Mizer Locations (North and South America)



EUROPE		UNITED STATES
European Headquarters **Wood-Mizer Industries Sp. z o.o.** Nagórna 114, 62-600 Koło, Poland Tel.: +48-63-26-26-000 Fax: +48-63-27-22-327 www.woodmizer.eu		**World Headquarters** **Wood-Mizer LLC** 8180 West 10th Street Indianapolis,Indiana 46214-2400, USA Tel.: +1-317-271-1542 Fax: +1-317-273-1011 www.woodmizer.com
BELARUS **MOST-GRUPP** Siemashko 15, k.3 Minsk 2200116 Tel.: +375-17-270-90-08 Fax: +375-17-270-90-08 GSM: +375-29-649-90-80 e-mail: most-by@mail.ru	**SWITZERLAND Stefan Wespi** Maschinen u. Geräte Spezialarbeiten GmbH Eichistraße 4 6353 Weggis Tel.: +41-413-900-312 GSM: +41-799-643-594 info@woodmizer.ch www.woodmizer.ch	**RUSSIA Dariusz Mikołajewski** **OOO WOOD-MIZER INDUSTRIES** 141031, Moscow Reg., Mytishenski raj., pos. Veshki, Zavodskaja str., 3B Tel.Fax: +7(495) 788-72-35 Tel.Fax: +7(495) 641-51-60 e-mail: dariuszm@woodmizer-moscow.ru
BULGARIA Kalin Simeonov **Ecotechproduct** 38 Star Lozenski pat str. Sofia 1186 Tel.: +359-2-462-7035 Tel.: +359-2-963-1656 Tel:/Fax : +359-2-979-1710 **Kalin Simeonov** GSM: +3592-963-2559 e-mail: office@ecotechproduct.com	**HUNGARY Wiktor Turoczy** **Wood-Mizer Hungary K.F.T.** Szonyi Ut 67., 2921 Komárom Tel./Fax: +36-34-346-255 e-mail: woodmizer@woodmizer.hu	**RUSSIA Far East Władimir Głazaczew** **"WM Service"** Krasnoretchenskaya Str.111 680006 Khabarovsk Tel./Fax: +7-914-541-1183 e-mail: wms-khv@mail.ru

CROATIA Krešimir Pregernik
Pregimex d.o.o.
S. Batušiæa 31, 10090 Zagreb
Tel.:/Fax: +3851-38-94-668
Krešimir Pregernik
GSM: +3851-98-207-106
e-mail: Kresimir.Pregernik@gmail.com

CZECH REPUBLIC Miroslaw Greill
Wood-Mizer CZ s.r.o.
Za Kasárny 946
339 01 Klatovy
tel: +420-376-312-220
Greill Miroslav
GSM: +420 602-439-799
e-mail: woodmizer@woodmizer.cz

CZECH REPUBLIC Lubomir Kudlik
Wood-Mizer Moravia
Sovadinova 6
69002 Breclav
Tel.:/Fax: +420-519-322-443
Lubomir Kudlik
GSM: +420-602-734-792
e-mail: info@wood-mizer.net

FINLAND Howard Blackbourn
Oy Falkberg Jordbruk Ab
Falkintie 220
25610 Ylonkyla
Tel.: +358-2732-2253
Fax: +358-2732-2263
Howard Blackbourn
GSM: +358-440-424-339
e-mail: falkberg@woodmizer.fi

FRANCE Tizoc Chavez
Wood-Mizer France
556 chemin des Embouffus,
ZAC des Basses Echarrieres
38440 SAINT JEAN DE BOURNAY
Tel: +33-4 74 84 84 44
GSM: +33-607 52 02 82
Mail: tchavez@woodmizer.fr

SLOVENIA Jan Fale
FAMTEH d.o.o.
Gacnikova pot 2,
2390 Ravne na Koroskem
Tel.: +386-2-62-04-232
Fax: +386-2-62-04-231
Jan Fale
GSM: +386-2-62-04-230
e-mail: jan.fale@famteh.si

Matjaz Kolar
Tel.: +386-2-62-04-232
GSM: +386-31-775-999
e-mail: matjaz.kolar@famteh.si

ITALY Pasquale Felice
Wood-Mizer Italia Srl
Cda. Capoiaccio SN
86012 Cercemaggiore
Campobasso
Tel.:/Fax: +39-0874-798-357
GSM: +39-333-281-03-79
e-mail: wmitaliasrl@gmail.com

LATVIA Vilmars Jansons
OBERTS Ltd
Gaujas str. 32/2
LV-2167 Marupe, Rigas Raj.
Tel.: +371-7-810-666
Fax: +371-7-810-655
Vilmars Jansons
GSM: +371-92-06-966
Andris Orols
GSM: +371-28-33-07-90
e-mail: andris@oberts.lv

LITHUANIA Andrius Zuzevicius
UAB Singlis
Savanoriu pr. 187, 2053 Vilnius
Tel.: +370-5-2-32-22-44
Fax: +370-5-2-64-84-15
GSM: +370-620-28-645
e-mail: andrius.z@singlis.lt

Dmitrij Gaiduk
GSM: +370-69-84-51-91
e-mail: dmitrijus.g@singlis.lt

NORWAY Tor Bakken Flaathe
Bakken Flaathe A/S
Løkenvegen 5, 2034 Holter
Tel: + 47-638 74 989
Sales: + 47- 412 80 076
Service: +47- 975 87 588
post@woodmizer.no
www.woodmizer.no

SERBIA Dragan Markov
Wood-Mizer Balkan d.o.o.
Svetosavska GA 3/3; P. Fah 25
23 300 Kikinda
Tel.:/Fax: +381-230-25-754
Tel.:/Fax: +381-230-23-567
GSM: +381-63-568-658
e-mail: office@woodmizer.co.yu

SLOVAKIA Wiktor Turoczy
Wood-Mizer Danubia s.r.o.
Hadovce 5, 94501 Komárno
Tel.: +421-35-77-40-316
Fax: +421-35-7740-326
GSM: +421-905-930-972
e-mail: woodmizer@woodmizer.sk

TURKEY
Er-Ka Ahsap Profil Kerestecilik San. ve Tic. Ltd. Sti.
Adana Keresteciler Sitesi 191 sk No.41
ADANA
Tel.: +90-322-346-15-86
Fax: +90-322-345-17-07
GSM: +90-533-363-18-44
e-mail: info@erkaahsap.com.tr

UKRAINE Ivan Vinnicki
MOST UKRAINA
bul. Myru 3, Bajkivtsi Ternoplskyj r-j
Ternopolska oblast
47711 Ukraine
Tel/Fax: +38 (0352) 52 37 74
GSM: +38 (067) 352 54 34
GSM: +38 (067) 674 50 68
E-mail: most-ukraina@ukr.net

UNITED KINGDOM & IRELAND
Wood-Mizer UK
Hopfield Barn
Kenward Road, Yalding
Kent ME18 6JP, UK
Tel.: +44-1622-813-201
Fax: +44-1622-815-534
e-mail: info@woodmizer.co.uk

GERMANY\AUSTRIA Klaus Longmuss **Wood-Mizer GmbH** Dorfstraße 5, 29485 Schletau **Büro** Tel: +49-5883 988 010 **Werkstatt** Tel: +49-5883 988 220 **Ersatzteilservice** Tel: +49 58 83 - 98 80 250 **Schärfservice** Tel: +49-58 83 - 98 80 270 E-mail: info@woodmizer.de www.woodmizer.de **Klaus Longmuss** Tel.: +49-5883-9880-12 GSM: +49-17-298-55-892 e-mail: KLongmuss@woodmizer.de	**Subagent:** **SWEDEN Kjell Larsson** **Mekwood AB** Slingan 14, 812 41 Gästrike-Hammarby Tel.: +46-290-515-65 **Kjell Larsson** GSM: +46-706-797-965 e-mail: kjell.larsson@mekwood.se	**IRELAND** **Wood-Mizer Ireland** Stephen Brennan Cum Lahardane Ballina County Mayo Tel:+353 96 51345 E-mail: brennanmill@ericom.net
Subagents: **DENMARK Kevin Christiansen** Kevin Christiansen's savværker PMV Arnborgvej 40, 7330 Brande- Fasterholt Mobile: +45 61468763 Mobile: +45-23495828 Info@woodmizer.dk www.woodmizer.dk	**ROMANIA Adrian Echert** **SC WOOD-MIZER RO SRL** TRANSILVANIEI Nr. 5 Sibiu, Cisnadie 555300 Tel.:/Fax: : +40-369-405-433 GSM: +40-745-707-323 e-mail: aechert@woodmizer.ro	Regional Manager - Asia Robert Moxham Regional Direction - Asia Wood-Mizer Asia Manufacturing Co., Ltd. No.2, Gongyequ 40th Rd. Xitun District, Taichung City, 40768, Taiwan, R.O.C. TEL: +886-4-2359 3022 FAX: +886-4-2359 3205 CELL: +886-9-0568 7708 EMAIL: RMoxham@woodmizer.com www.woodmizerasia.com Skype: r.g.moxham
NETHERLANDS Gerlo Breukers Breukers Houtzagerij en Bosbouwmachines Hazenweg 5, 7481 PC Haaksbergen Tel: +31-535741326 Mobile: +31-620419412 info@woodmizer.nl www.woodmizer.nl	**Subagent:** **ROMANIA M. Echert** **S.C. Echert Comprod s.r.l** Str. Schitului Nr. 6, Apt.7 etajul-1 725 70 Vatra Dornei, Romania Tel.:/Fax: +40-230-374-235 Tel. : +40-740-35-35-74	Regional Manager - Africa Gavin Prowse Regional Sales Director - Africa Wood-Mizer Africa (Pty) Ltd. Unit 1,Leader Park 20 Chariot Street Stormill Ext.5 Maraisburg, Johannesburg South Africa TEL: +27 11 473 1313 FAX: +27 11 473 2005 CELL: +27 71 398 8010 EMAIL: gprowse@woodmizer.com www.woodmizerafrica.com Skype: gavin.prowse

USA World Headquarters

Serving North & South America, Oceania, East Asia

Wood-Mizer LLC
8180 West 10th Street
Indianapolis, IN 46214

Phone: 317.271.1542 or 800.553.0182
Customer Service: 800.525.8100
Fax: 317.273.1011
Email: infocenter@woodmizer.com

Canadian Headquarters

Serving Canada

Wood-Mizer Canada
396 County Road 36, Unit B
Lindsay, ON K9V 4R3

Phone: 705.878.5255 or 877.357.3373
Fax: 705.878.5355
Email: ContactCanada@woodmizer.com

Brazil Headquarters

Serving Brazil

Wood-Mizer do Brasil
Rua Dom Pedro 1, No: 205 Bairro: Sao Jose
Ivoti/RS CEP:93.900-000

Tel: +55 51 9894-6461/ +55 21 8030-3338/ +55 51 3563-4784
Email: info@woodmizer.com.br

Europe Headquarters

Serving Europe, Africa, West Asia

Wood-Mizer Industries Sp z o.o.
Nagorna 114
62-600 Kolo, Poland

Phone: +48.63.26.26.000
Fax: +48.63.27.22.327

Branches & Authorized Sales Centers

For a complete list of dealers, visit www.woodmizer.com

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.

Warning stripes are placed on areas where a single decal would be insufficient. To avoid serious injury, keep out of the path of any equipment marked with warning stripes.

1.2 Safety Instructions

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. Keep this manual with this machine at all times, regardless of ownership.

Also read any additional manufacturer's manuals and observe any applicable safety instructions including dangers, warnings, and cautions.

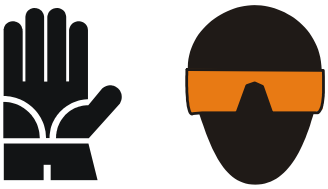
Only persons who have read and understood the entire operator's manual and has been trained should operate the sawmill. The sawmill is not intended for use by or around children.

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

WEAR SAFETY CLOTHING

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

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! Always wear eye, ear, respiration, and foot protection when operating or servicing the sawmill.

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 serious injury.

HANDLE FUEL/LUBRICANTS SAFELY

WARNING! Use ONLY water or approved additives with the lube system. Never use flammable fuels or liquids. If these types of liquids are necessary to clean the blade, remove it and clean with a rag. Failure to do so may 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.

CAUTIONS FOR SAWMILL SETUP

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

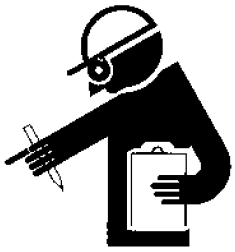
WARNING! No exchange with a different type of laser is permitted, and no additional optical equipment shall be used. Repair shall only be carried out by the laser manufacturer or authorised persons.

DANGER! Operator can not for any reason perform any laser maintenance or repair work. The 2M laser type is used.

DANGER! Laser radiation. Do not view directly with optical instruments. Class 2M laser product is used.

CHECK SAWMILL/BLADES BEFORE OPERATION

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.



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.

WARNING! Use only correctly sharpened blades.

KEEP PERSONS AWAY

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.

DANGER! Always be sure all persons are out of the path of the blade before starting the motor. Stop the motor immediately when any person is nearby the sawmill. Failure to do so will result in serious injury.

DANGER! To make access to the sawmill difficult for bystanders, mount a fence around the machine. The fence should be 1 to 1.2 m high and should be mounted at least 1.4 m away from the sawmill.

KEEP HANDS 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 serious injury.

DANGER! Always keep hands away from moving bandsaw blade. Failure to do so will result in serious injury.

DANGER! Always be aware of and take proper protective measures against rotating shafts, pulleys, fans, etc. Always stay a safe distance from rotating members and make sure that loose clothing or long hair does not engage rotating members resulting in possible injury.

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

WARNING! Always stop the blades when the sawmill is not cutting. Failure to do so may result in serious injury.

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

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.

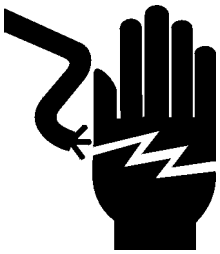
DANGER! Never clean the blade or blade wheels using the hand-held brush or scraper whilst the saw blade is in motion.

CAUTION! Before installation of the blade, inspect it for damage and cracks. Use only properly sharpened blades. Always handle the blade with extreme caution. Use suitable carrier equipment for transporting blades.

USE PROPER PROCEDURE WHEN CONDUCTING ELECTRICAL SAFETY CHECKS AND MAINTENANCE

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.

DANGER! Hazardous voltage inside the electric sawmill disconnect 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.



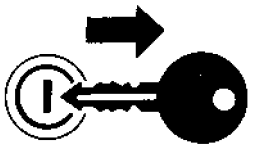
WARNING! Consider all electrical circuits energized and dangerous.

WARNING! Never assume or take the word of another person that the power is off; check it out and lock it out.

WARNING! Do not wear rings, watches, or other jewelry while working around an open electrical circuit.

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. If the key is turned on and moving parts activated, serious injury may result.

WARNING! Remove the blade before performing any service to the engine or sawmill. Failure to do so may result in 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 which has a safety decal affixed to it, make sure the new component also has the safety decal affixed.

USE CAUTION WHEN WORKING WITH HEAVY LOGS

WARNING! Always make sure log is clamped securely before sawing. Failure to do so may result in serious injury or death.

AUTOMATIC BOARD RETURN SAFETY

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

POWER FEED AND UP/DOWN SYSTEM SAFETY

DANGER! If leaving the blade engaged for maximum production rates, make sure the off-bearer stays out of the path of the blade. Failure to do so will result in serious injury or death.

CAUTION! Be sure the transducer sensor is adjusted properly before raising or lowering the saw head against the upper or lower travel limits. Be sure that the transducer is adjusted properly. Failure to do so may result in damage to the machine.

See Table 1-1. Pictogram decals used to warn and inform the user about danger in the WM3500.

TABLE 1-1

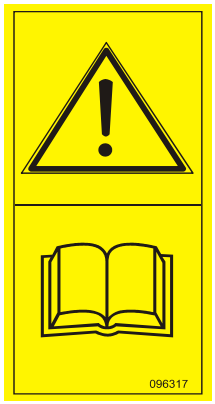
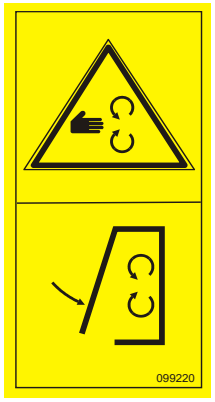
Decal View	W-M No.	Description
	096317	CAUTION! Read thoroughly the manual before operating the machine. Observe all safety instructions and rules when operating the sawmill.
	099220	CAUTION! Close all guards and covers before starting the machine.
	099221	CAUTION! Keep all persons a safe distance away from work area when operating the machine.

TABLE 1-1

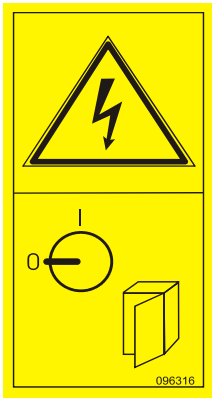
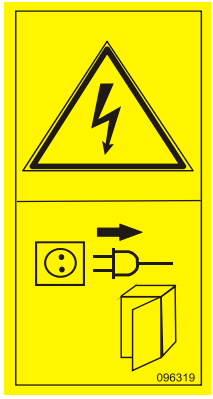
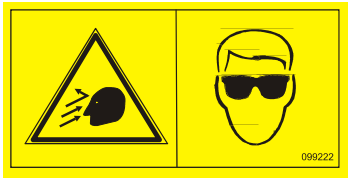
	098176	CAUTION! Keep away from debarker blade!
	096316	CAUTION! Do not open or close the electric box when the switch **is not** in the “0” position.
	096319	CAUTION! Disconnect power supply before opening the box.
	099222	CAUTION! Sawdust outlet. Protect eyes!

TABLE 1-1

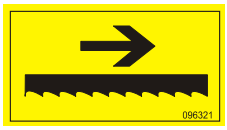
	101138	CAUTION! Do not operate up/down control while blade is moving. Always disangage blade before adjusting cutting head up or down.
	096321	Blade movement direction
	S12004G	CAUTION! Always wear safety goggles when operating the sawmill!
	S12005G	CAUTION! Always wear protective ear muffs when operating the sawmill!
	501465	CAUTION! Always wear safety boots when operating the sawmill

TABLE 1-1

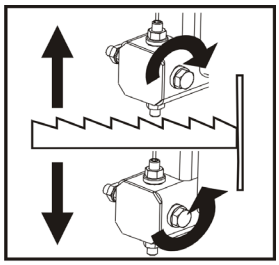
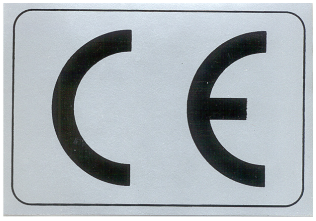
	512107	CAUTION! Always wear protective gloves when operating the sawmill
	501467	Point of lubrication.
 P11789b	P11789	Aligning the blade on the wheels
	P85070	CE safety certification
	099401	Russian safety certification

TABLE 1-1

	099504	Visible and/or invisible laser radiation. Avoid eye or skin exposure to direct or scattered radiation.

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 Europe call our European Headquarters and Manufacturing Facility in Kolo, ul Nagórna 114, Poland at ***+48-63-2626000***

From the continental U.S., call our toll-free Parts hotline at ***1-800-448-7881.***

Please have the vehicle identification number and your customer number ready when you call. Wood-Mizer will accept these methods of payment:

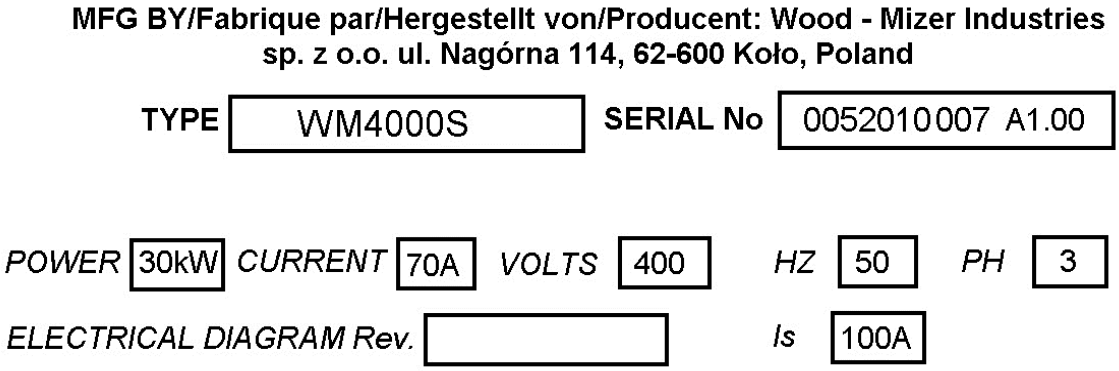
- Visa, Mastercard, or Discover
- COD
- Prepayment
- Net 15 (with approved credit)

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.

Table. 2-1Customer and Sawmill Identification

Each Wood-Mizer WM4000 sawmill is identified with a serial number, revision, and electrical information (see the figure below).



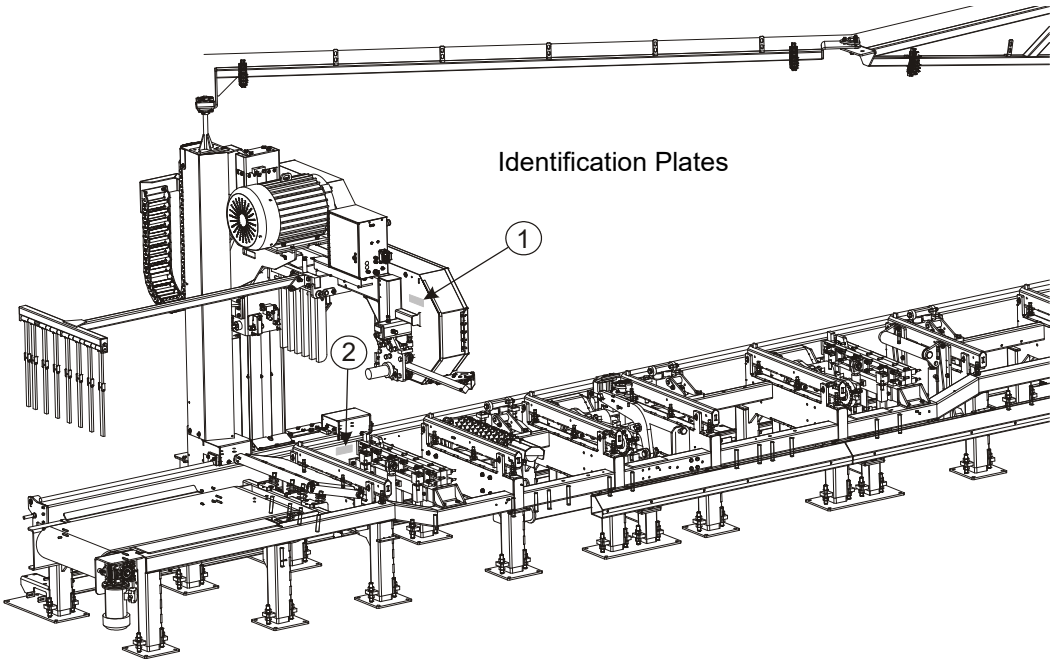
IDENTIFICATION PLATE

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
	Month	Year		
WM4000	01	2010	005	A1.00

SERIAL NUMBER DESCRIPTION

See the figure below for locations of the identification plates.



IDENTIFICATION PLATE LOCATIONS

2.2 If You Need Service

From Europe call our European Headquarters and Manufacturing Facility in Kolo, Nagórna 114, Poland at ***+48-63-2626000*** or ***+48-3912-1319.*** 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. Please remember that Indiana does not go on Daylight Savings Time in the summer.

Country	Monday - Friday	Saturday	Sunday
U.S., Indiana	8 a.m. to 5 p.m.	Closed	Closed
Poland	8 a.m. to 4:30 p.m.	Closed	Closed

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. Keep this manual with this machine at all times, regardless of ownership.

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 1/2" diameter anchor bolts is recommended. The cement pad should be rated to support 6350 lbs./sq.ft. at each sawmill foot position.

   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 (according to EN 60204-1:2010 Standard) 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
400 VAC	100 Amps	70 Amps	L1, L2, L3, PE 4x16 mm^2

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 (22kW)
RPM	1465
Volts	400
Amps	39
Ambient temperature	-15° to +40° C
Insulation Class	F
PH	3
Protection Degree	IP55
Duty	Continuous

TABLE. 3-2

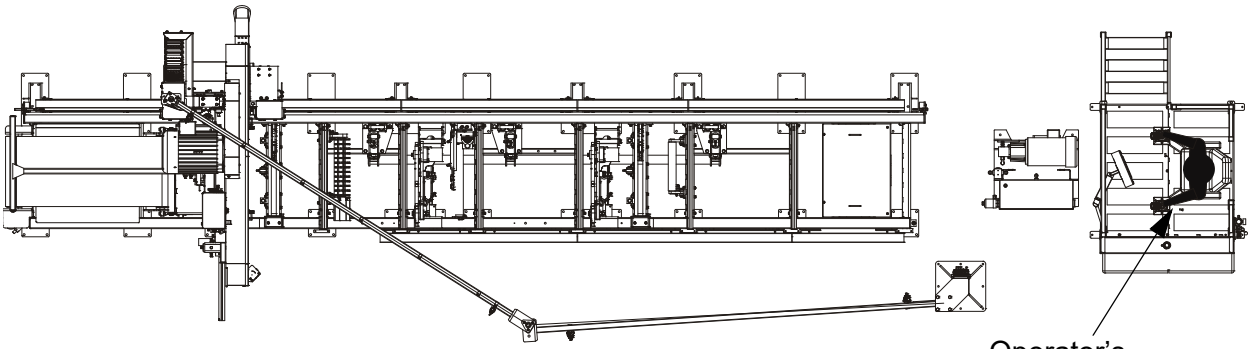
IMPORTANT! When starting the machine for the first time, check that main motor rotation direction is as indicated by the arrow located on the motor body. If the rotation direction is incorrect, invert the phases in the phase inverter located in the power socket. Setting the phases in the phase inverter correctly will ensure correct rotation directions of all sawmill motors.

DANGER! It is recommended that a 30mA Ground Fault Interrupter (GFI) be used.

3.2 Sawmill Setup

IMPORTANT! Before starting to use the WM4000 sawmill you have to meet the following conditions:

- Set up the WM4000 sawmill on firm and level ground. Secure the legs to the ground with anchored bolts.
- The WM4000 sawmill can be operated with the sawdust collection system only. System must be switched before starting the machine.
- The WM4000 sawmill can be operated under roof only.
- The WM4000 sawmill can be operated in temperature range from -15° C to 40° C only.
- Illumination at operator's position must be 300lx*.
- The WM4000 sawmill operator's position is shown below.



IMPORTANT! When starting the machine for the first time, check that blade rotation direction is as indicated by the arrow located on the blades covers. If the rotation direction is incorrect, invert the phases in the phase inverter located in the power socket (electric box). Setting the phases in the phase inverter correctly will ensure correct rotation directions of all machine motors.

See Figure 3-1. The machine can be lifted using the forklift only. Forklift must be rated for at least 6000kg. Mount the additional saw head bracket between bed rails. Next move the

*. The light source can not cause stroboscopic effect.

saw head to the transport position. Lower the saw head so it rest on the additional bracket. Machine is equipped with forklift pockets. Insert the forks into the pockets shown on the picture below.

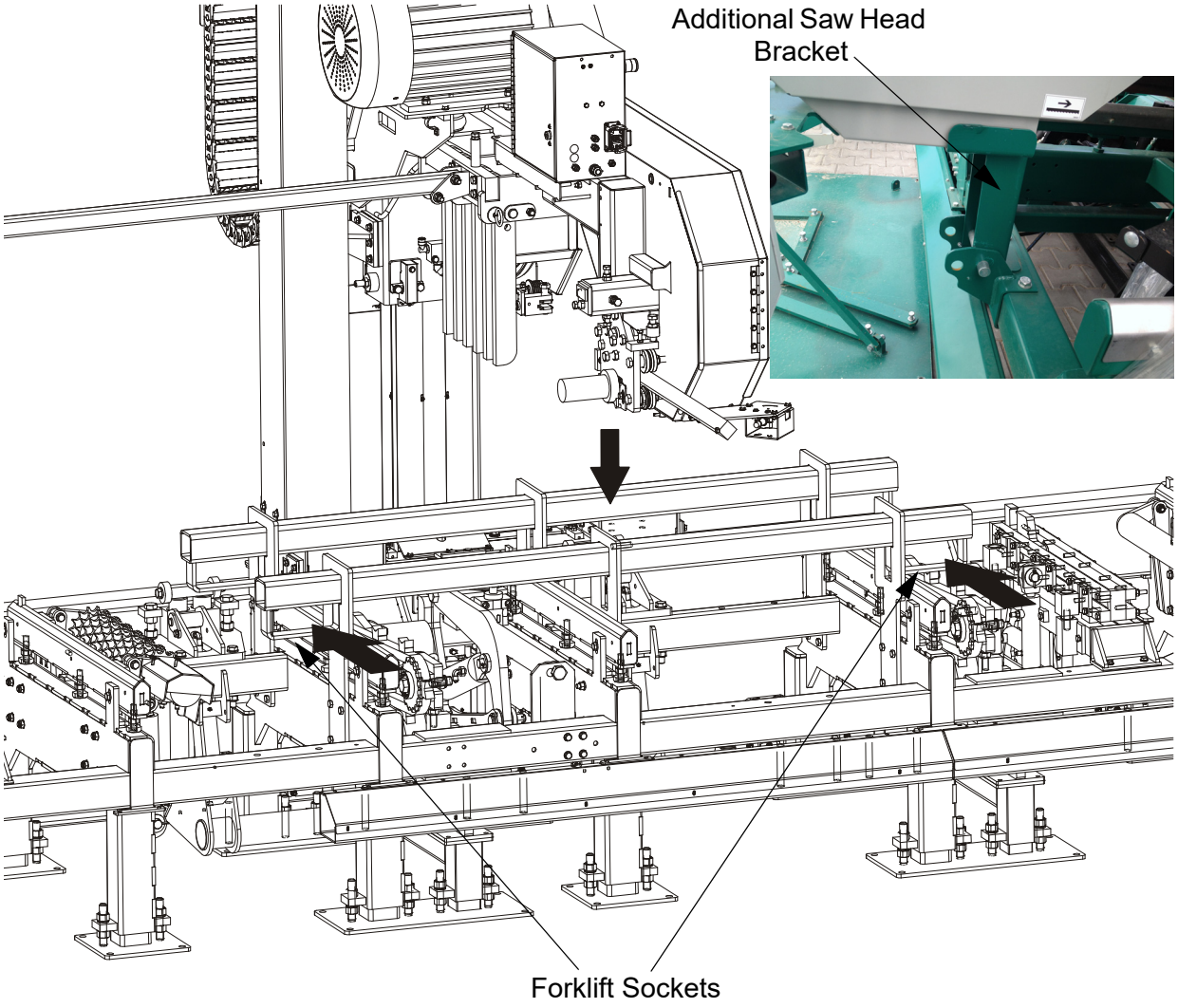


FIG. 3-1

IMPORTANT! The WM4000 sawmill can be operated with additional fence around the machine only. All WM4000 sawmills owners must prepare the fence according to EN 1807 and EN 294/ ISO 13857 standards. Fence door must be equipped with safety switch, which turns off the sawmill when the fence door are open.

See Figure 3-2.

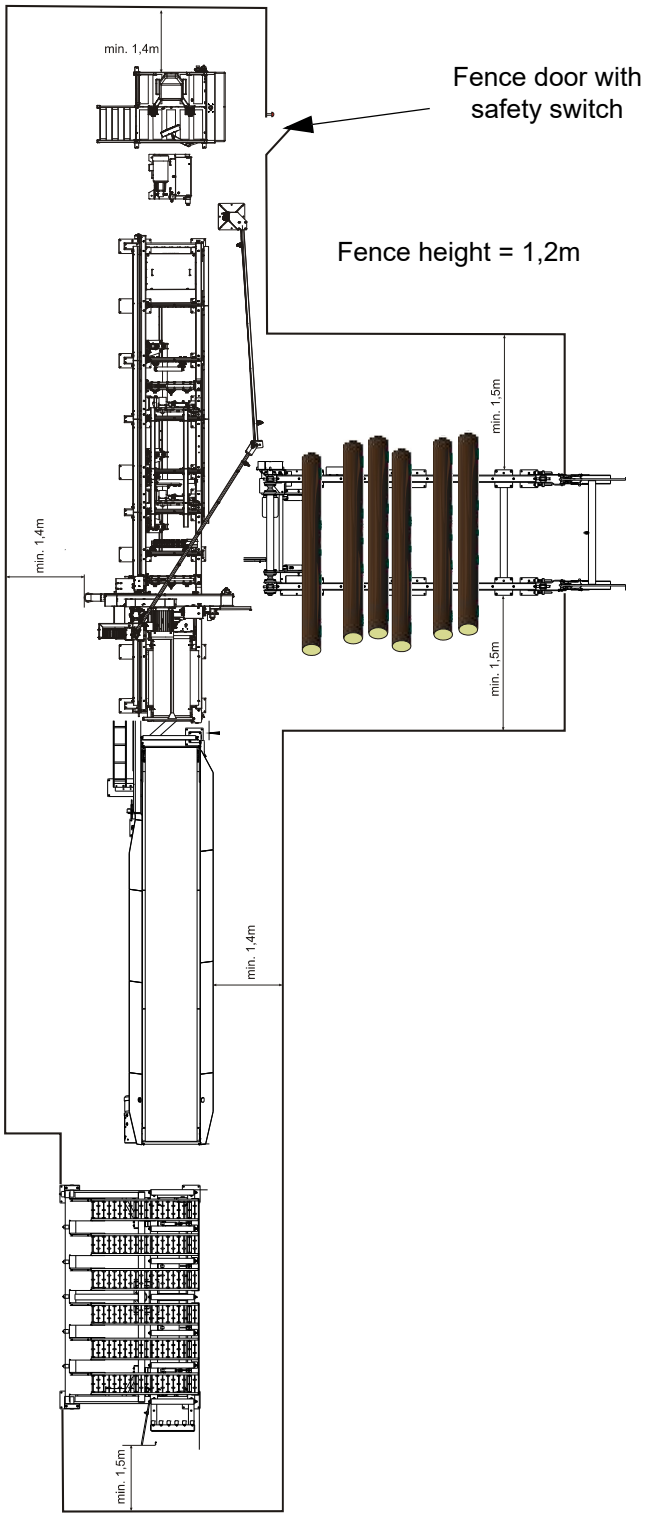


FIG. 3-2

3.3 Operator Station Installation

The operator station is equipped with forklift pockets. Use a forklift rated for at least 8,000 lbs.(3630kg). 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 ladder to the station deck using the provided 3/8-16 x 3” hex head bolts and nylon lock nuts.

See Figure 3-3.

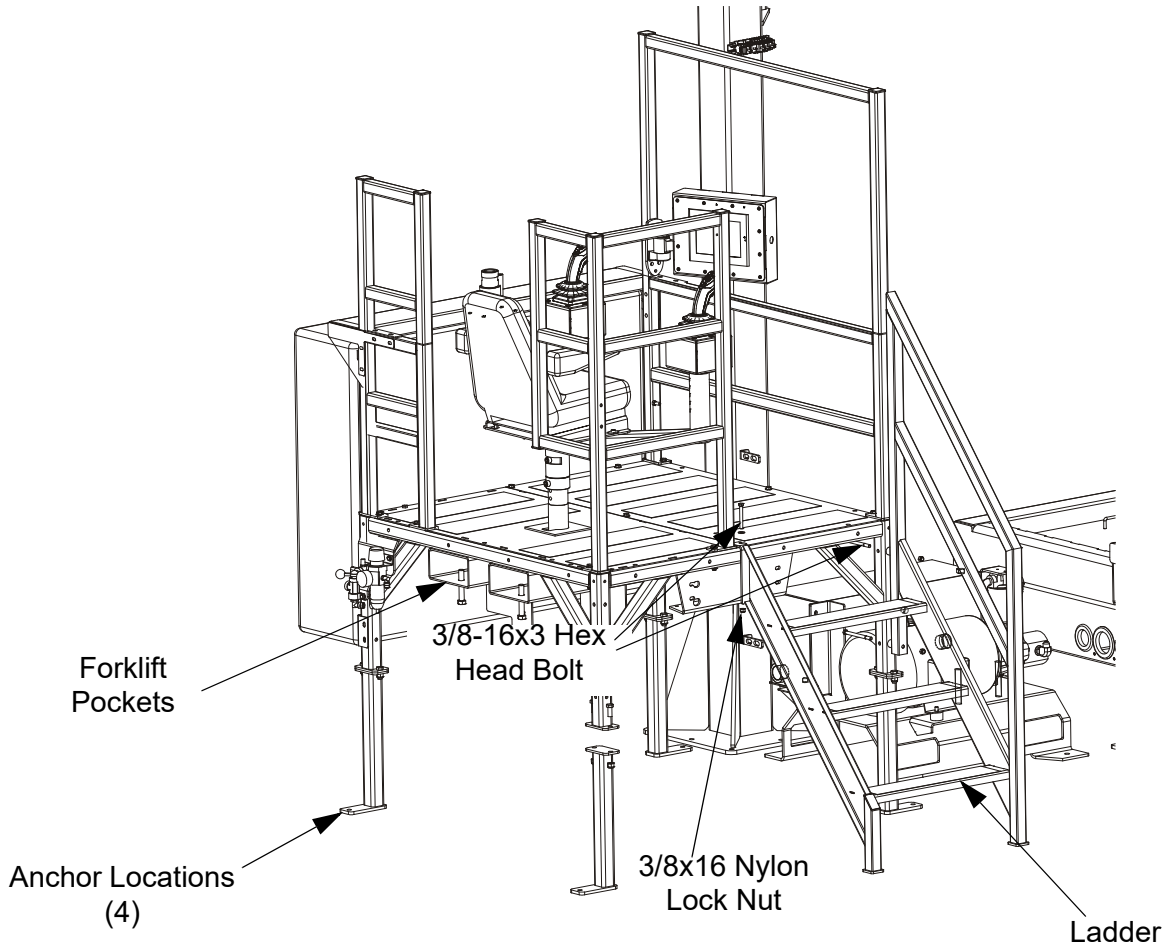


FIG. 3-3

3.4 Sawmill Installation

Position the sawmill approximately 10 inches from the operator station. Position the sawmill horizontally so the outside of the main frame tube is aligned with the inside of the operator station leg. 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.

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.

Remove the saw head rest assembly located under the outer side of the saw head and the saw head rest block located under the inner side of the saw head.

See Figure 3-4.

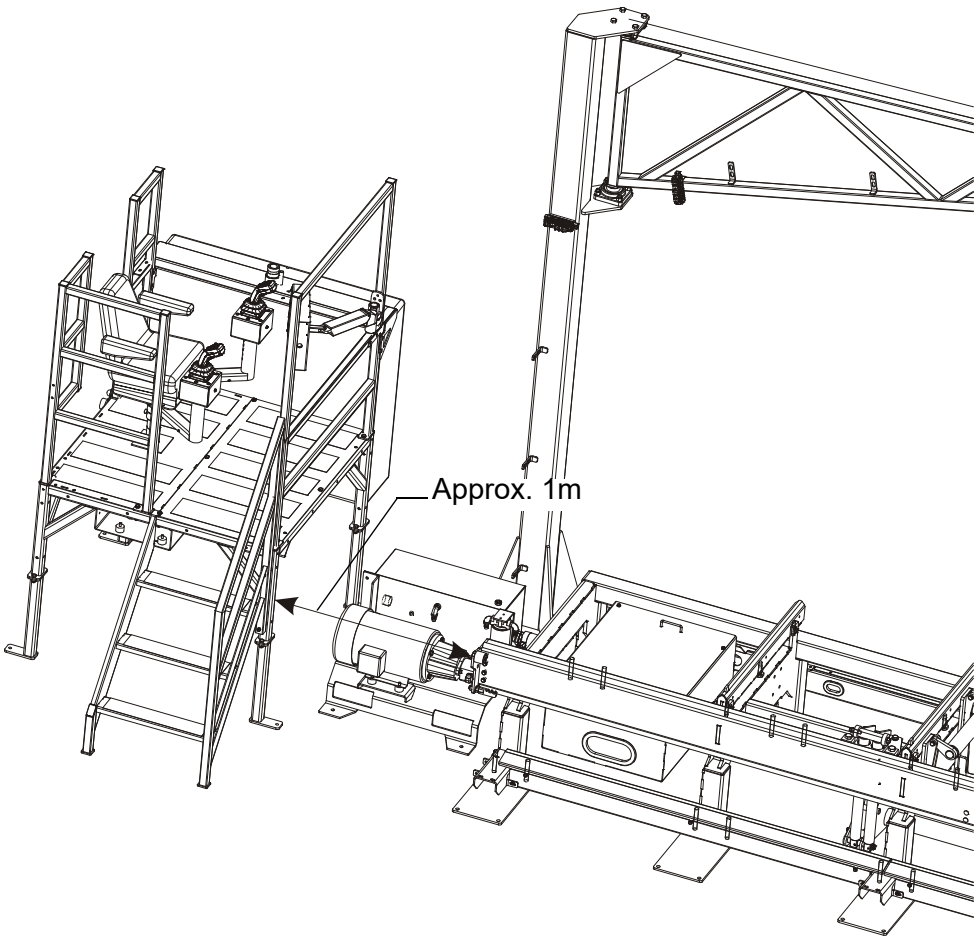


FIG. 3-4

See Figure 3-5. The legs layout with dimensions are shown below (all dimensions are in millimeters.

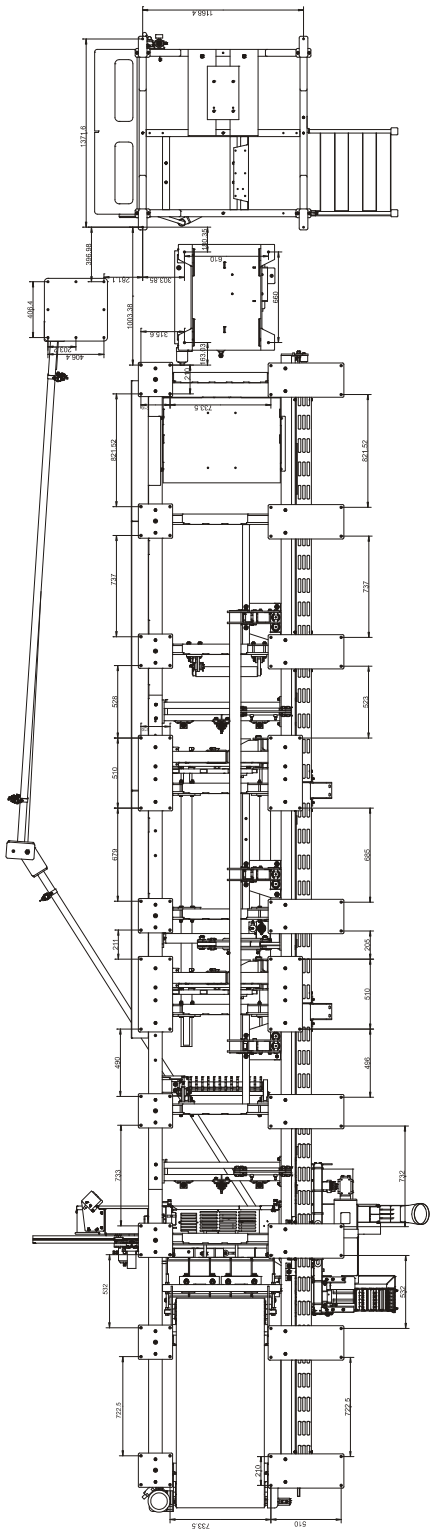


FIG. 3-5

3.5 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 3-6. Position the pantograph next to the sawmill bed as shown. (**NOTE:** The assembled pantograph is shown below.)

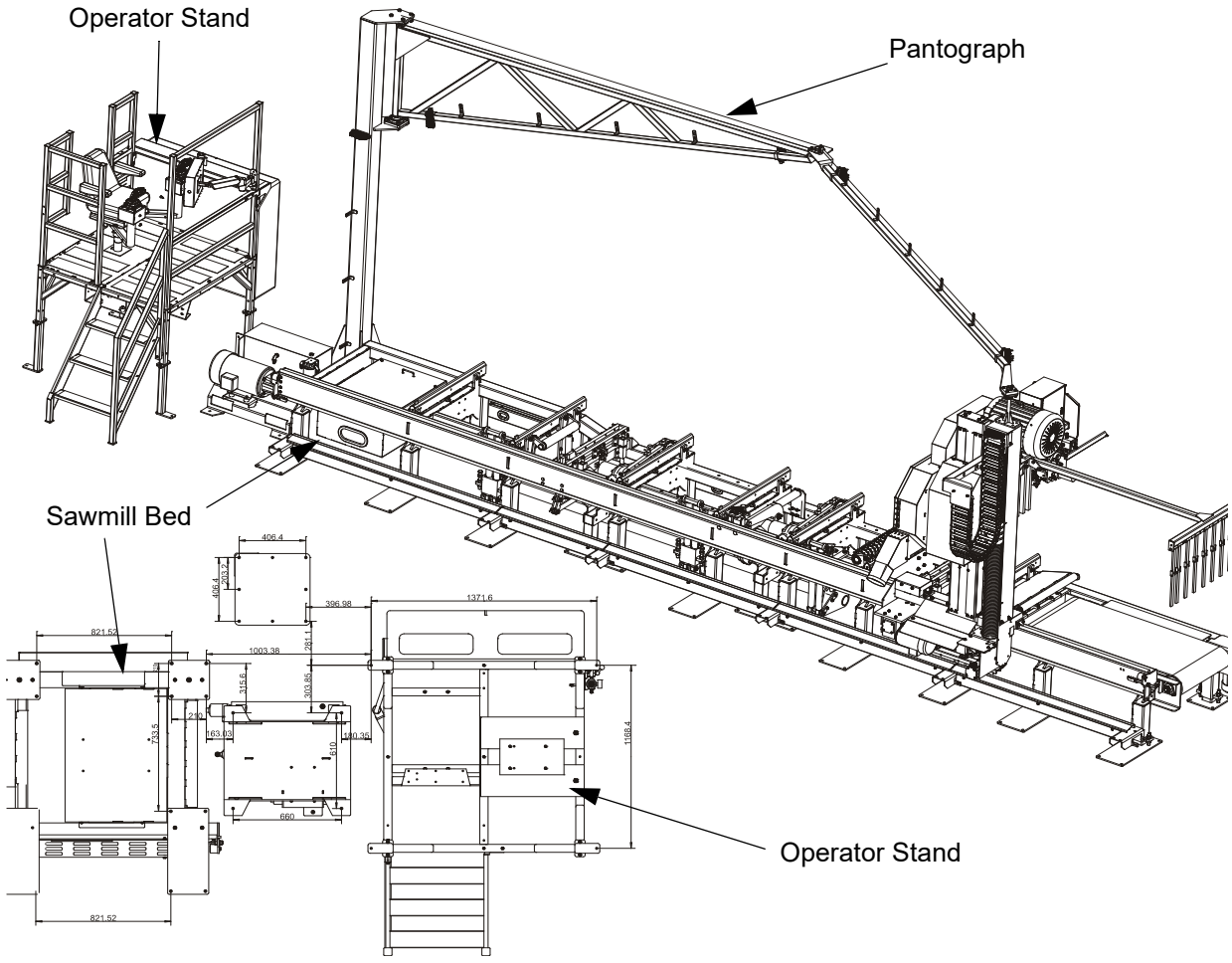


FIG. 3-6

4. Secure the pantograph main tube weldment to the ground with eight anchor bolts. A cement pad with 1/2" diameter anchor bolts is recommended.

5. 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 3-7.

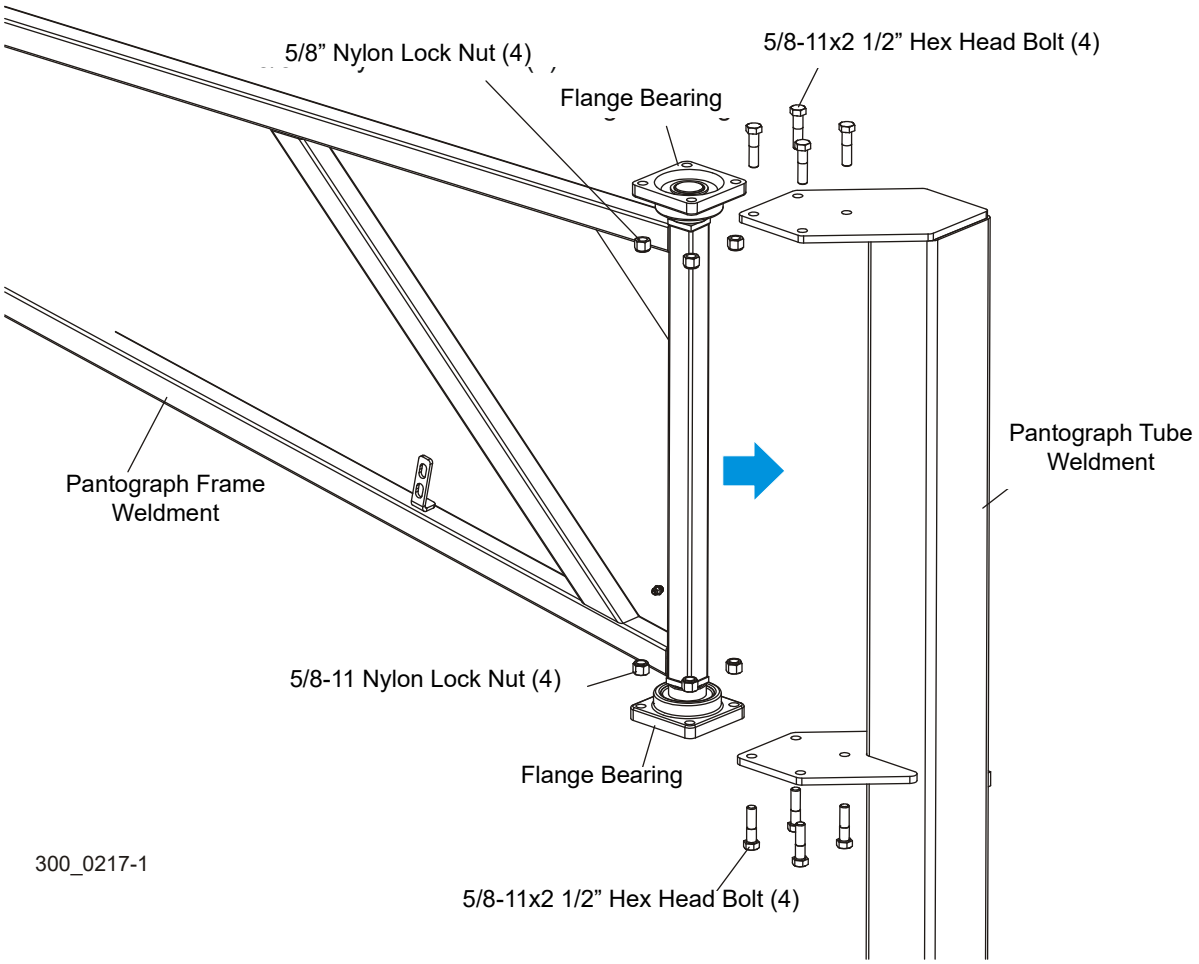


FIG. 3-7

6. 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 3-8.

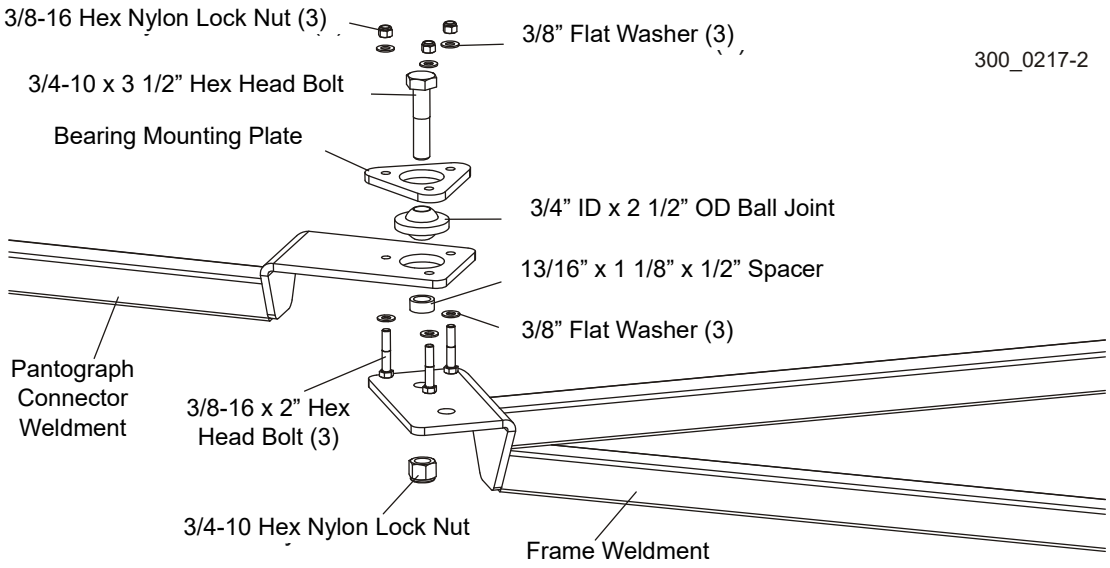


FIG. 3-8

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

See Figure 3-9.

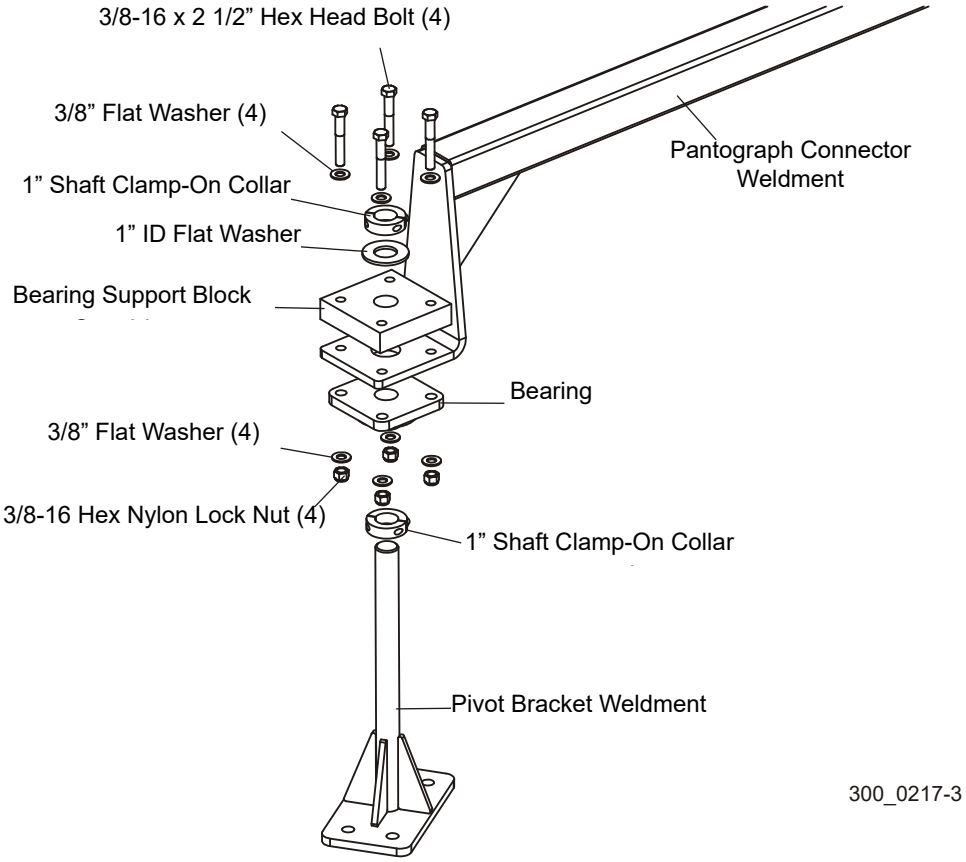


FIG. 3-9

8. 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 3-10.

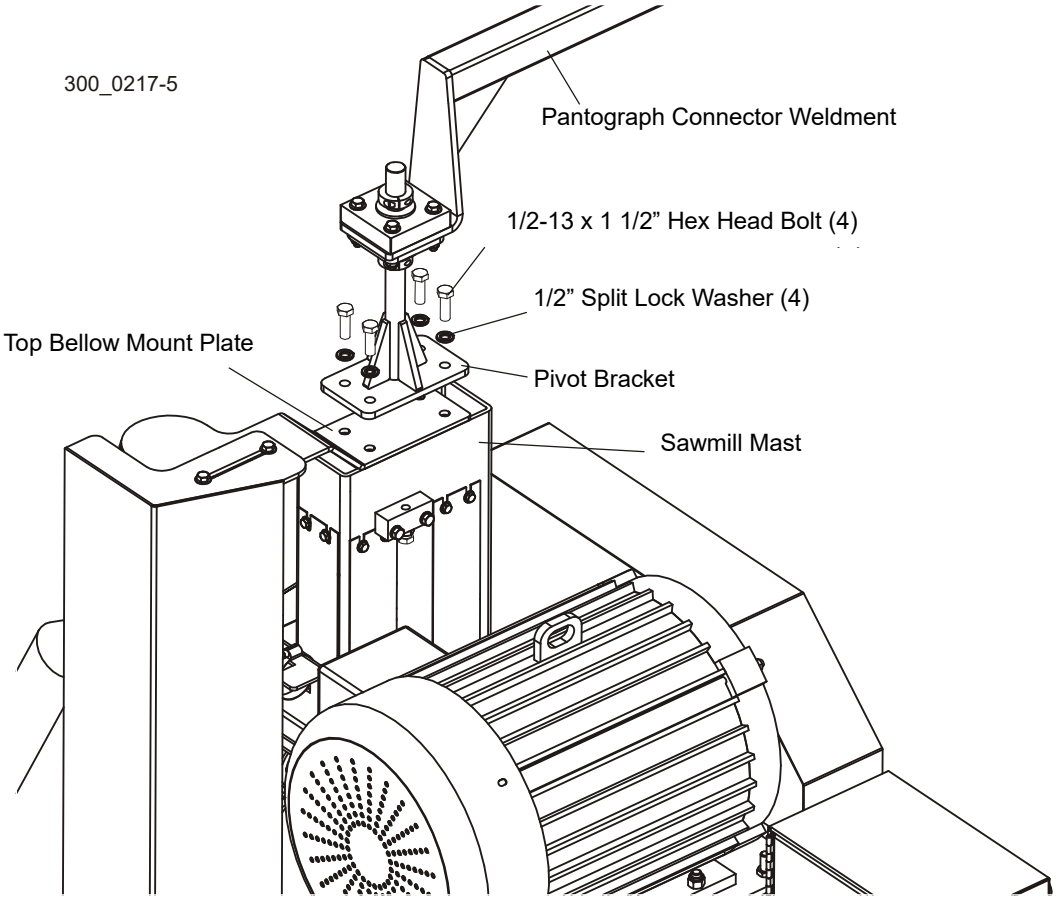


FIG. 3-10

9. Route all the cables, air line and lube hose through the cable glands on the pantograph and secure properly. Use the provided tie wraps to secure the cables, air line and lube hose to the pantograph cable brackets.

See Figure 3-11.

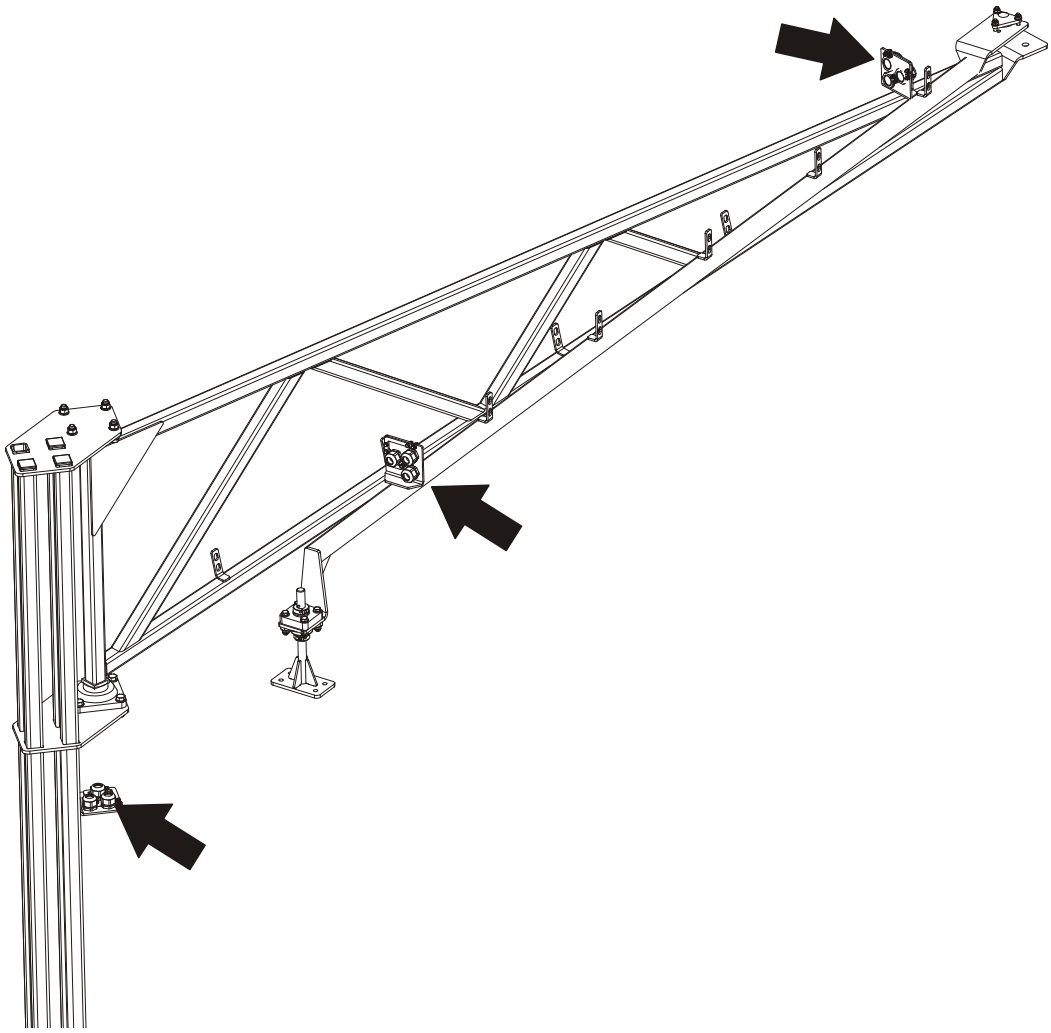


FIG. 3-11

IMPORTANT! Make sure the cables, air line and lube hose 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.

3.6. Lube Installation

3.6.1 Standard Lube System

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 3-12. 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 sawmill. 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.

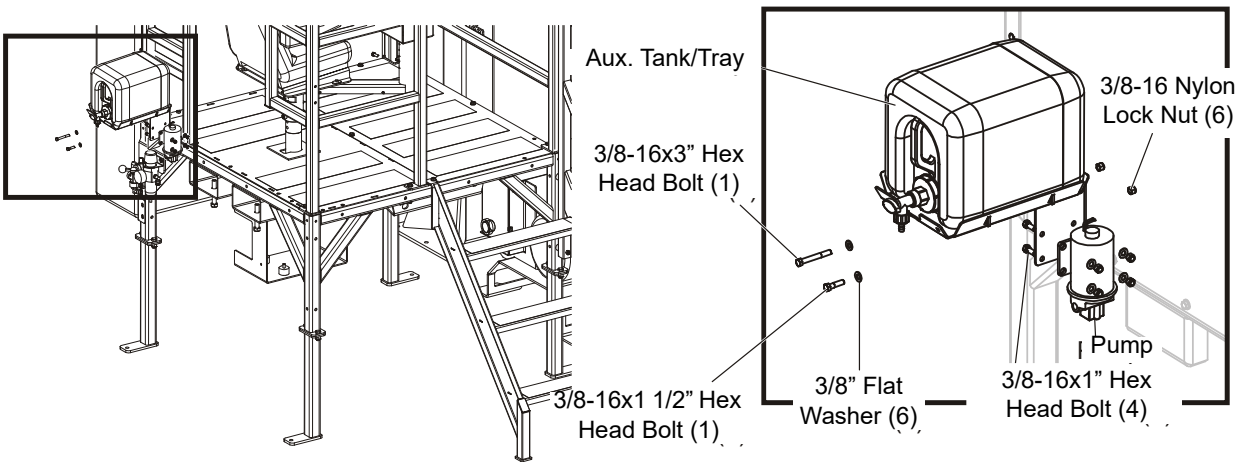


FIG. 3-12

See Figure 3-13. 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 (*See Section 3.6.6*). 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.

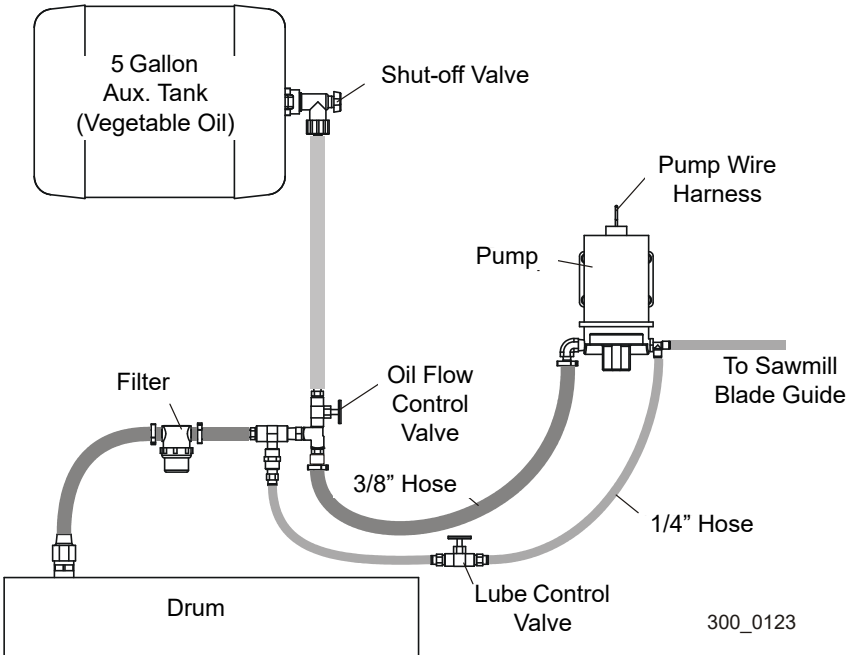


FIG. 3-13

3.7 Air Installation

See Figure 3-14. Locate the air service assembly at the rear of the operator station. Install a 1/2" NPT quick disconnect fitting to the elbow 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 line 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 'T' fitting between 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.

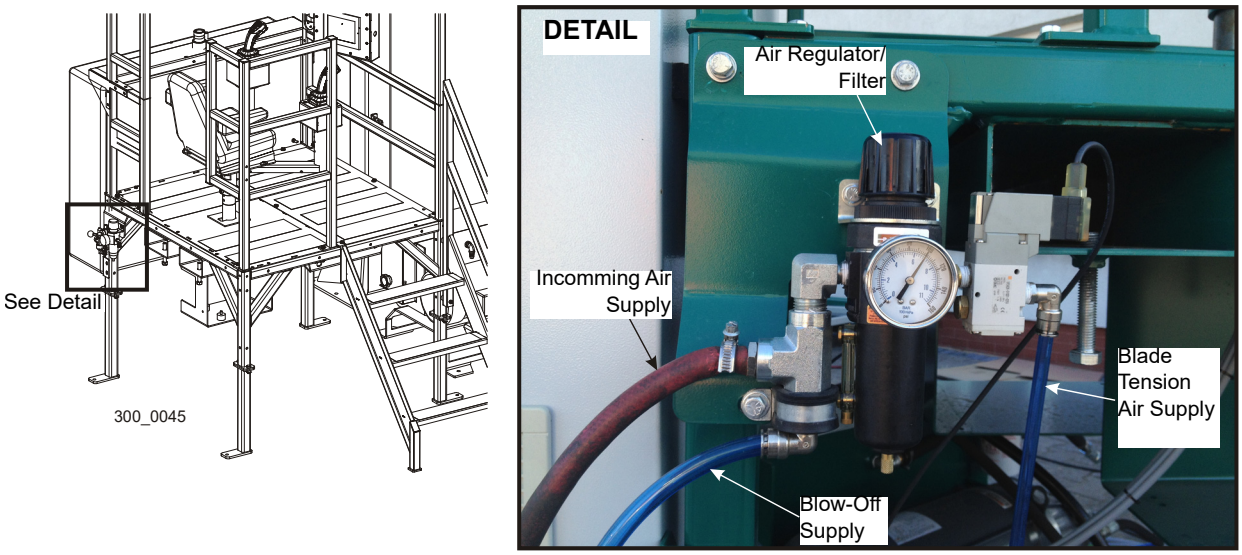


FIG. 3-14

If you need to disconnect the air supply, set the key switch to OFF position. Disconnect the air supply line. Turn the key switch to "Motor On" position to release the pressured air form the machine pneumatic system.

3.8. Sawmill 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*).

3.8.1 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 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. 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. 3-3. Suppose the four dimensions from track rail to the laser beam are as shown below. The 133,4mm [5 1/4”] dimension should be the target as this will require the least adjustment at each location.

Front	Front Middle	Rear Middle	Rear	Target
133,4mm 5 1/4”	127mm 5”	139,7mm 5 1/2”	133,4mm 5 1/4”	133,4mm 5 1/4”

TABLE. 3-3

See Figure 3-15. 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 lower adjustment nut to raise or lower the appropriate leg until the target dimension is obtained (±1,5mm [±1/16”]). Lock the leg in position by tightening the top nut. Repeat at each leg location along the length of the main bed tube.

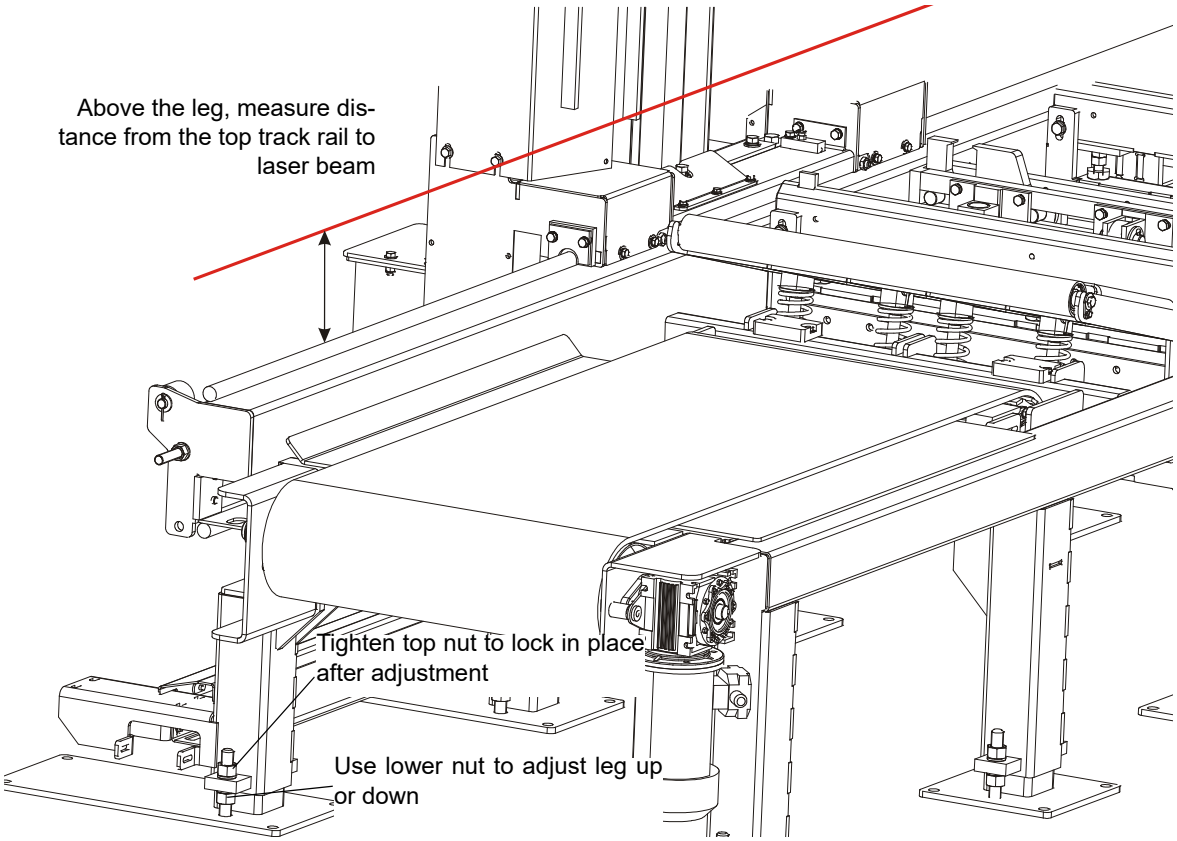


FIG. 3-15

After all of the legs have been adjusted and locked, 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, adjust one of the two middle inside legs to push or pull the tube until it is level. Loosen the upper adjustment nut on the leg and adjust the leg using the lower adjustment nut. Re-tighten the top nut after adjustment is complete.

See Figure 3-16. 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. Adjust the outer front legs to level the bed so both measurements to the tubes are the same (±1,5mm [±1/16”]). Leave the top adjustment nut loose for now. 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 (±1,5mm [±1/16”]).

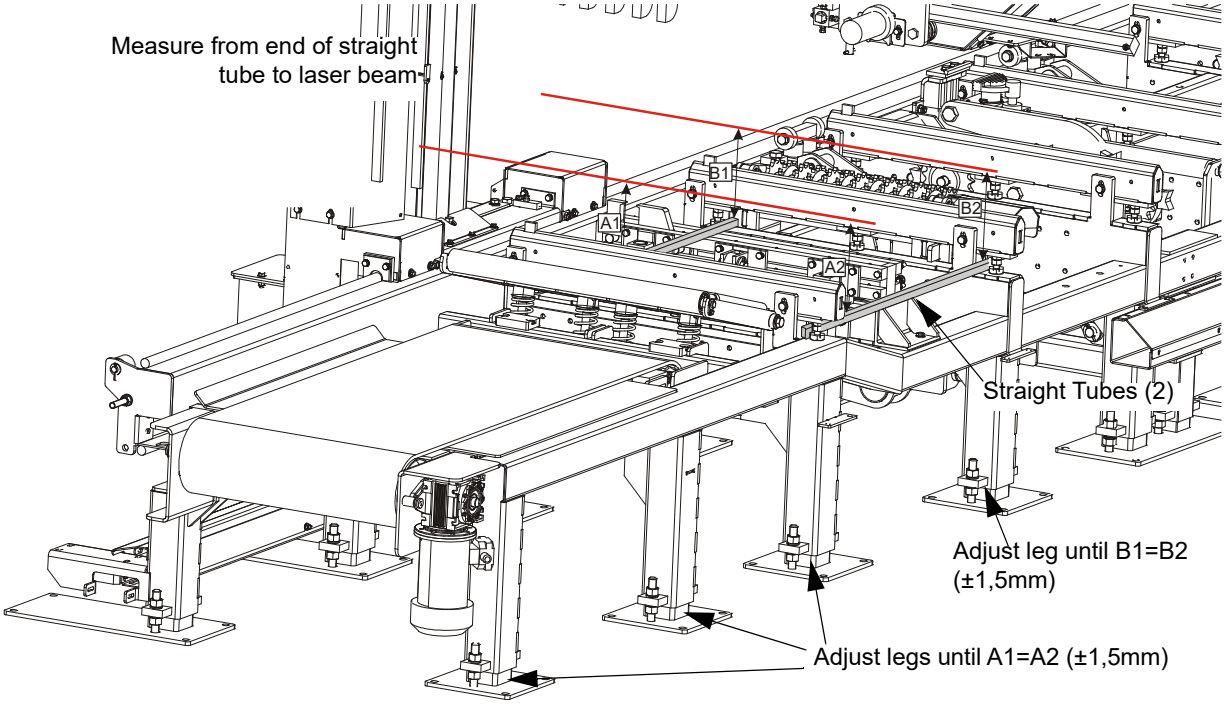


FIG. 3-16

3.8.2 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.

See Figure 3-17. Standard Roller/Block Guides: Loosen clamp bolt (H) and turn the top guide block bolt (F) counterclockwise to raise the top guide block off the blade. 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 screws (G) and (I) and move the guide assembly back away from blade.

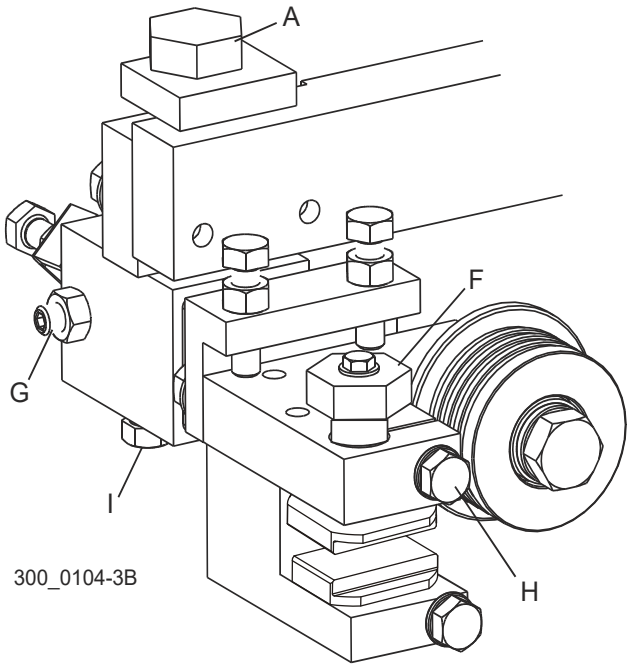


FIG. 3-17

See Figure 3-18. Optional Block Guides: Adjust the blade guides so they do not touch the blade in any way. Loosen clamp bolt (H) and turn the top guide block bolt (F) counterclockwise to raise the top guide block off the blade. 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 clamp bolt (G) and turn roller bolt

(C) if necessary to move roller away from blade.

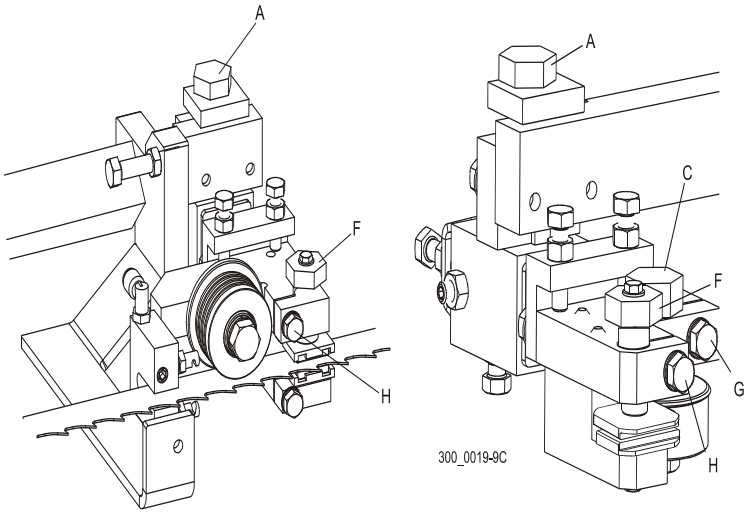


FIG. 3-18

See Figure 3-19. Raise the saw head until the blade is approximately 381mm [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.

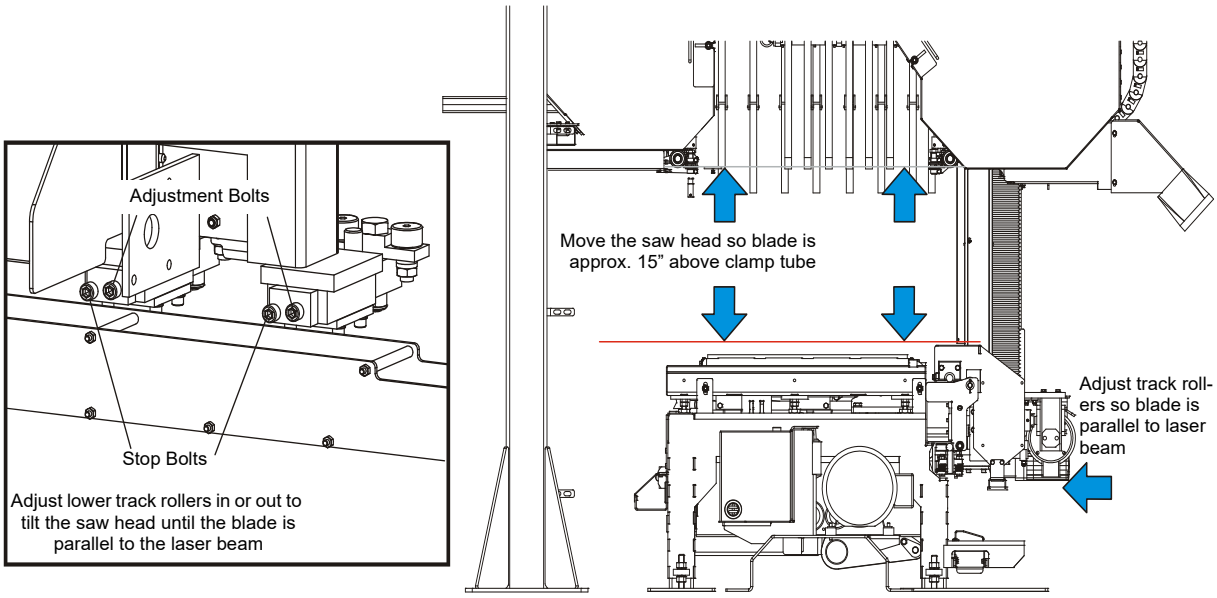


FIG. 3-19

See Figure 3-20. 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, adjust the outer legs. Turn the bottom adjusting nut to raise or lower the leg until the blade is parallel to the laser beam. Lock the leg in position by tightening the top adjustment nut. 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 and re-tighten the top adjustment nut.

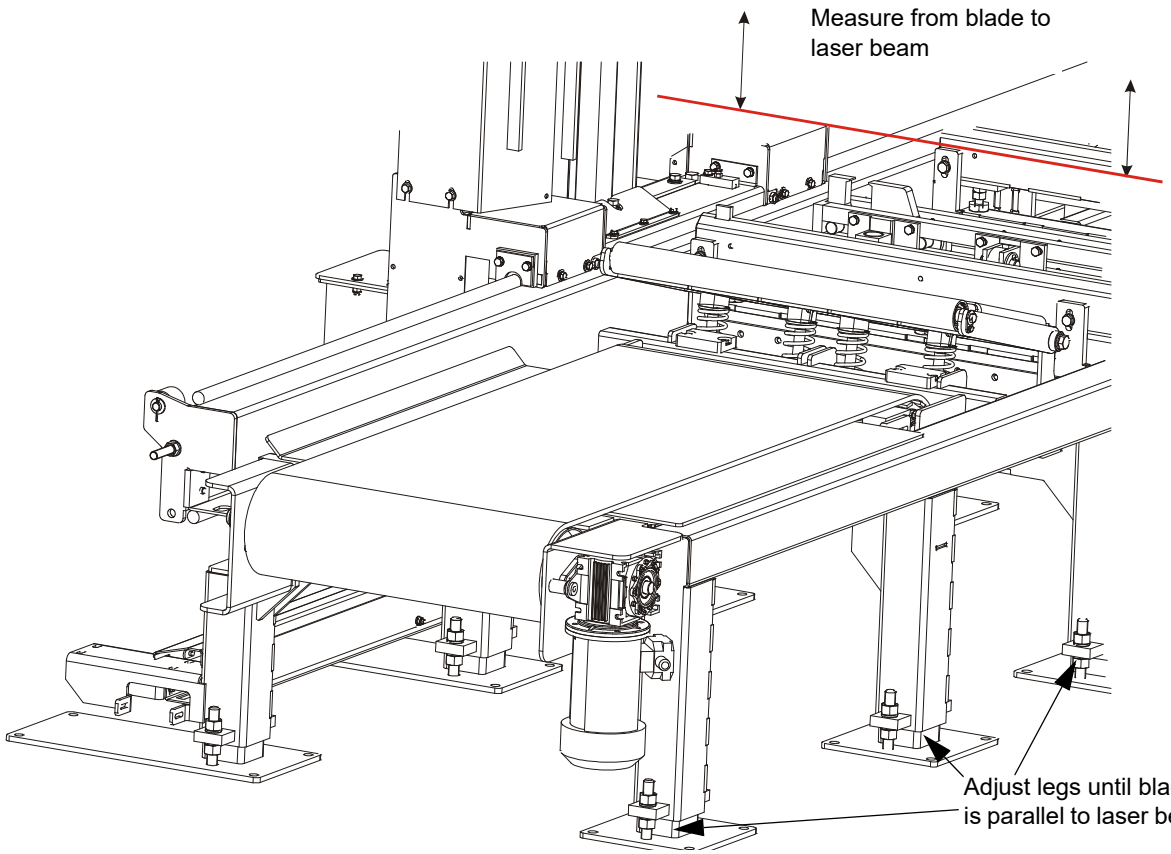


FIG. 3-20

3.8.3 Level Bed Rails

See Figure 3-21. Adjust the bed rails to 8mm (5/16”) above the log clamp. Move the log clamp in until it is 254mm (10”) from the clamp stop. Adjust the clamp down to its lowest position. Measure the distance from the laser beam to the clamp (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 clamp bolts and turn the adjustment bolt to raise or lower the end of the bed rail so it is 8mm (5/16”) above the clamp (i.e. 119mm [4 11/16”] [±1,5mm [±1/16”]]). Re-tighten the bed rail clamp bolts. Repeat adjustment as necessary at each bed rail.

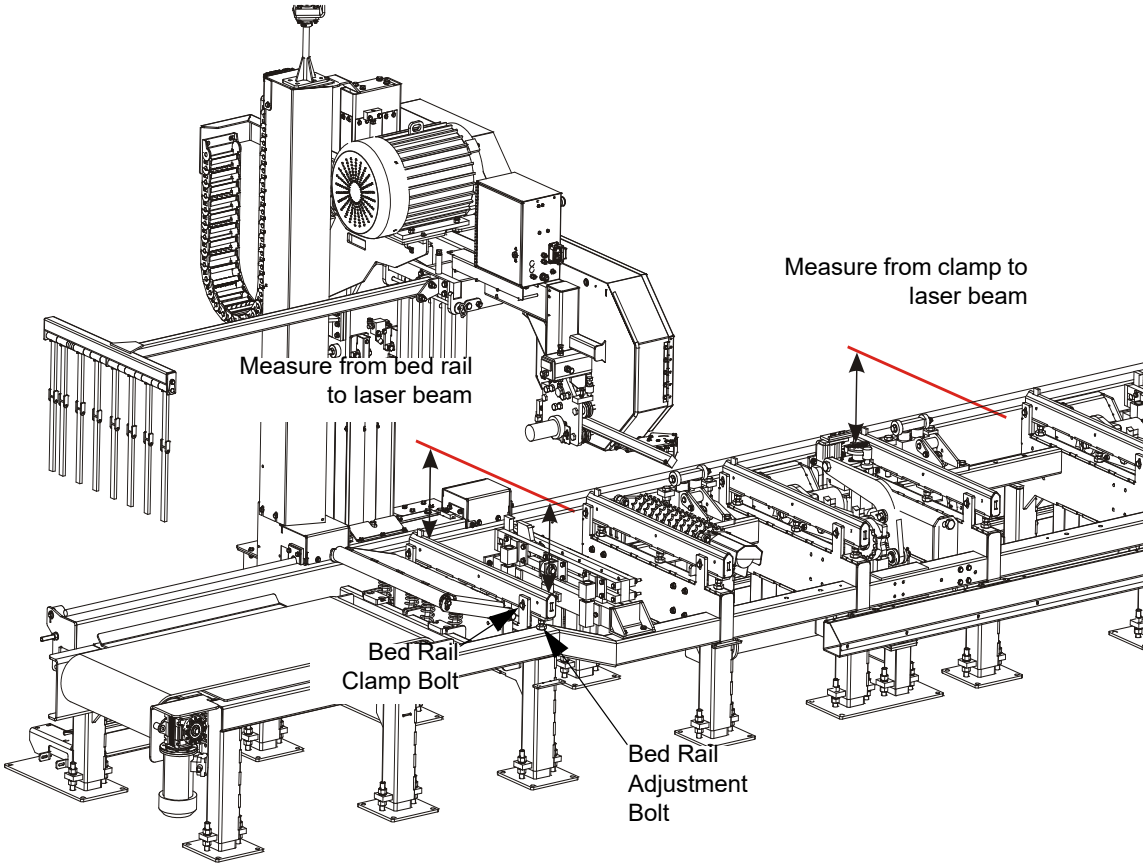


FIG. 3-21

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”.

3.8.4 Level Blade Guide Arm

See Figure 3-22. 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 1mm (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.

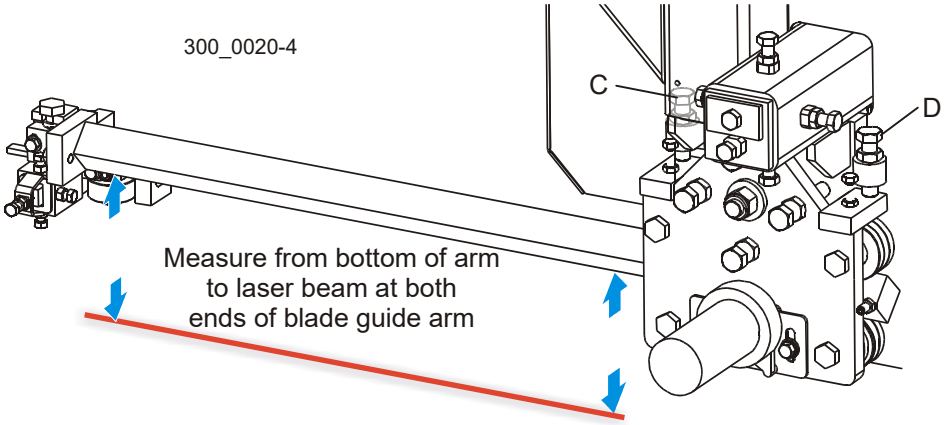


FIG. 3-22

Adjust the blade guides for sawing.

See Figure 3-23. Standard Roller/Block Guides: Move the guide assembly forward until the roller flange is 1,5mm-3mm (1/16”-1/8”) from the back edge of the blade and tighten clamp bolts (G) and (I). Turn blade guide assembly bolt (A) clockwise to raise the bottom guide block up until it touches the blade, but does not deflect it upward. Turn top guide block bolt (F) clockwise to move top block down until it touches the blade, then back 1/4 turn. Tighten clamp bolt (H). Repeat for other blade guide assembly.

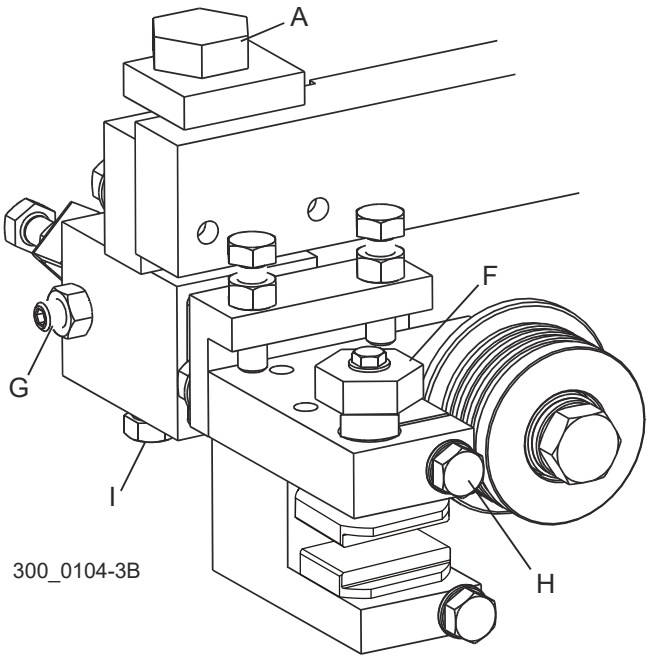


FIG. 3-23

See Figure 3-24. Optional Roller/Block Guides: Turn blade guide roller bolt (C) to move the roller so it is 1,5mm-3mm (1/16”-1/8”) from the back edge of the blade and tighten clamp bolt (G). Turn blade guide assembly bolt (A) clockwise to raise the bottom guide block up until it touches the blade, but does not deflect it upward. Turn top guide block bolt (F) clockwise to move top block down until it touches the blade, then back 1/4 turn. Tighten clamp bolt (H). Repeat for other blade guide assembly.

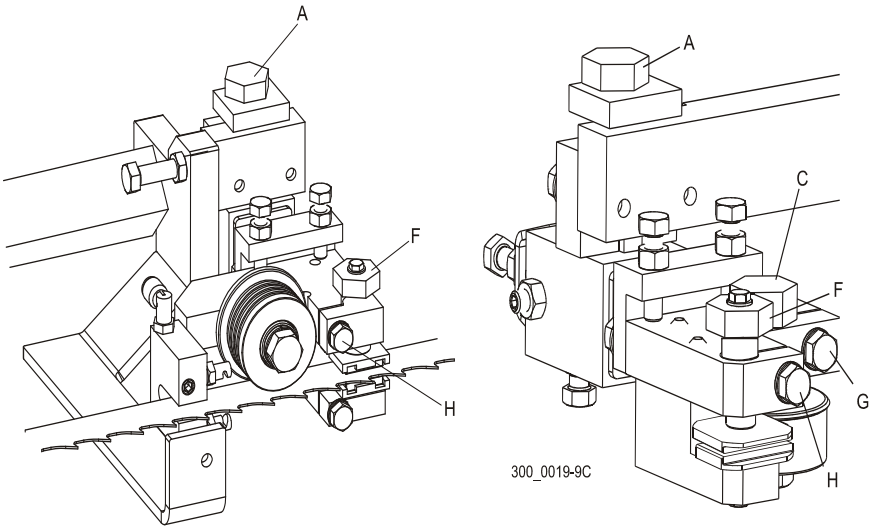


FIG. 3-24

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.

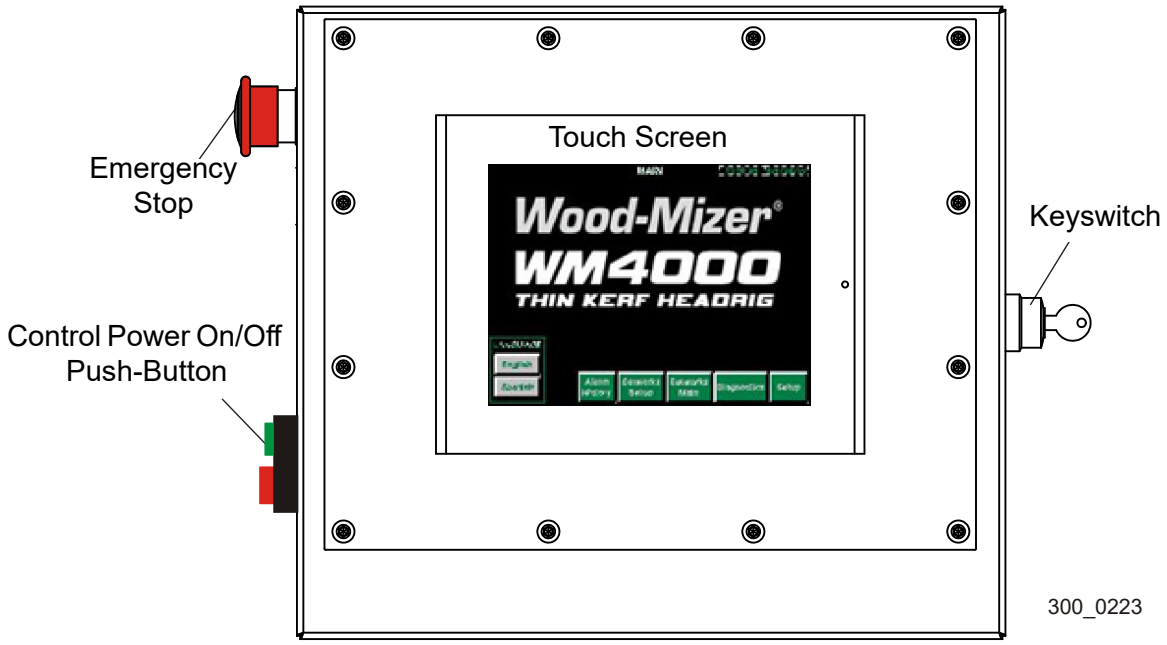


FIG. 4-1

Touch Screen: The touch screen is used to setup how the mill functions and controls the setworks. 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 these buttons 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) that 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.

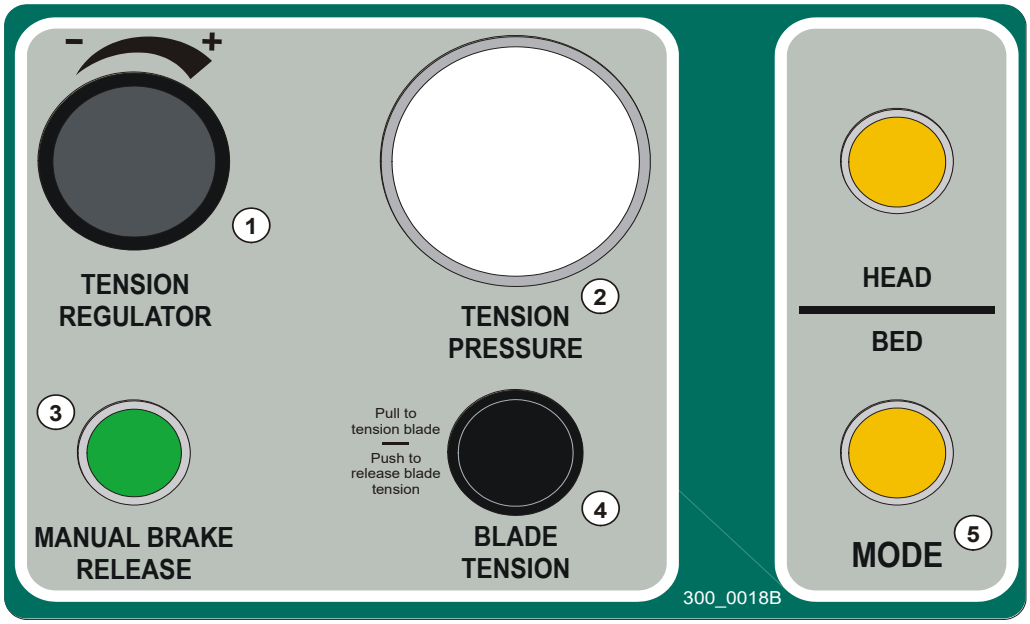


FIG. 4-2

1. TENSION REGULATOR - Turning this knob adjusts the blade tension pressure. Turn the knob clockwise to increase blade tension, counterclockwise to reduce blade tension.

2. TENSION PRESSURE - Gauge indicates current blade tension pressure. *See Table. 4-1.*

3. MANUAL BRAKE RELEASE - Push in and hold to release the blade wheel brake.

4. BLADE TENSION - Push in to release the blade tension, pull out to tension the blade.

5. MODE - Two lights indicate the current mode of the joystick controls. The top button on the left joystick toggles the joystick controls between head and bed functions.

   - 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).

See Table. 4-1. The recommended tension for different blades is shown below.

Blade Type	Acceptable Range
B376xxx	60-65 psi
B476xxx	60-62 psi
B576xxx	60-65 psi

TABLE. 4-1

IMPORTANT! Loosen the blade when the machine is not in use. Tension the blade again before starting the motor.

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.

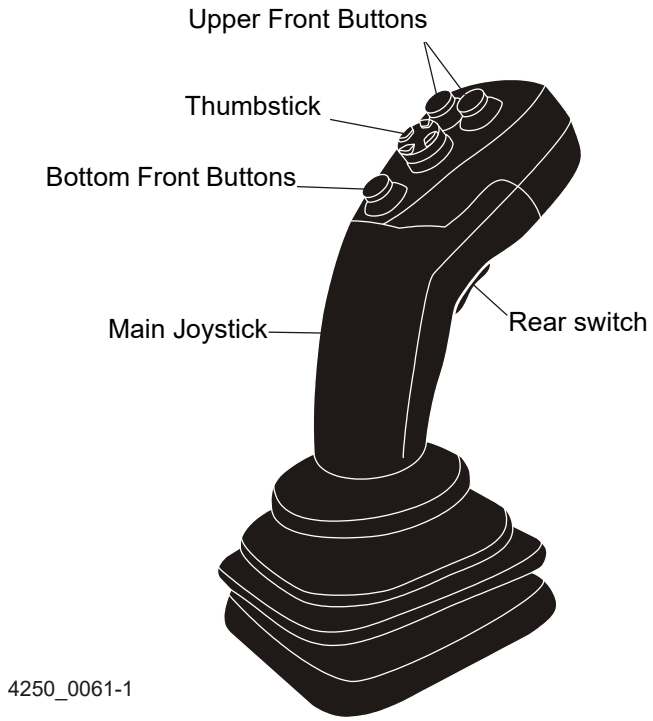


FIG. 4-3

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.

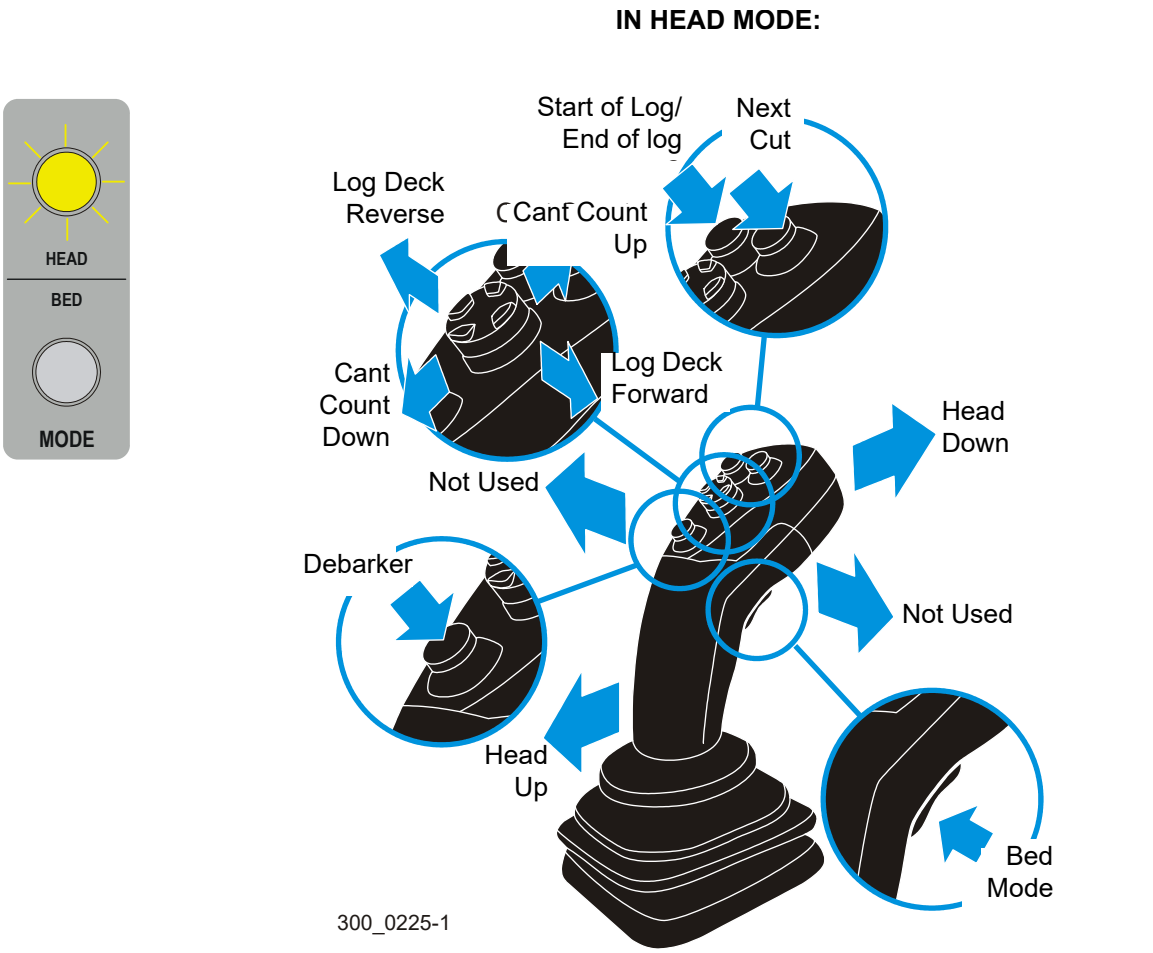


FIG. 4-4

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.

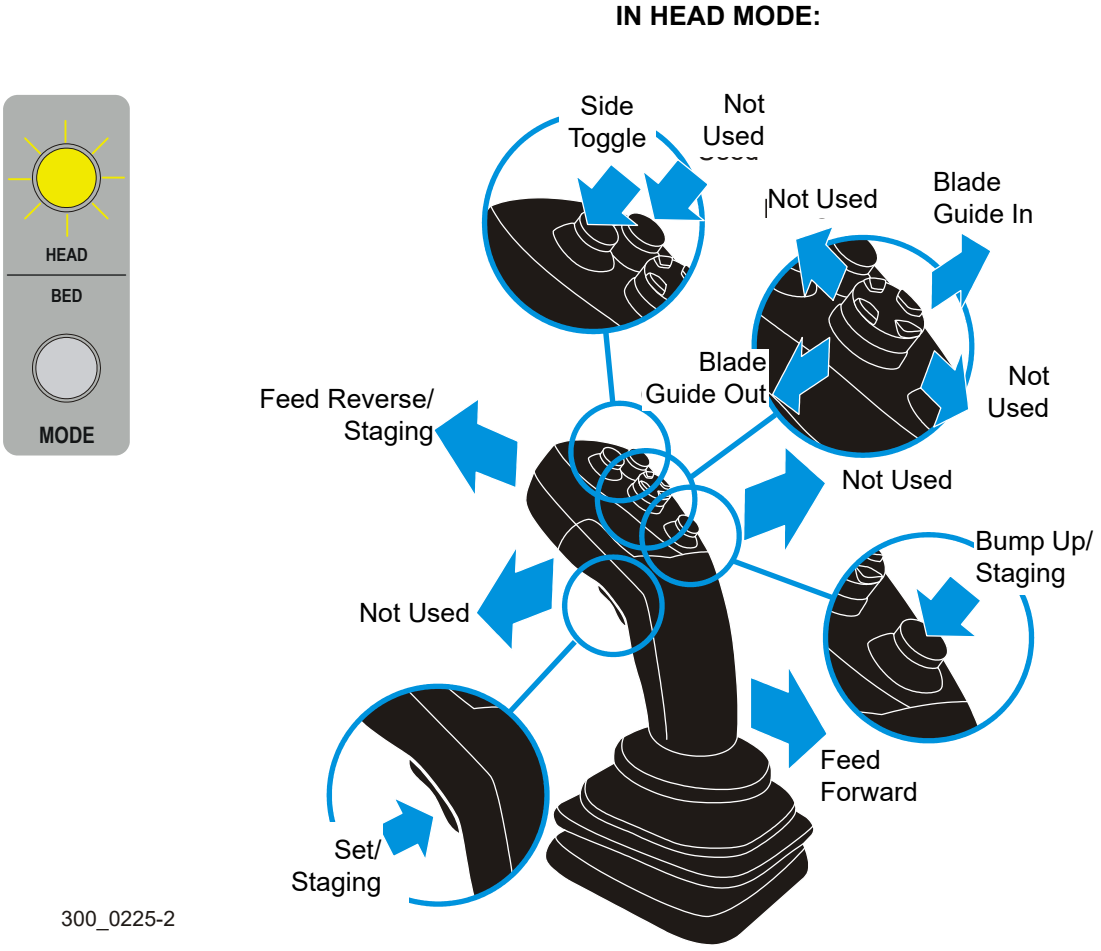


FIG. 4-5

Press the top left head button to toggle between sides in Setworks. 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.

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.

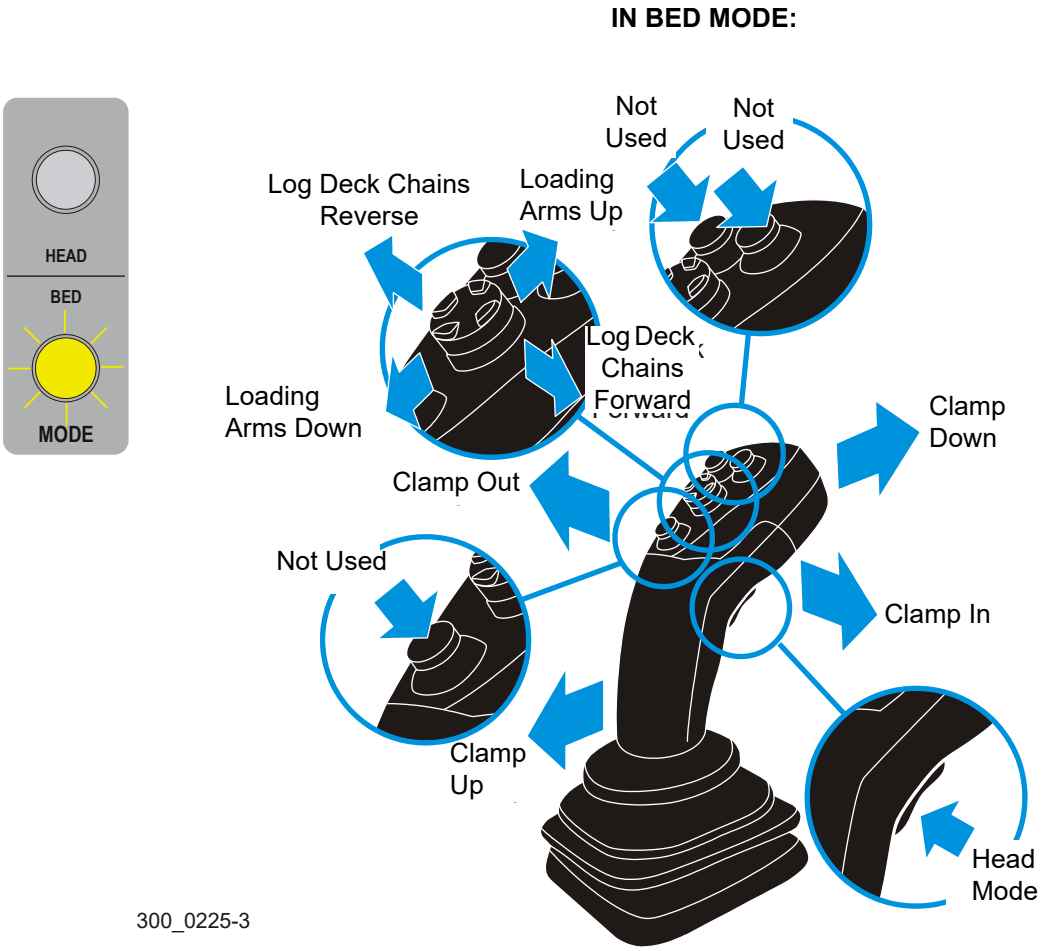


FIG. 4-6

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 lower the side supports. The further the joystick is pushed, the faster the side support 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.

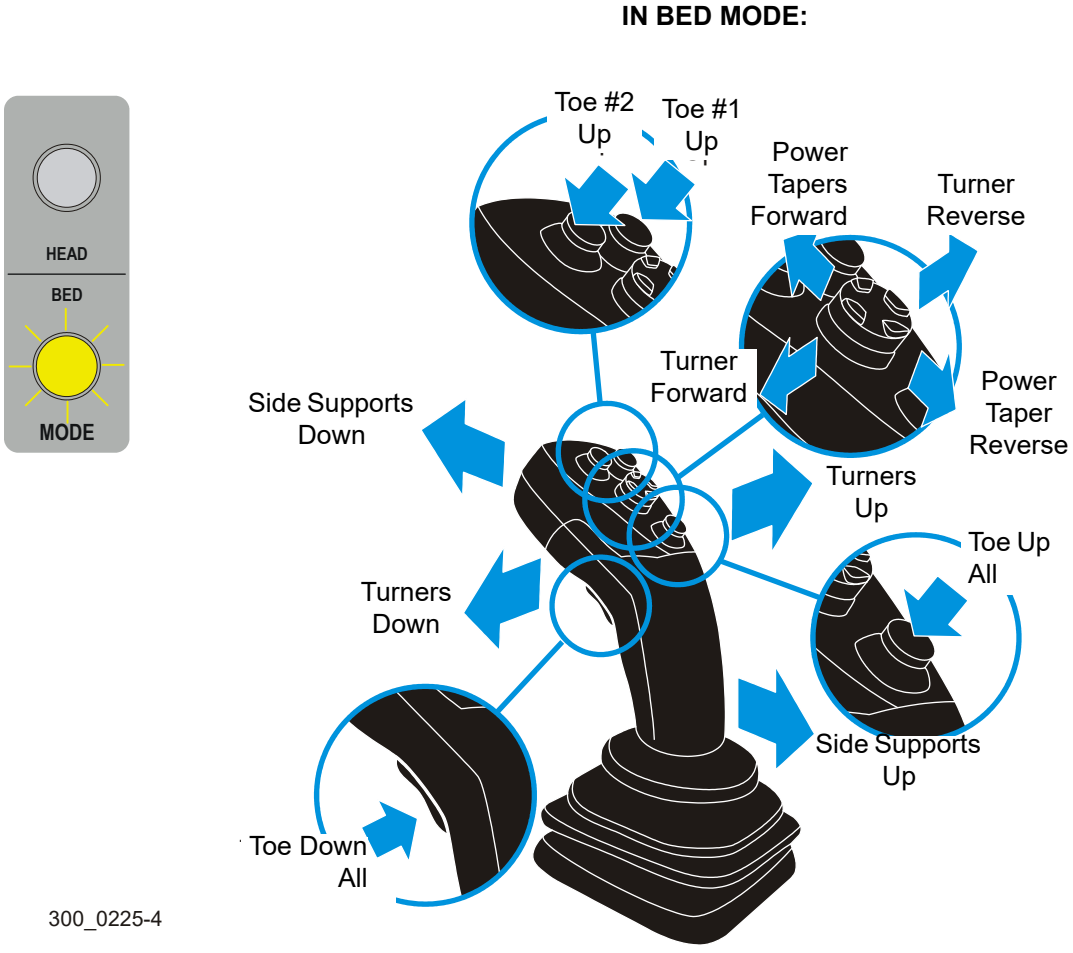


FIG. 4-7

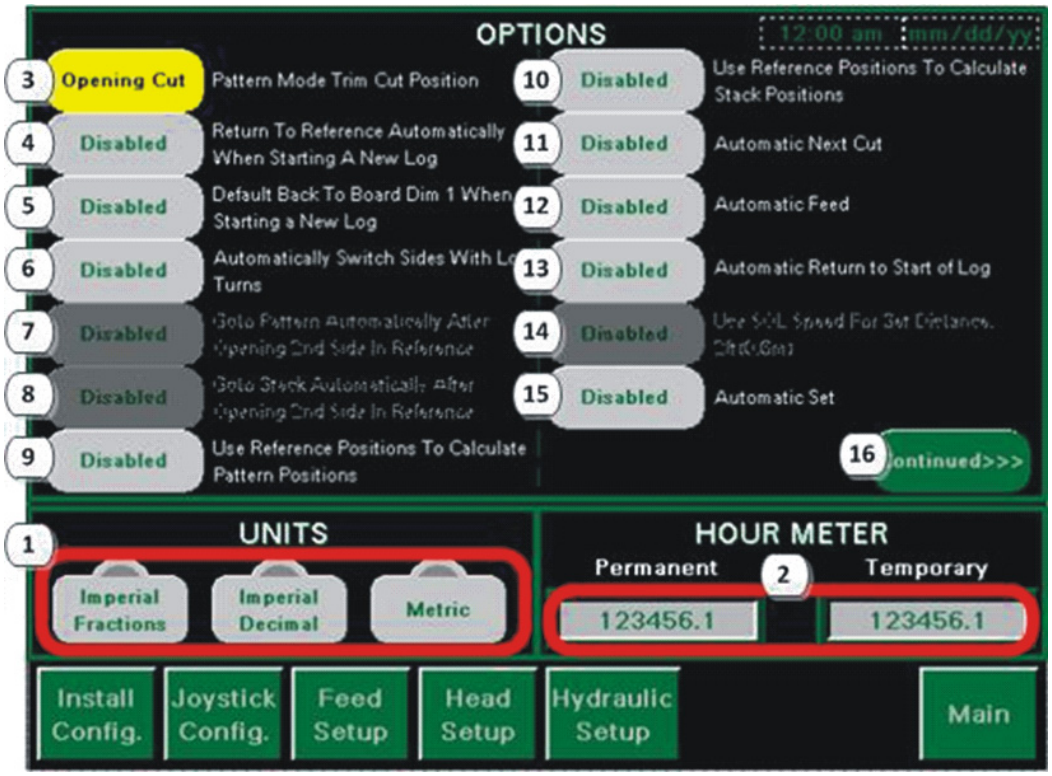
Press the top left head button to raise Toe #2. Press the top right head button to raise Toe #1. Press the bottom head button to raise all the Toe Boards. Press the rear switch to lower all the Toe Boards. Press the thumbstick forward to turn the power taper rollers forward and press it down to move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



300_0227-1

FIG. 4-8

4.4.2 Units

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.

4.4.3 Hour Meter

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.

4.4.4 Options

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 but, 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) Goto 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.

(8) Goto 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.

(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) 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 posi-

tion will be used for Stack 2.

(11) 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.

(12) 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.

(13) 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.

(14) 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.

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

(16) Use this button to go the second page of options.

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

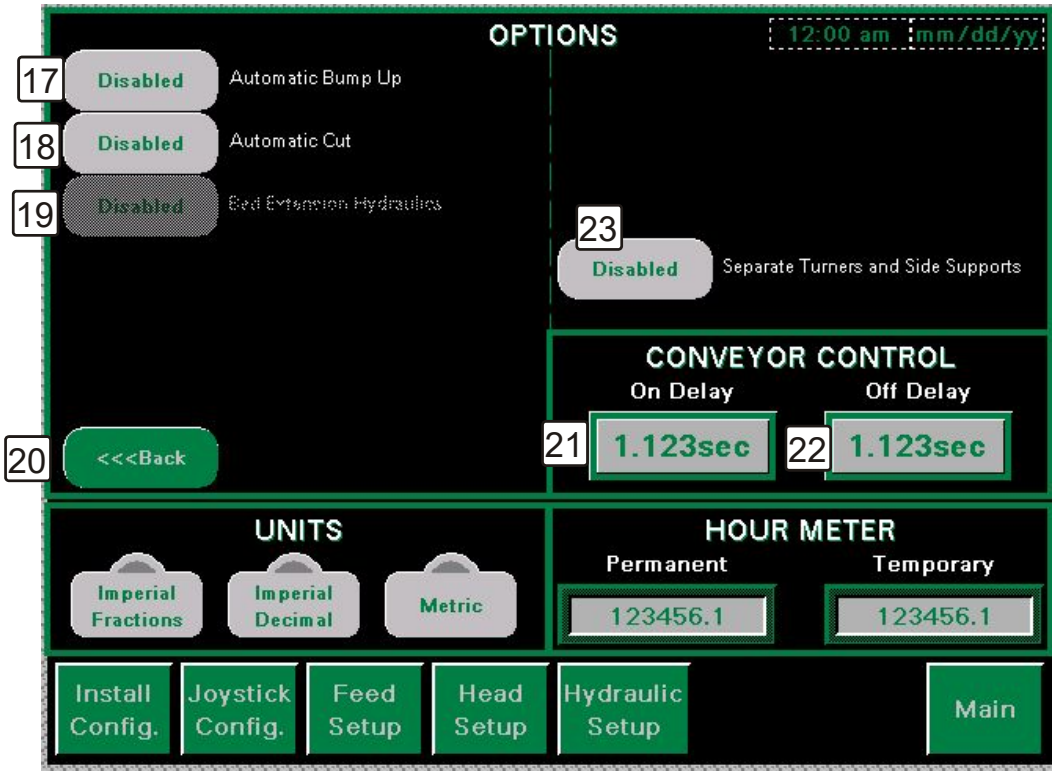


FIG. 4-9

(17) 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.

(18) 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.

(19) 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.

(20) Use this button to go back to the first page of options.

(21) This timer sets how long the feed must be in reverse before the conveyor will start.

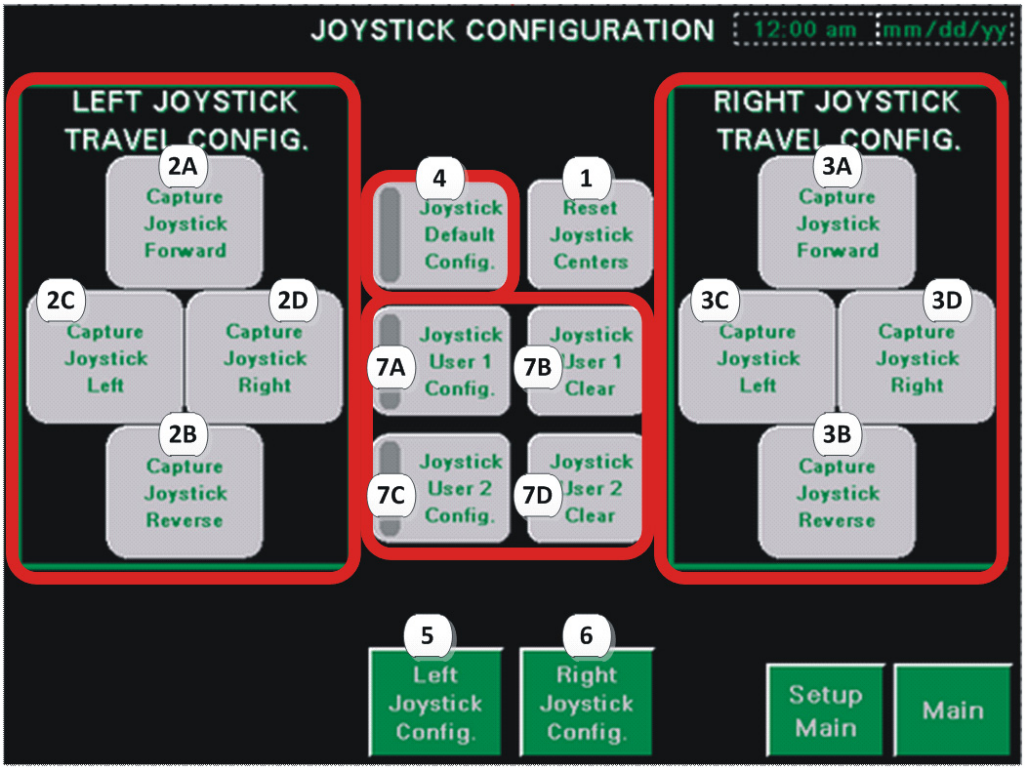
(22) This timer sets how long the conveyor will keep running after the feed has stopped moving in reverse.

(23) Use this button to separate operation of the side support and the turners. When disabled, the side supports and turners work together - when raising the turners, first the side supports are moving up. When enabled, it is possible to control the turner independently of the side supports. It is recommended that this option be set to: *Disabled*.

4.4.5 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.



300_0227-3

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) Left Joystick Travel Configuration - Under any of the three conditions explained for the joystick centers the travel configuration will also have to be set. These buttons also flash when the machine knows they need set.

- **(2A) Capture Joystick Forward** - To capture the joystick forward value, press the joystick all the way forward. While maintaining the joystick all the way forward, press this button.

- **(2B) Capture Joystick Reverse** - To capture the joystick reverse value, pull the joystick all the way backward. While maintaining the joystick all the way backward, press this button.

- **(2C) Capture Joystick Left** - To capture the joystick left value press the joystick all the way left. While maintaining the joystick all the way left, press this button.

- **(2D) Capture Joystick Right** - To capture the joystick right value pull the joystick all the way right. While maintaining the joystick all the way right, press this button.

(3) Right Joystick Travel Configuration - Under any of the three conditions explained for the joystick centers. The travel configuration will also have to be set. These buttons also flash when the machine knows they need set.

- **(3A) Capture Joystick Forward** - To capture the joystick forward value, press the joystick all the way forward. While maintaining the joystick all the way forward, press this button.

- **(3B) Capture Joystick Reverse** - To capture the joystick reverse value, pull the joystick all the way backward. While maintaining the joystick all the way backward, press this button.

- **(3C) Capture Joystick Left** - To capture the joystick left value, pull the joystick all the way left. While maintaining the joystick all the way left, press this button.

- **(3D) Capture Joystick Right** - To capture the joystick right value press the joystick all the way right. While maintaining the joystick all the way right, press this button.

(4) 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.

(5) Left Joystick Config. - This button takes you to a page where you can view the joystick configuration.

(6) Right Joystick Config. - This button takes you to a page where you can view the joy-

stick configuration.

(7) User Defined Joystick Configurations - These buttons control the user defined joystick configurations.

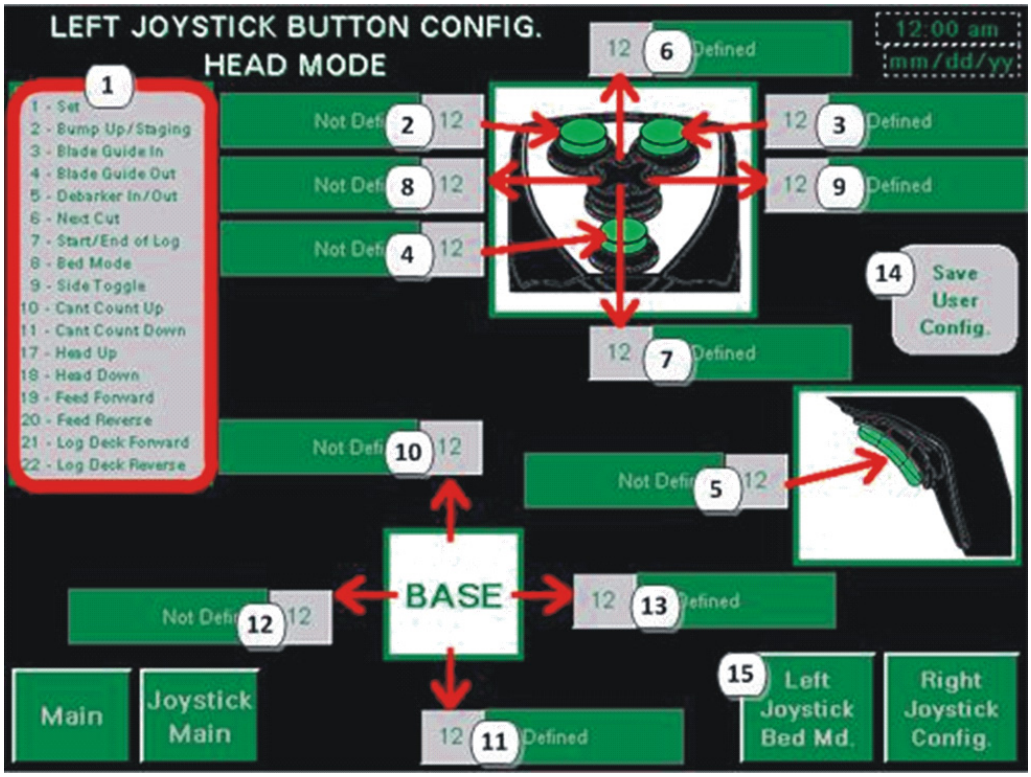
- **(7A) Joystick User 1 Config.** - This button selects the user 1 configuration. When the user 1 configuration is active the indicator on the button will be green.
- **(7B) Joystick User 1 Clear** - This button clears the user 1 configuration from memory.
- **(7C) Joystick User 2 Config.** - This button selects the user 2 configuration. When the user 2 configuration is active the indicator on the button will be green.
- **(7D) Joystick User 2 Clear** - This button clears the user 2 configuration from memory.

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 **(7A)**. The green indicator on the button should come on.
2. Press the “Left Joystick Config.” button (5) to begin setting the functions.

See Figure 4-11.



300_0227-4

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

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.

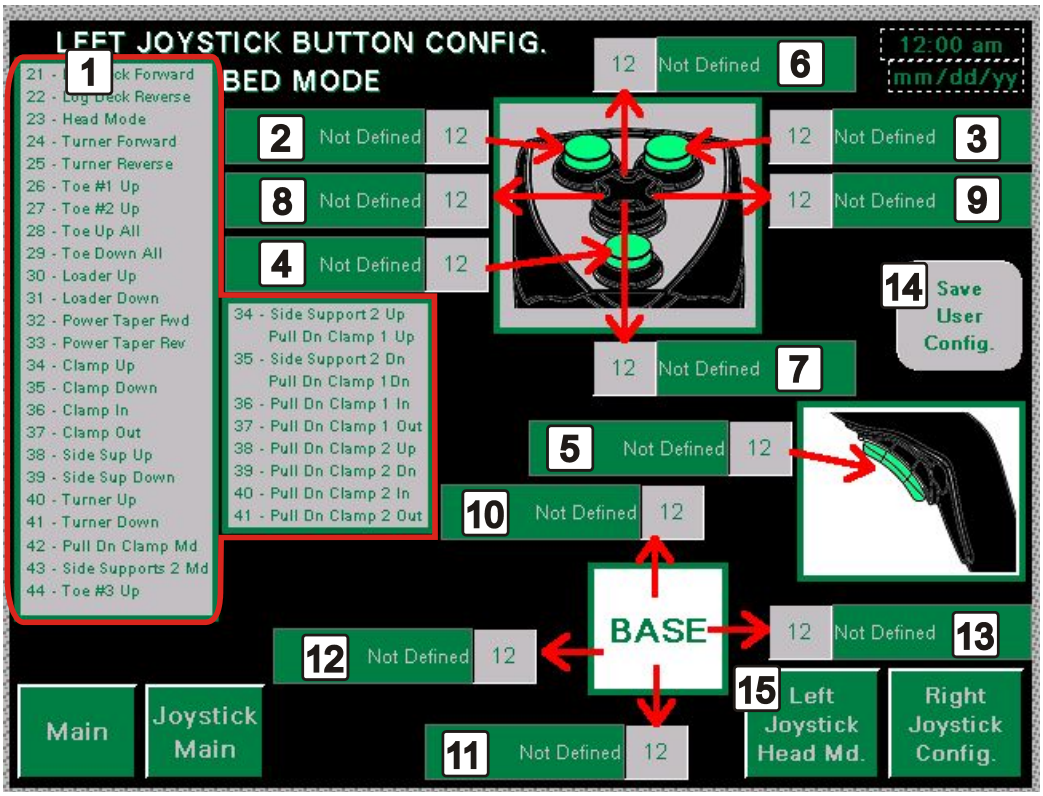


FIG. 4-12

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.

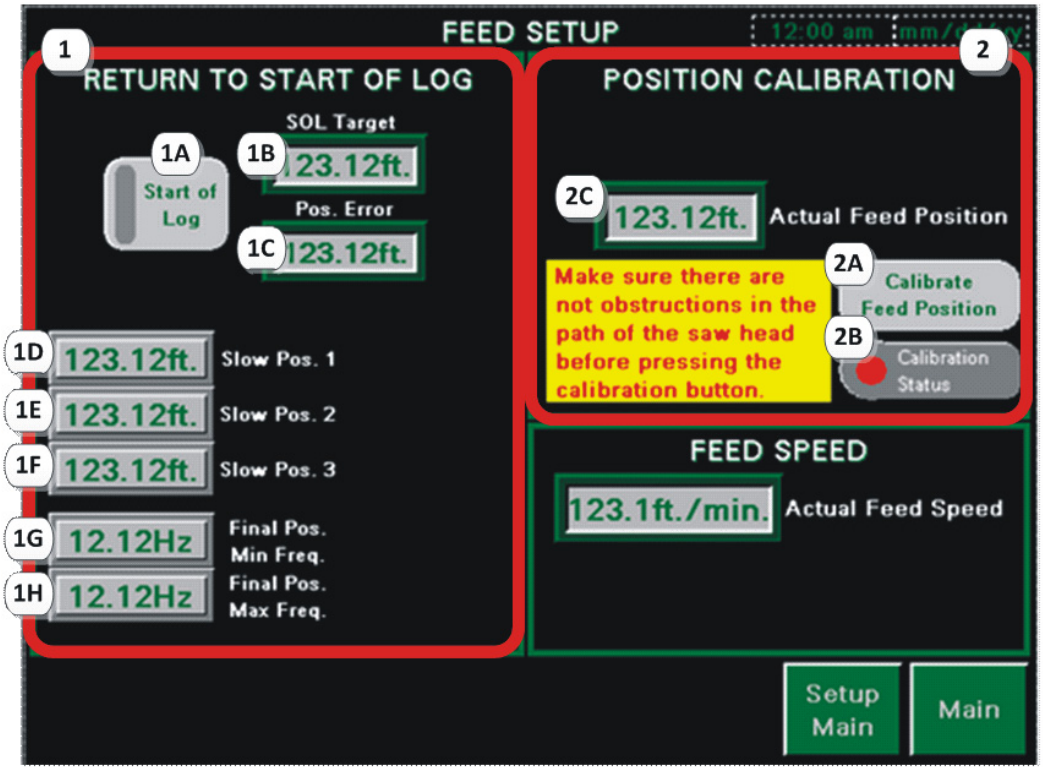
10. The left joystick configuration is finished. Follow the same procedure for the right joystick. Press the “Right Joystick Config.” button on the “Joystick Configuration” to enter the right

joystick configuration instead.

4.4.6 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_0227-6

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.

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 doe 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.

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.

4.4.7 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.

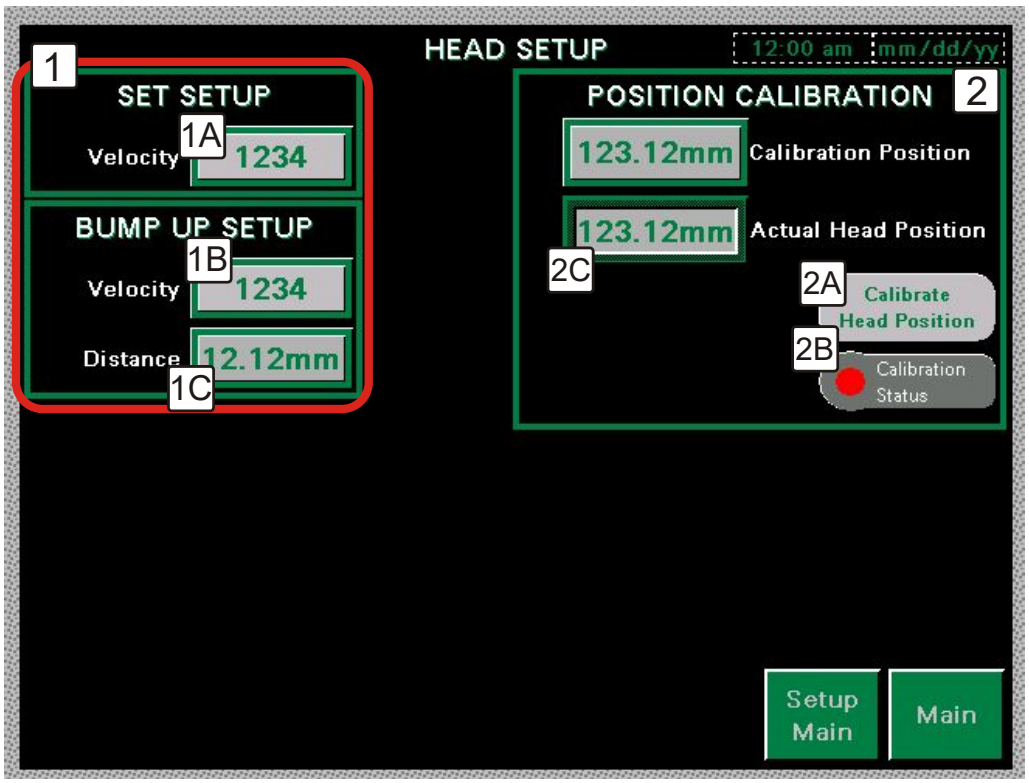


FIG. 4-14

Servo Setup

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

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

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.

5. Press the “Calibrate Head Position” button.

6. Calibration complete.

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.

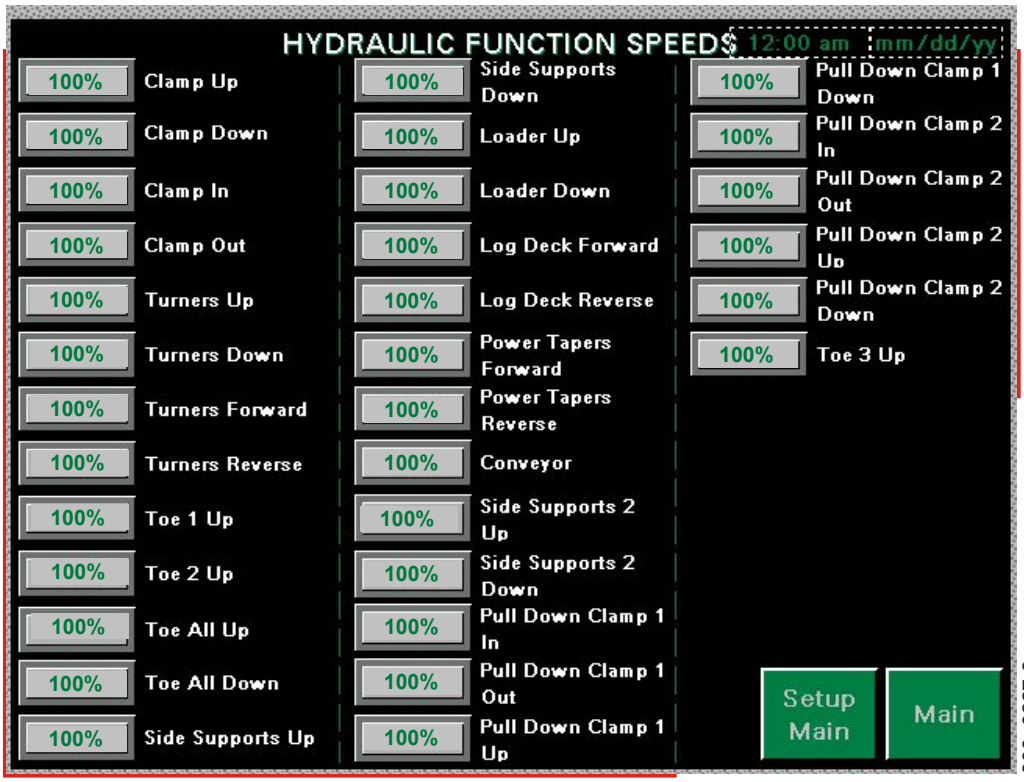


FIG. 4-15

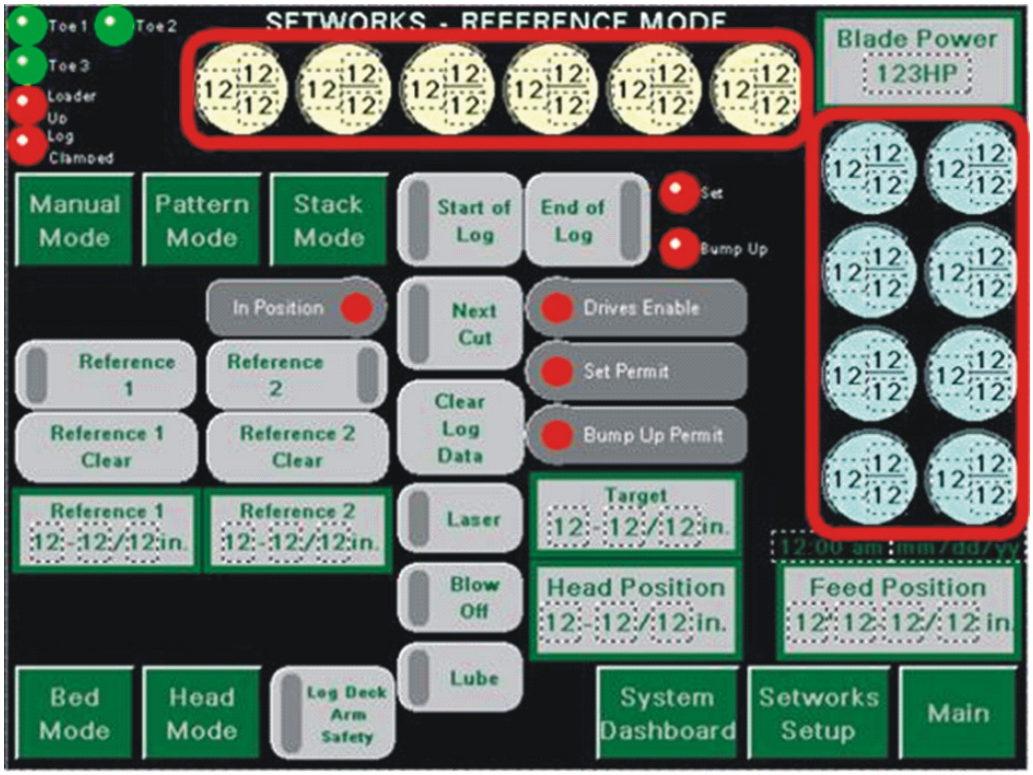
Changing Hydraulic Set-Points

(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.

4.4.8 Setworks Setup

From the Home screen, touch the Setworks Setup button.

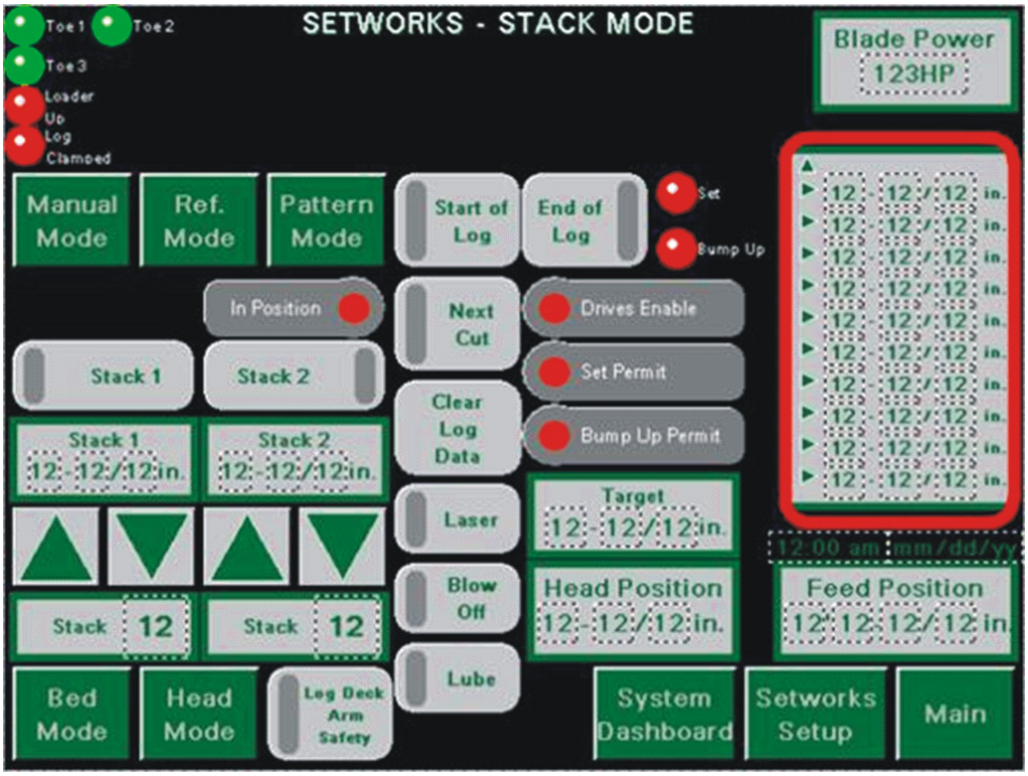
See Figure 4-16. There are six Board Size buttons used in Reference and Pattern modes. There are also eight Cant Size buttons used in Reference and Pattern modes. Their values are always displayed on the touch screen when in these modes.



300_0227-9

FIG. 4-16

See Figure 4-17. There are also four Stacks in Stack mode. Each stack has ten sizes.



300_0227-10

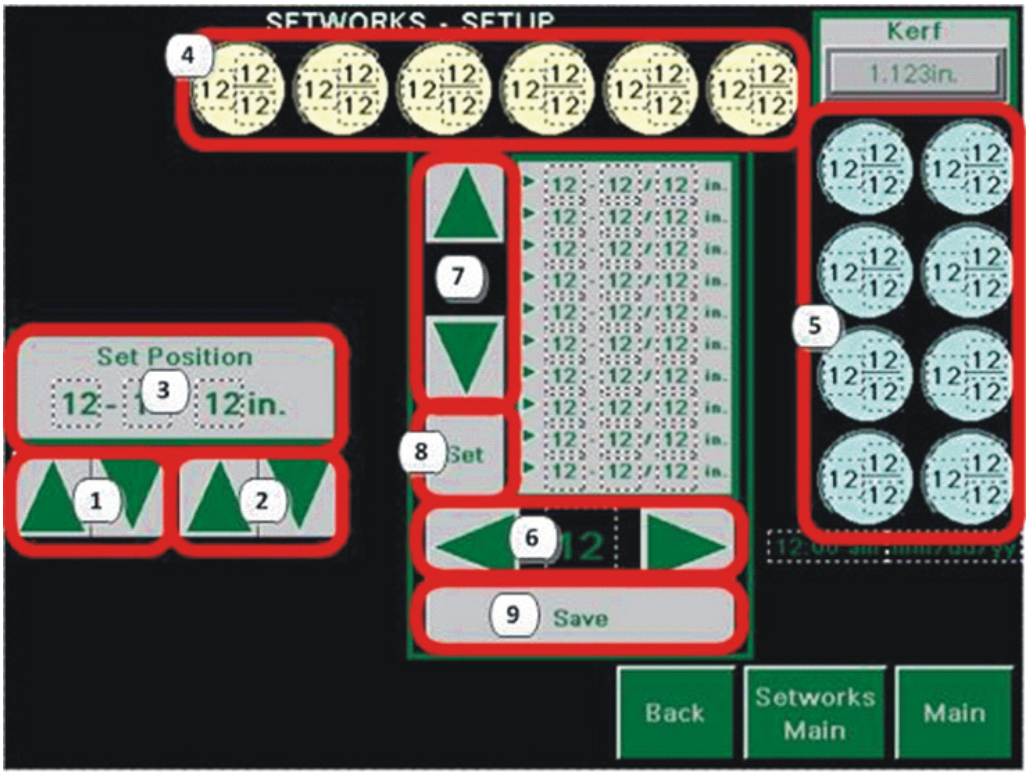
FIG. 4-17

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 4-18. The Setworks Setup screen is shown below.



300_0227-11

FIG. 4-18

(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.

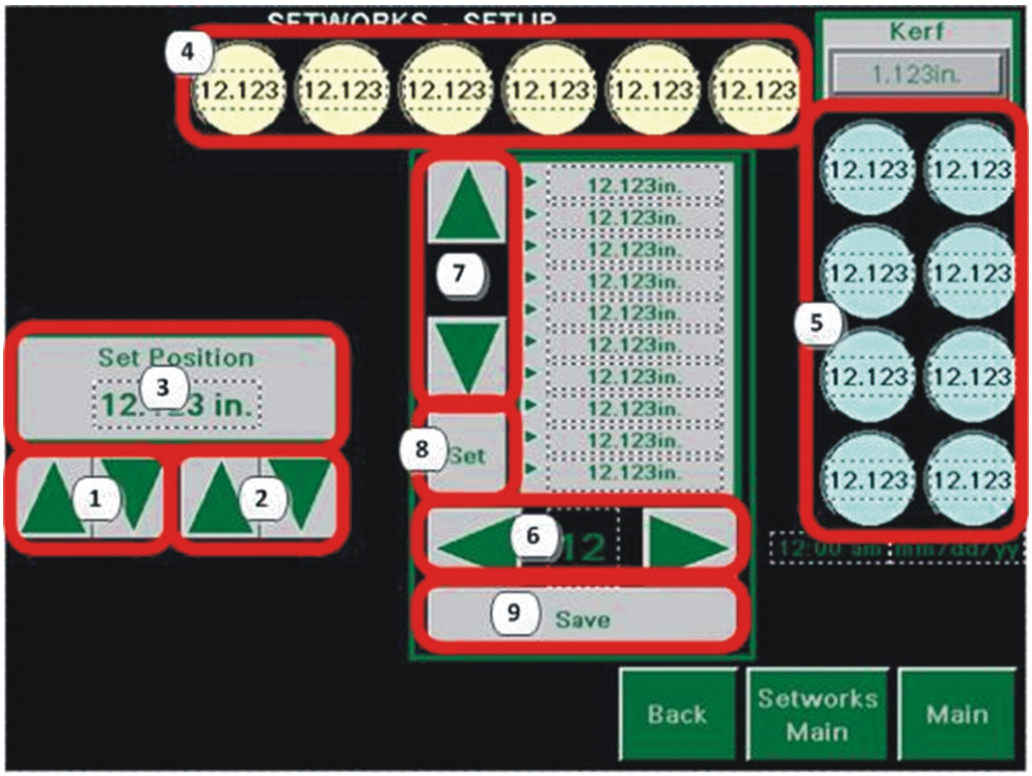
- Each size above the one set will be filled with the value entered.

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

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

Decimal Size Setup

See Figure 4-19. The Setworks Setup screen is shown below.



300_0227-12

FIG. 4-19

(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.

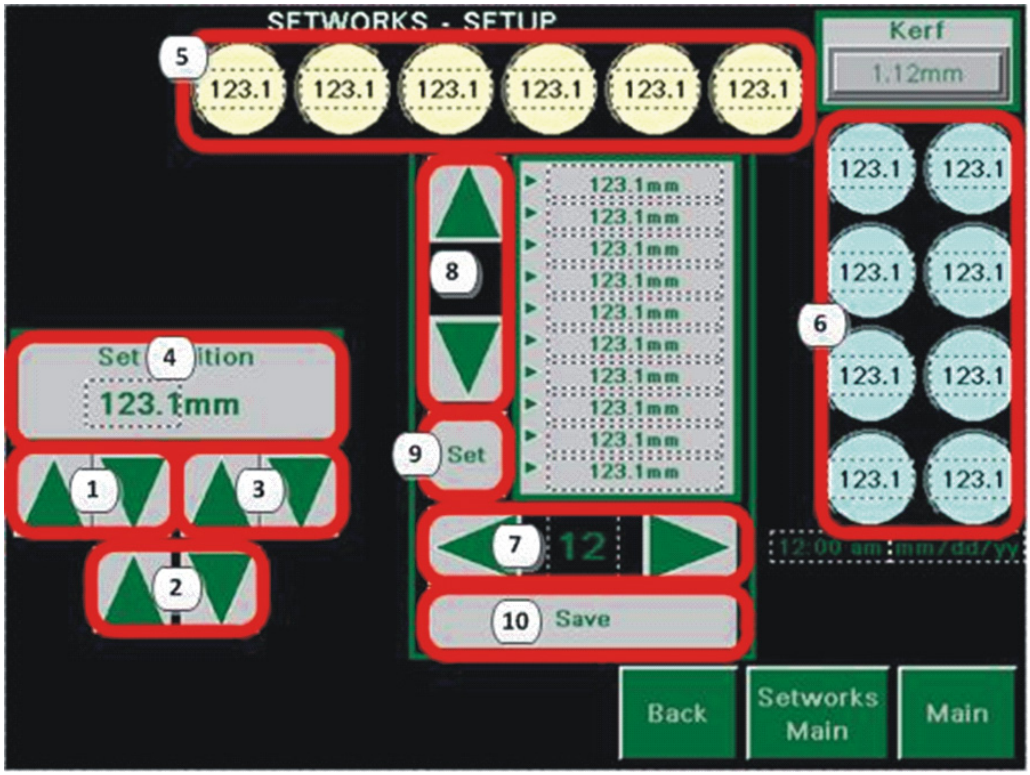
- Each size above the one set will be filled with the value entered.

(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 4-20. The Setworks Setup screen is shown below.



300_0227-13

FIG. 4-20

(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.

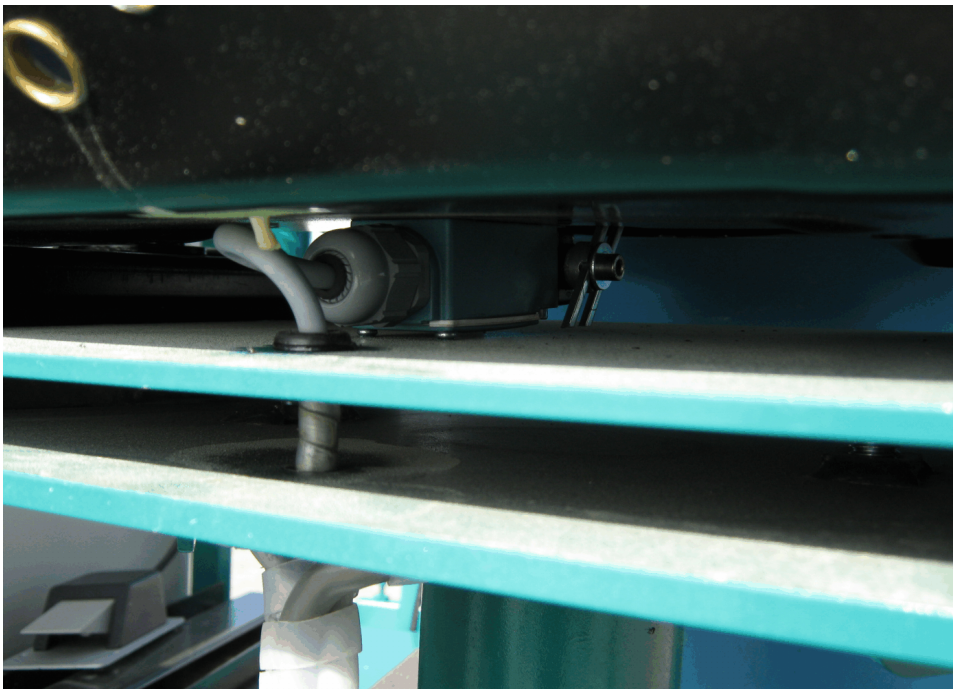
4.5 Starting The Machine

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. There is a safety switch below the operator seat. It is possible to start the sawmill only when the operator is in the seat.



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

See Figure 4-21.

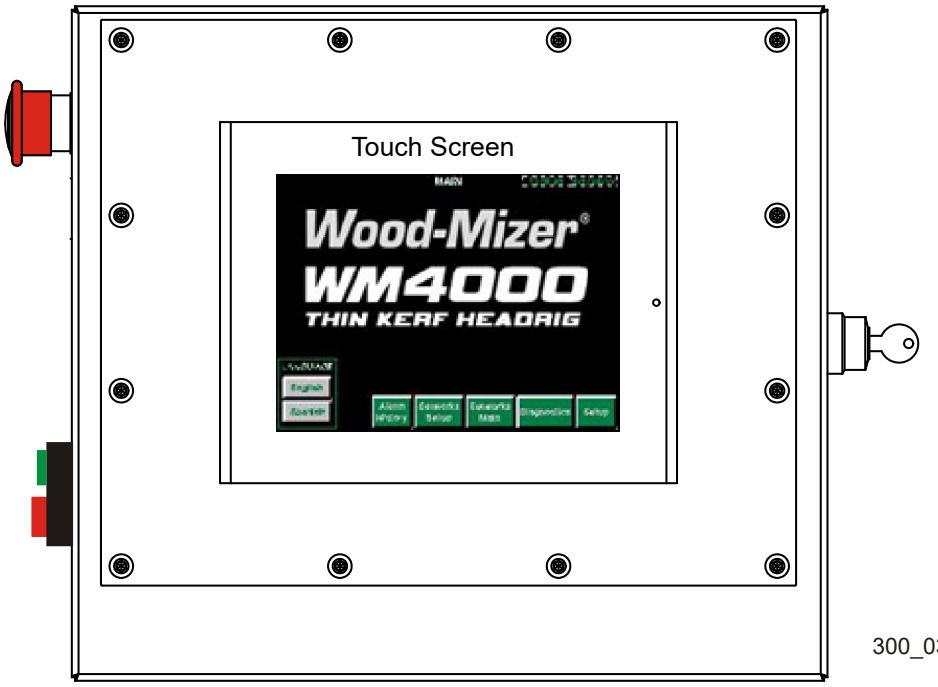


FIG. 4-21

3. To turn the sawmill power on, push the green START 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 power the cover lock handles and open the blade housing covers.

   See Figure 4-22.

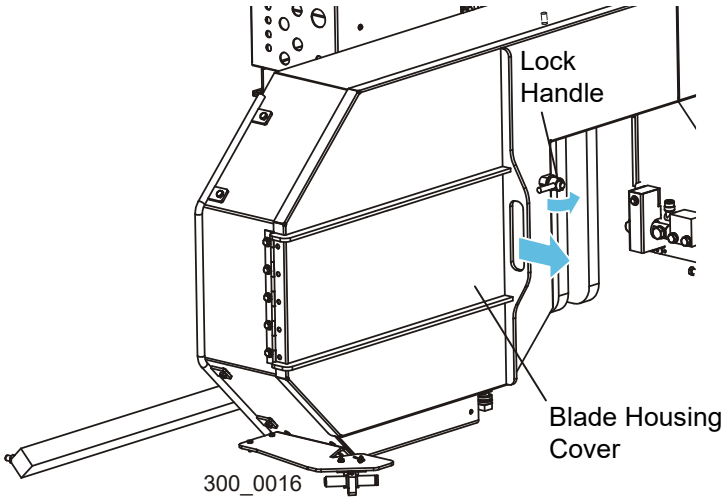


FIG. 4-22

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 4-23. Position the blade on the wheels so the gullet is even with the front edge of the wheel (+1/16”, -0).

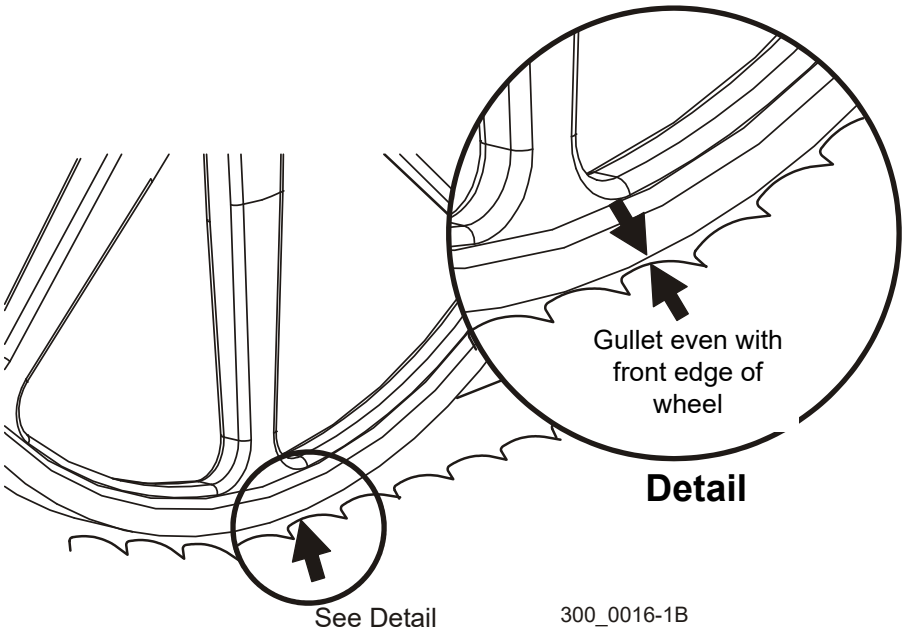


FIG. 4-23

6. Pull the BLADE TENSION button. The TENSION PRESSURE gauge should read 60 psi. 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 re-tension 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.

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 4-24. 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.

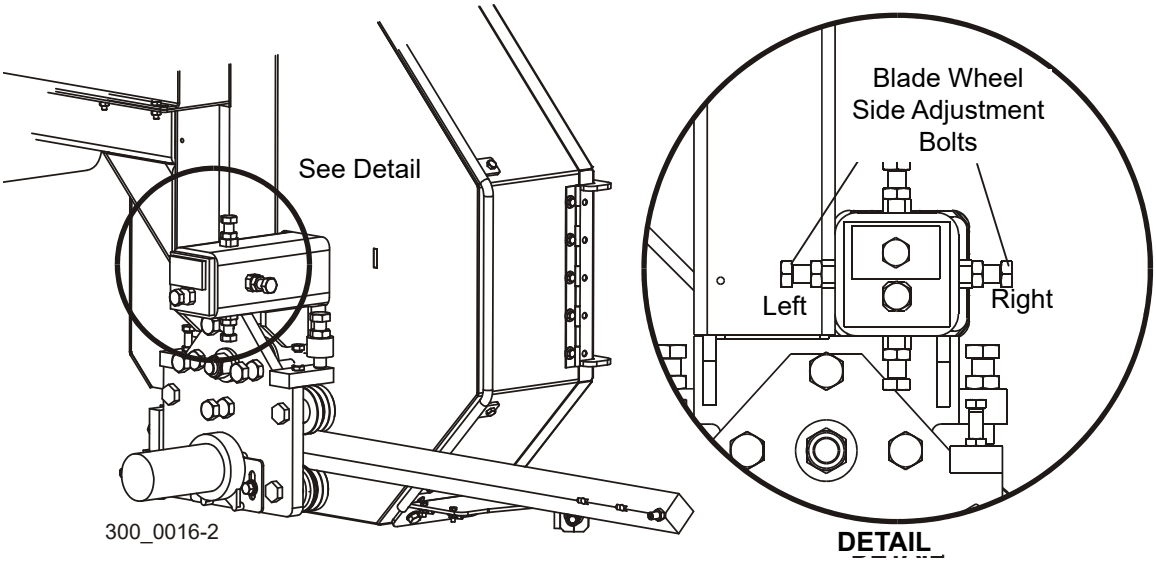


FIG. 4-24

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 6.2.* 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 4-25.

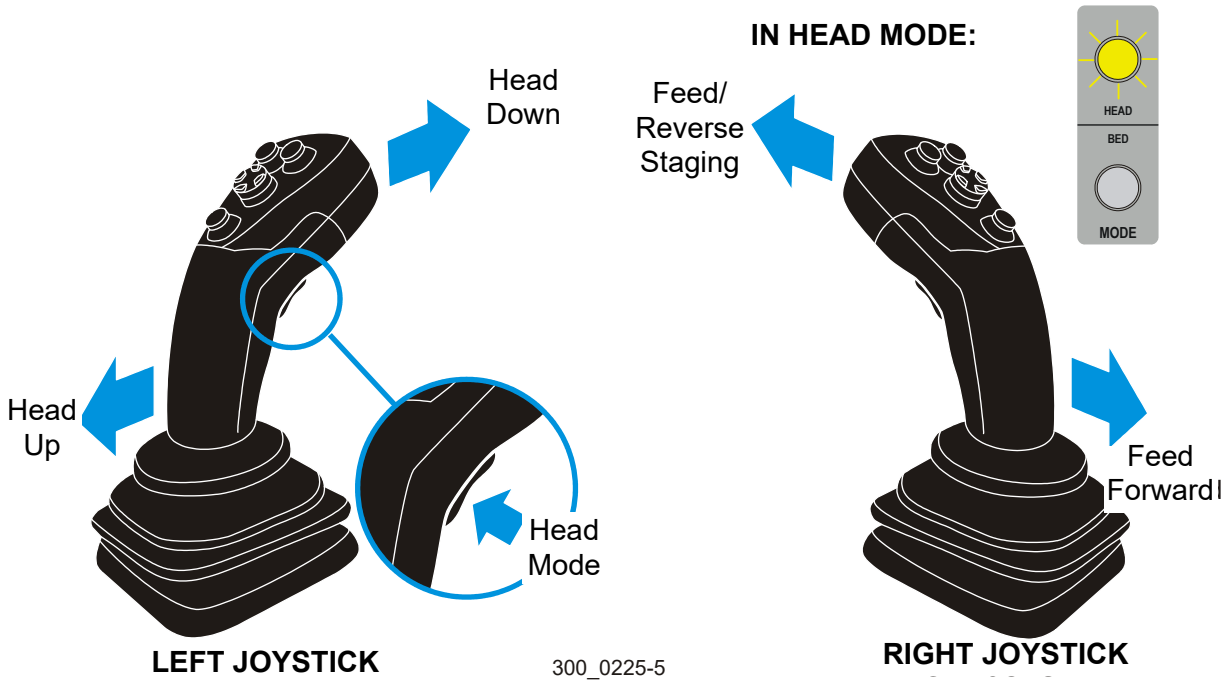


FIG. 4-25

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

   See Figure 4-26.

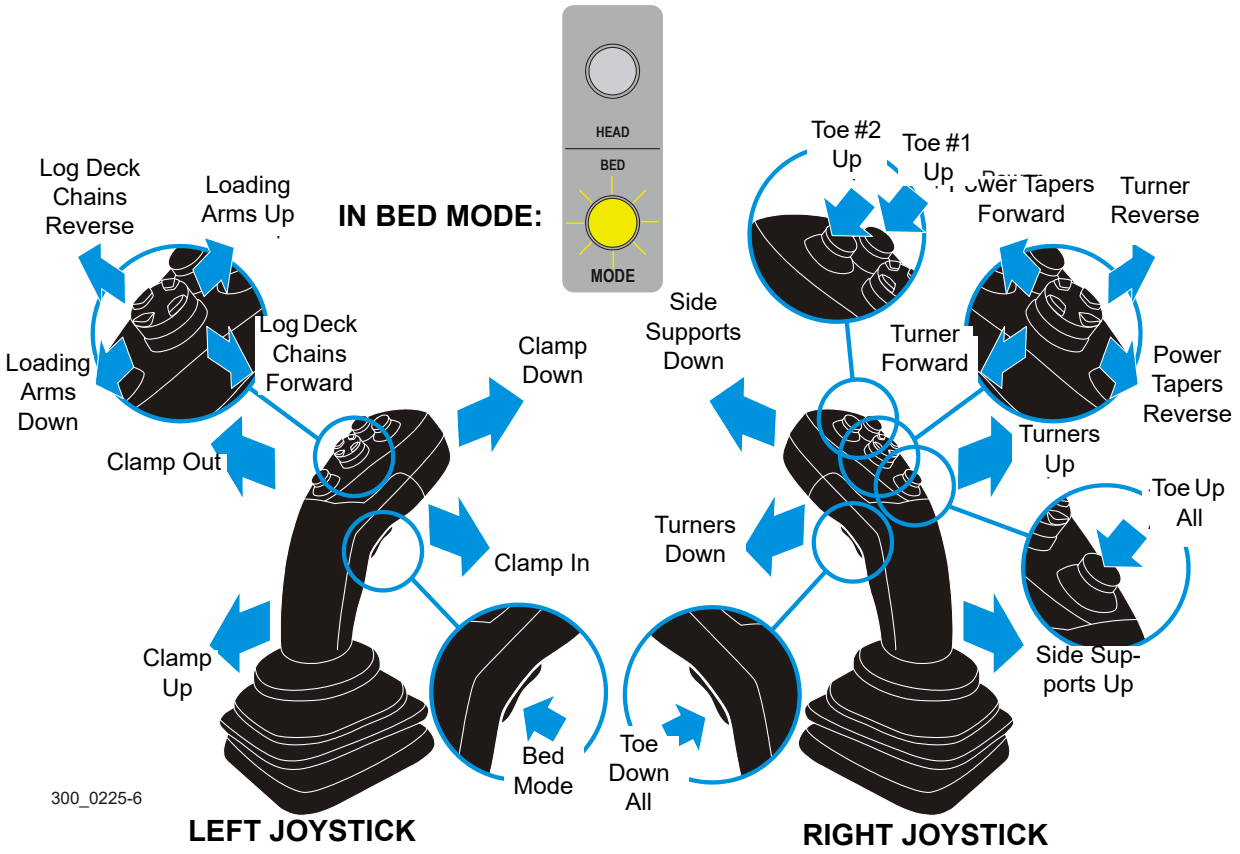


FIG. 4-26

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.

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. Setworks Overview

4.8.1 Common Indicators and Buttons for All Modes

See Figure 4-27. The Setworks - Manual Mode is shown below.

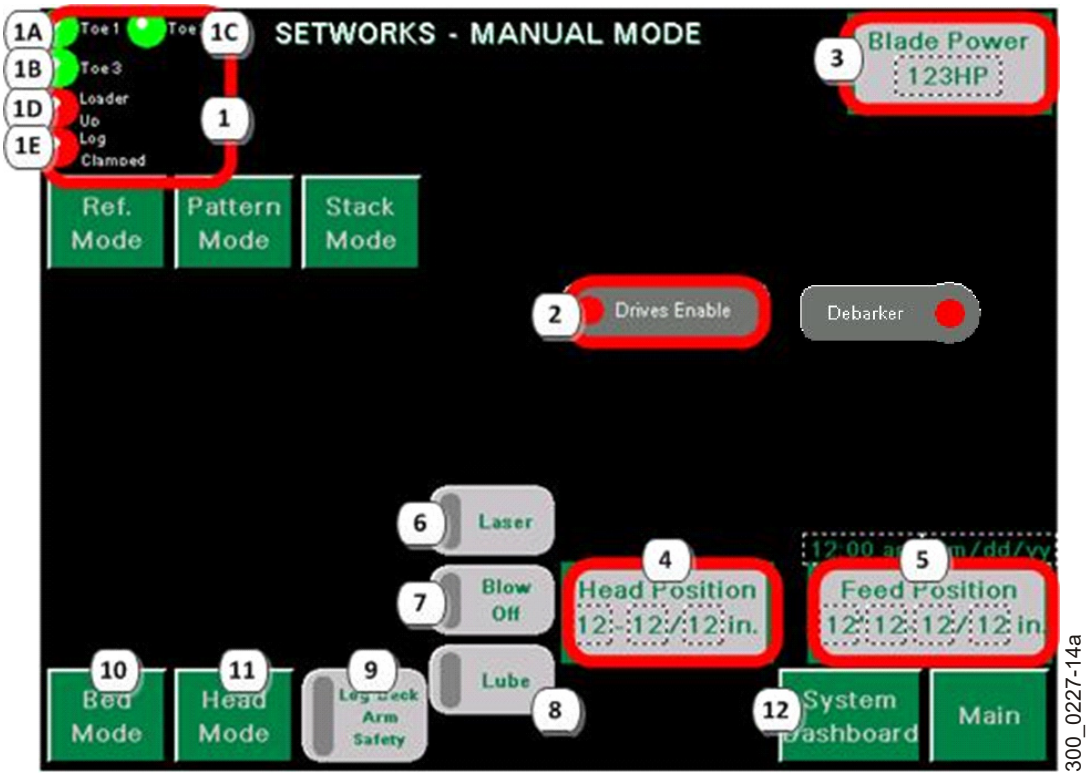


FIG. 4-27

(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.

- **(1A)** Toe Board 1
- **(1B)** Toe Board 2
- **(1C)** Toe Board 3
- **(1D)** 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.

- **(1E)** 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.

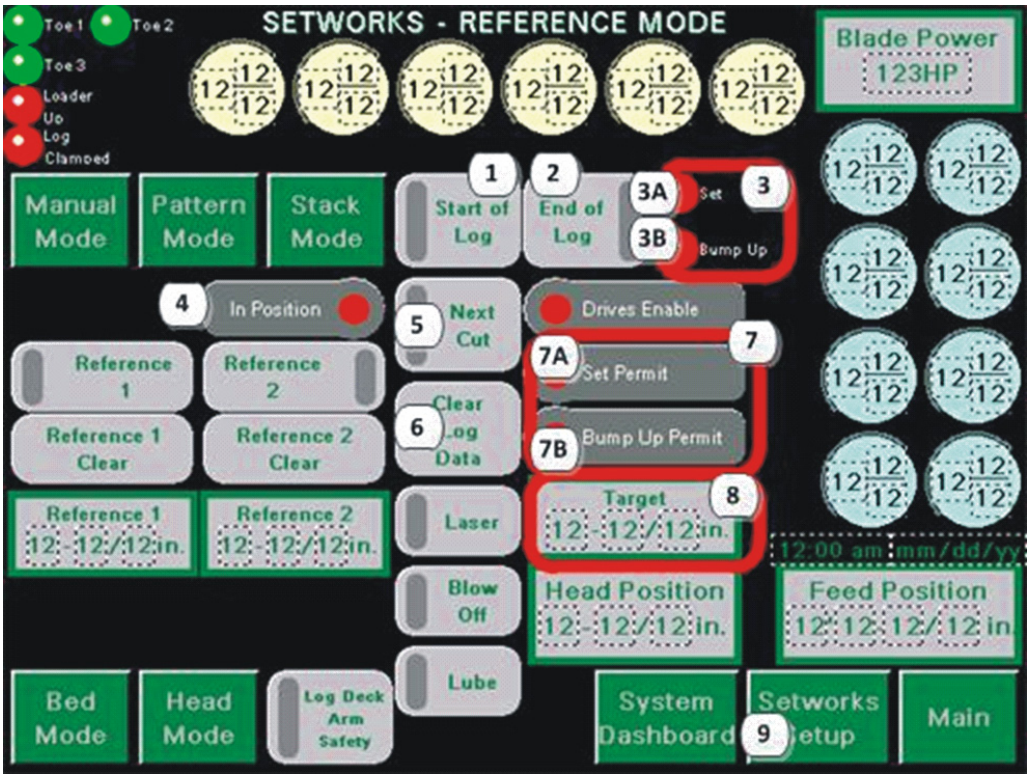
(10) Bed Mode. This button will activate Bed Mode, if not already active. When Bed Mode is active the button will blink.

(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.

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

See Figure 4-28. The Setworks - Reference Mode is shown below.



300_0227-15

FIG. 4-28

(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.

- **(3A)** 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.

- **(3B)** 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.

- **(7A)** 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.

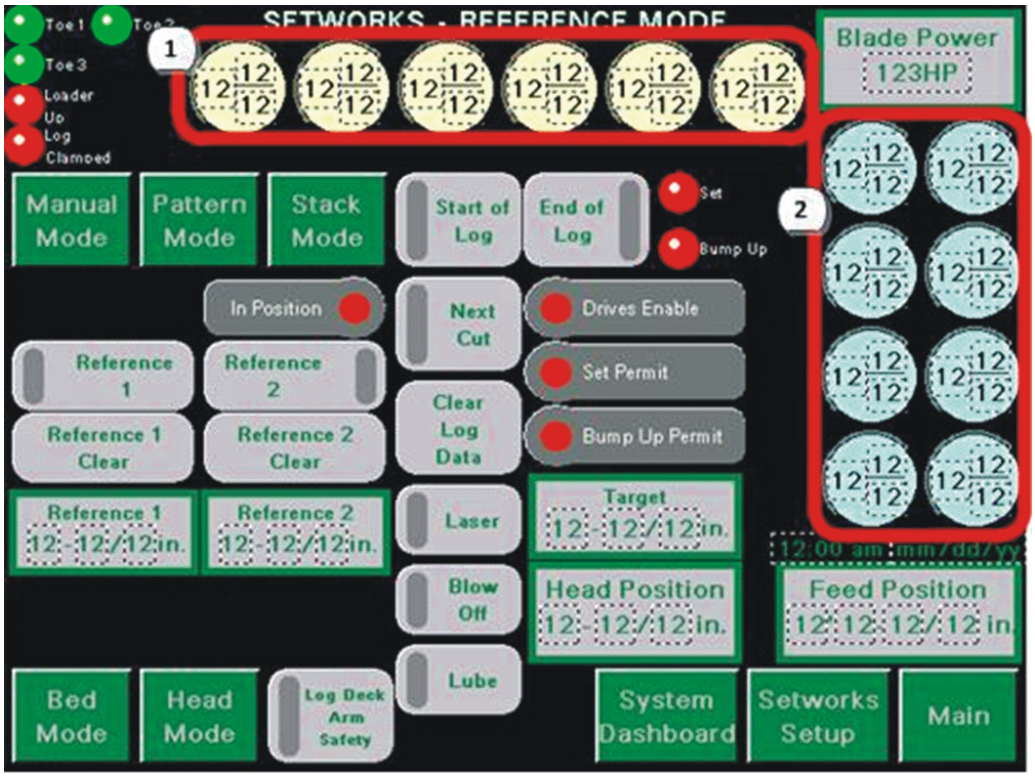
- **(7B)** Bump Up Permit. This indicator blinks red when it is not safe to do a bump up. When the feed is in position safe for a bump up it will turn green. The head must be in front of the End of Log position to get this permit.

(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) Setworks Setup. This button takes you to the “Setworks Setup” screen for changing or adding board or cant sizes.

4.8.3 Common Indicators and Buttons for Reference and Pattern Modes

See Figure 4-29. The Setworks - Reference Mode is shown below.



300_0227-16

FIG. 4-29

(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 4-30.

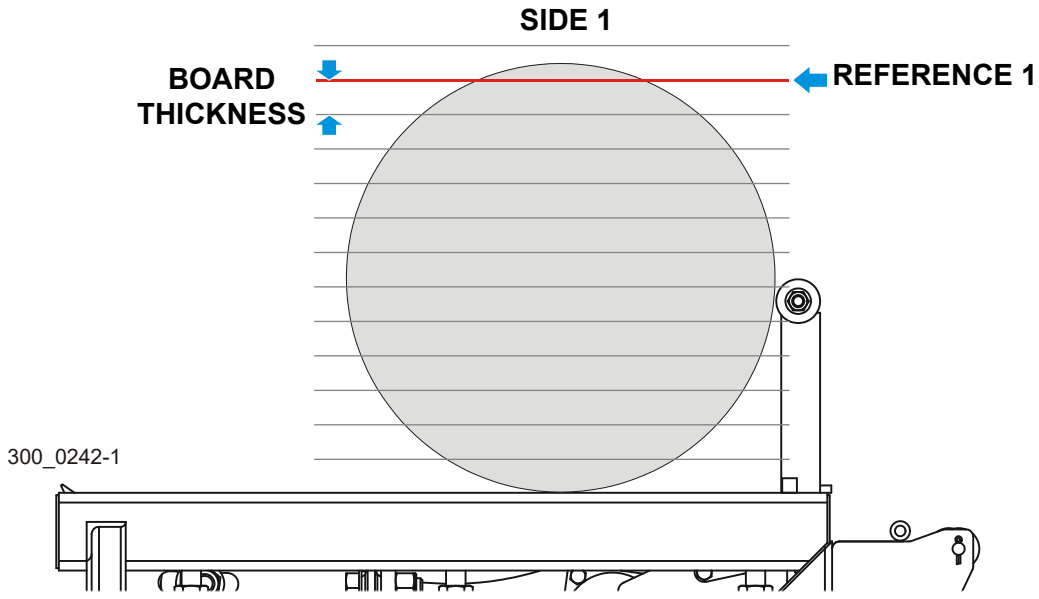
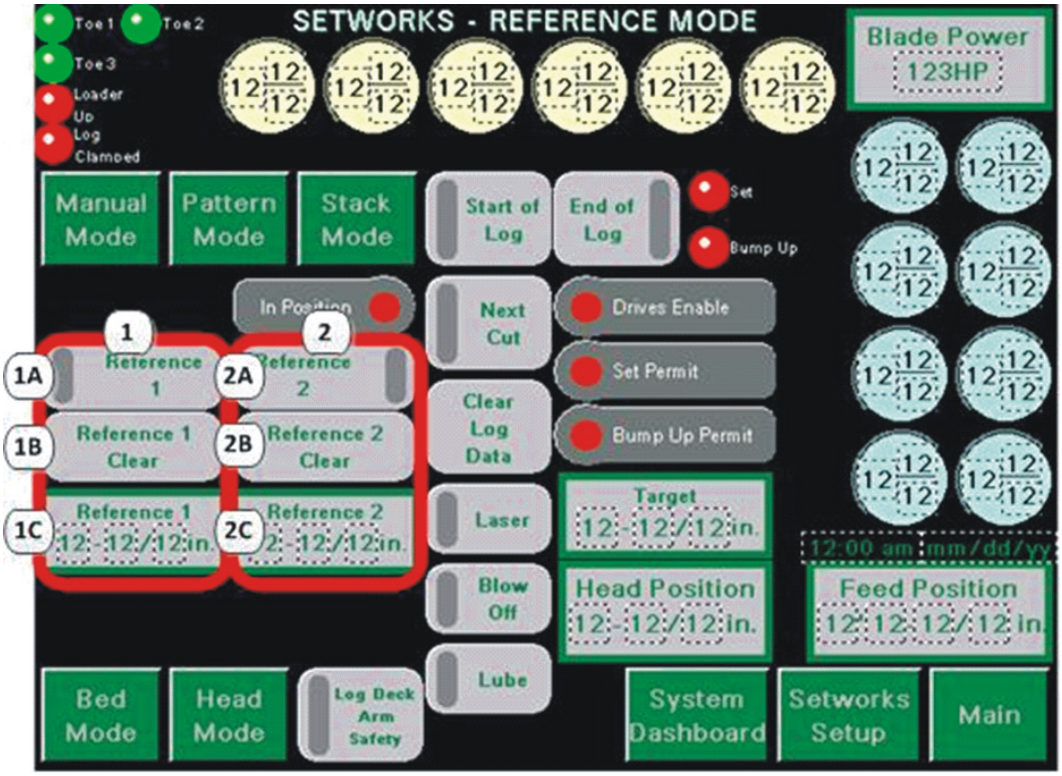


FIG. 4-30

See Figure 4-31.



300_0227-17

FIG. 4-31

(1) Reference 1 buttons and displays.

- **(1A)** 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.
- **(1B)** Reference 1 Clear. This button will clear out the position of Reference 1 (1C).
- **(1C)** Reference 1. This numeric display shows the current position of Reference 1.

(2) Reference 2 buttons and displays.

- **(2A)** 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.
- **(2B)** Reference 2 Clear. This button will clear out the position of Reference 2 (2C).
- **(2C)** 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 4-32.

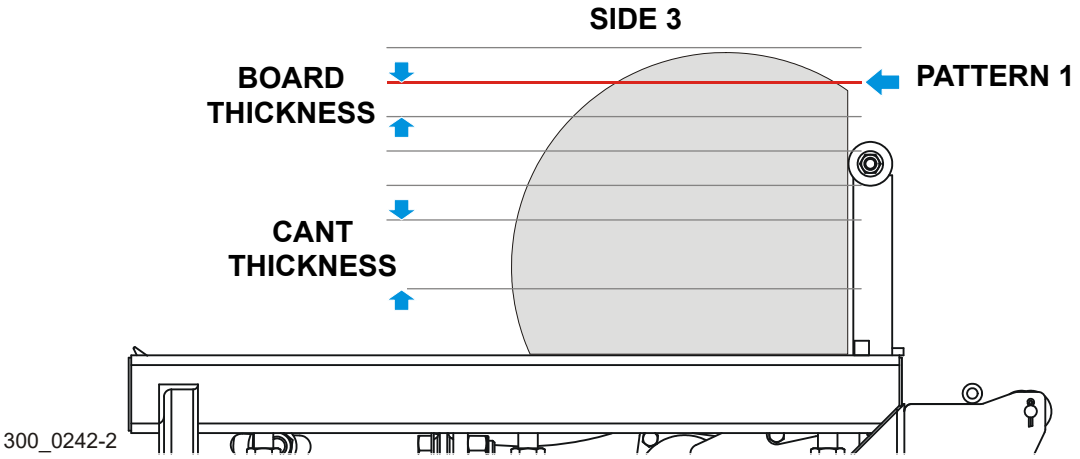
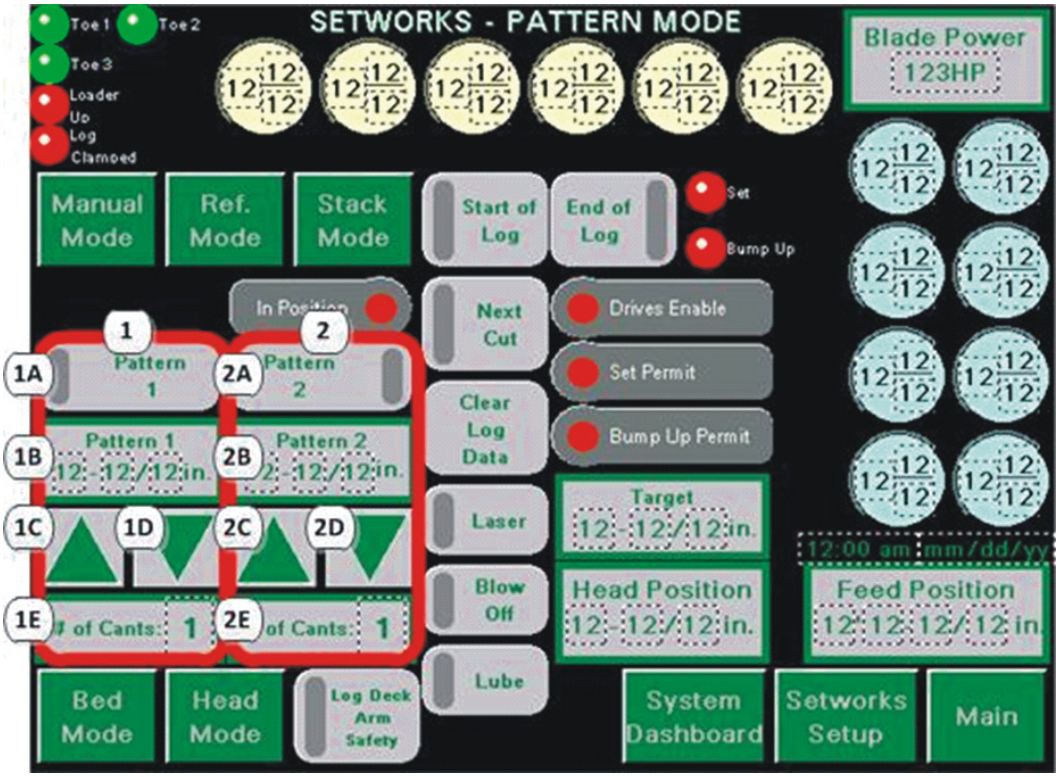


FIG. 4-32

See Figure 4-33.



300_0227-18

FIG. 4-33

(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 posi-

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.

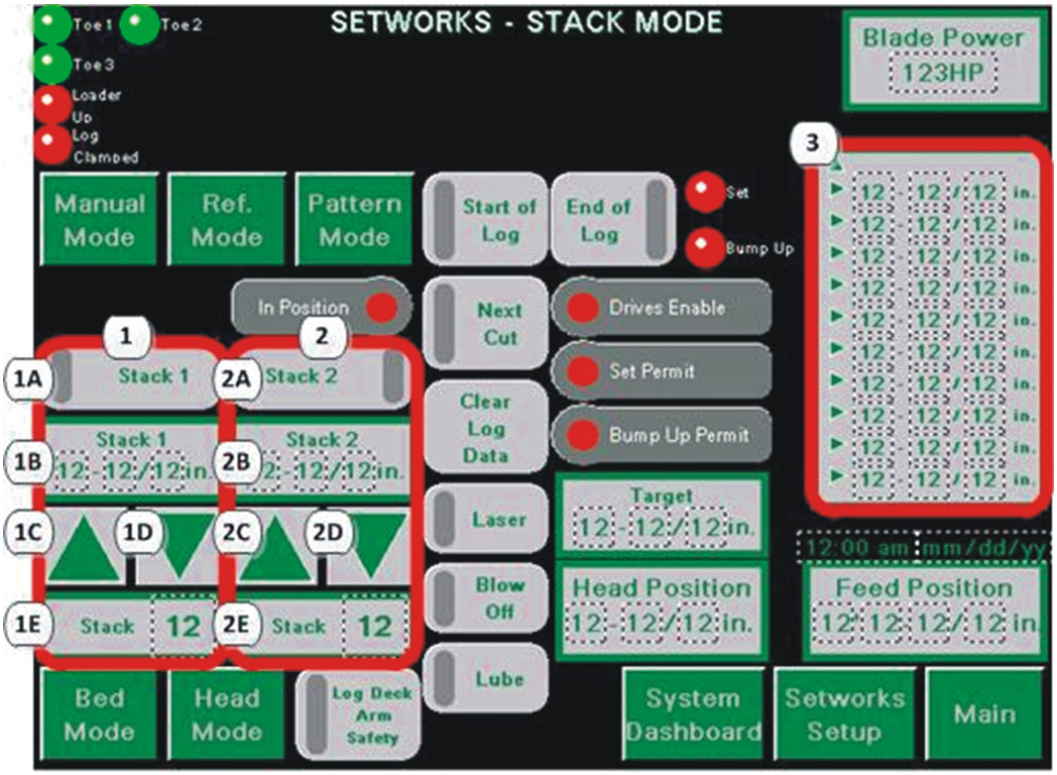
4.8.7 Stack Mode

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 4-34.

FIG. 4-34

See Figure 4-35.



300_0227-19

FIG. 4-35

(1) Stack 1 buttons and displays.

- **(1A)** Stack. This button will activate Stack 1 and capture the current head position as Stack 1 position (1B). 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 (1B).
- **(1B)** Stack 1. This numeric display shows the current position of Stack 1.
- **(1C)** Increment. This button increases the stack memory.
- **(1D)** Decrement. This button decrease the stack memory.
- **(1E)** Stack. This numeric display shows the Stack memory selected.

(2) Stack 2 buttons and displays.

- **(2A)** Stack 2. This button will activate Stack 2 and capture the current head position as Stack 2 position (2B). 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

(2B).

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

(3) Stack.

- **(3A)** Displays all the sizes in the stack and the current position you are at in the stack.

4.8.8 Dashboard

See Figure 4-36.

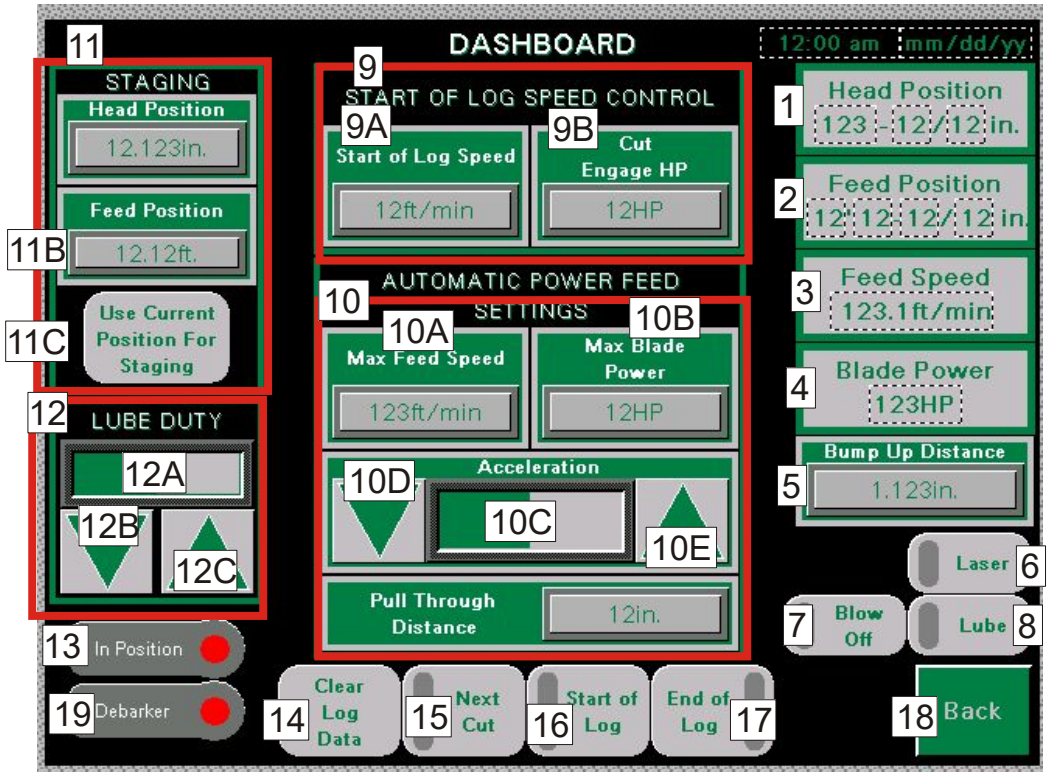


FIG. 4-36

(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.

- **(9A)** 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.

- **(9B)** 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.

- **(10A)** 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.

- **(10B)** 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.

- **(10C)** 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.

- **(10D)** Acceleration-Decrease. This button decreases the acceleration.

- **(10E)** Acceleration-Increase. This button increases the acceleration.

- **(10F)** 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.

- **(11A)** 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.

- **(11B)** 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.

- **(11C)** Use Current Position For Staging.

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

- **(12A)** 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.

- **(12B)** Lube Duty-Decrease. This button decreases the amount of pulses.

- **(12C)** 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.

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 joy-

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 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.

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 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.

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 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.

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 then 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 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.

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 Wear Life

See Table. 5-1. This chart lists estimated life expectancy of common replacement parts if proper maintenance and operation procedures are followed. Due to the many variables which exist during sawmill operation, actual part life may vary significantly. This information is provided so that you may plan ahead in ordering replacement parts.

Part Description	Estimated Life
Blade Wheel Bearings	1000 hours
Up/Down Rollers Bearings	1500 hours
Track Rollers Bearings	1000 hours
Drive V-belts	800 hours
Blade Wheel Belts	400 hours
Up/Down Drive Belt and Power Feed Drive Belt	1000 hours
Blade Guide Rollers Bearings	500 hours
Changing the Hydraulic Oil Filter and Checking and Refilling the Oil Level	600 hours
Up/Down and Power Feed Chains with Sprockets	2 years or 2000 hours
Chain Log Turner – Changing Sprockets and Chain	1500 hours
Self-Lubricating Bushings	1500 hours

TABLE. 5-1

5.2 Blade Guides (Standard Block/Roller Guides)

NOTE: Block/Roller Guides are standard on the WM3500. *See Section 5.3* for optional Block Guide maintenance instructions.

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.

25

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.

See Figure 5-1.

To adjust the top block up, loosen the clamp bolt and mounting bolt. Turn the adjustment bolt counterclockwise. Retighten the mounting bolt and clamp bolt.

To adjust the bottom block up, loosen the clamp bolt and mounting bolt. Use the provided adjustment tool to turn the adjustment screw clockwise. Retighten the mounting bolt and clamp bolt.

IMPORTANT! The blocks should be parallel to the blade. *See Section 7.2* for instructions about checking and adjusting the assembly level with the blade.

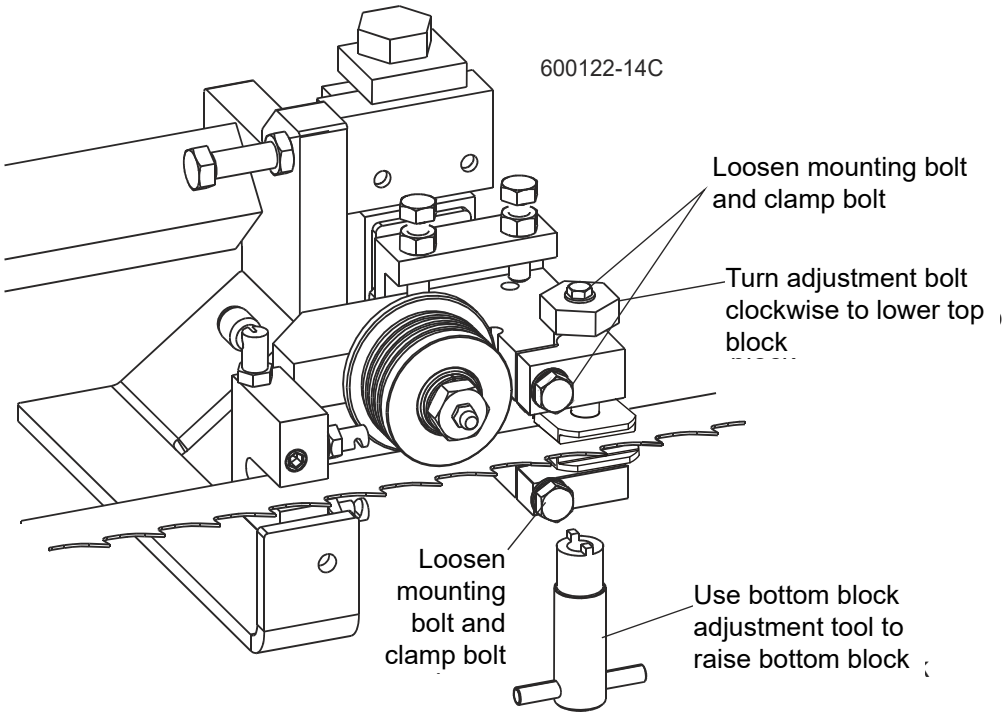


FIG. 5-1

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 using plain water in the blade lube system, use AWMV lube additive (part no. 033439).

5.3 Blade Guides (Optional Block Guides)

A/R

Inspect the blade guide assemblies for proper alignment everytime you change the blade. *See Section 6.2.* for blade guide adjustment instructions.

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.

1. Blow sawdust from both blade guide assemblies.

See Figure 5-2.

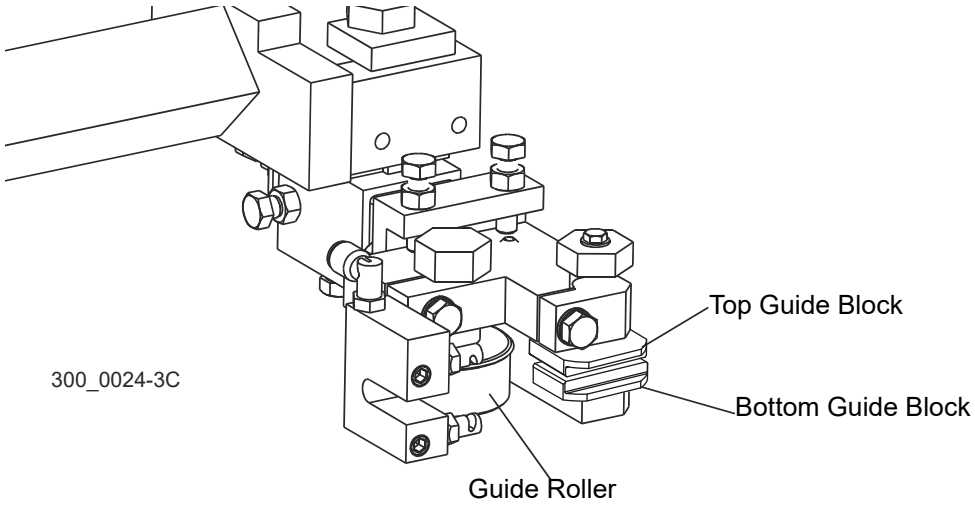


FIG. 5-2

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 that the blade guide rollers spin freely. Replace any roller that does not spin freely by hand.

4. If the blade to be installed is a previously used blade, inspect it for stress cracks.

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

5. Install the blade and track it on the blade wheels (*See Section 4.6*).

6. Make sure the top and bottom guide blocks are aligned with the back edge of the blade.

7. Check the guide blocks are properly spaced from the blade. The bottom block should touch the blade, but not deflect it upward. Use the provided shim or a feeler gauge to check the blocks are adjusted .008” - .010” from the blade. Recheck the block spacing every 25 hours of operation.

25

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.

8. Check that each guide roller is positioned 1/8” from the back of the blade.

9. If a groove is worn in the portion of the roller where the blade hits, adjust the roller up or down so the blade hits a new portion of the roller. Flip or replace the roller once there are no unworn locations to use.

10. 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 5-3.

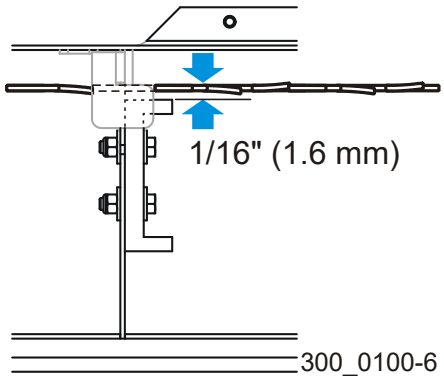


FIG. 5-3

5.4 Sawdust Removal

AR

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.

8

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.

5.5 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 5-4.

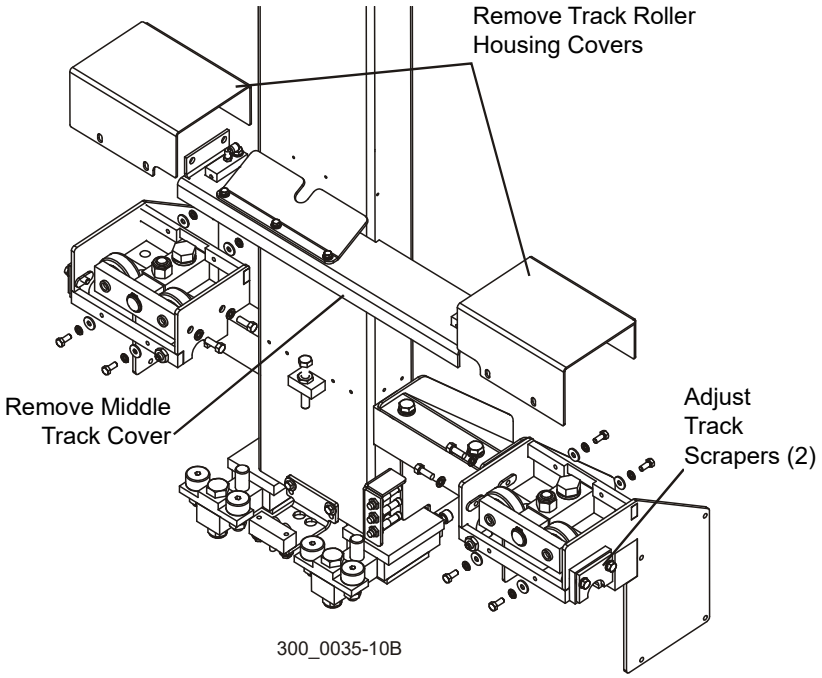


FIG. 5-4

50

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

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.

2. 8 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 5-5.

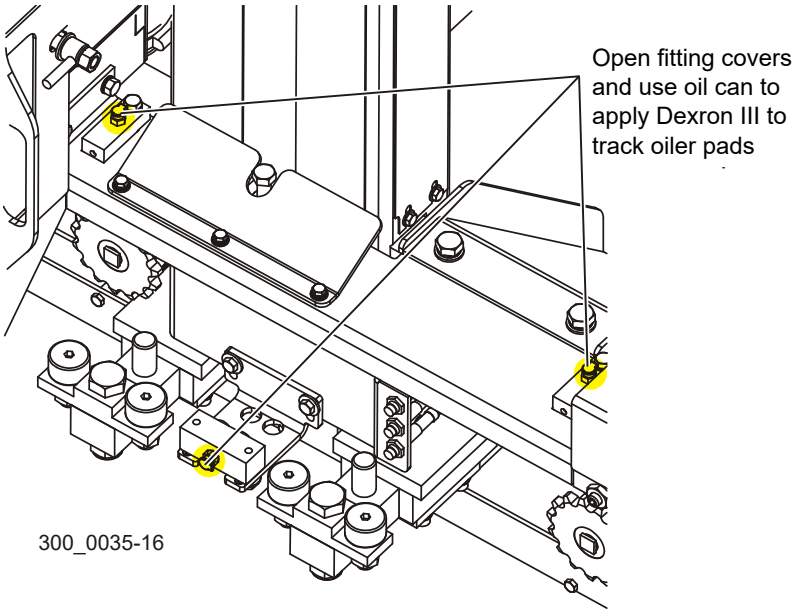


FIG. 5-5

3. AR 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.

5.6 Miscellaneous

1. Oil all chains with Dexron III ATF every fifty hours of operation. 50

> **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. 50

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. AR

   See Figure 5-6 The routing of the blade guide arm chain is provided for your reference.

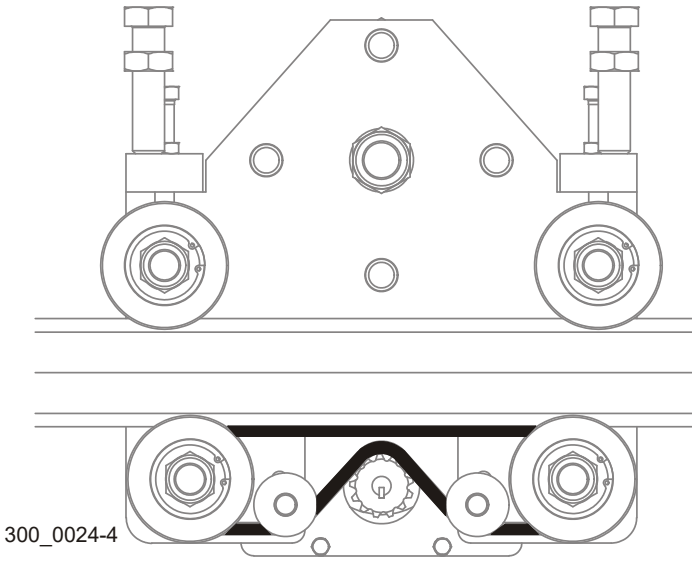


FIG. 5-6

4. Grease the pivot points of the operator seat (2), log clamp (1), log loader (6), log turner (1), rear toe board (1) and side supports (6) with a NLGI No. 2 grade lithium grease every fifty hours of operation. 50

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.

5.7. 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.

5.7.1 Side Support Sensor

See Figure 5-7. The sensor located at the bottom of the first (from operator's side) side support. This sensor is activated when side supports are raised.

When option "Separate Turners and Side Supports" is set to "Disabled" turners are stopped until the side supports are raised. See Page "14".

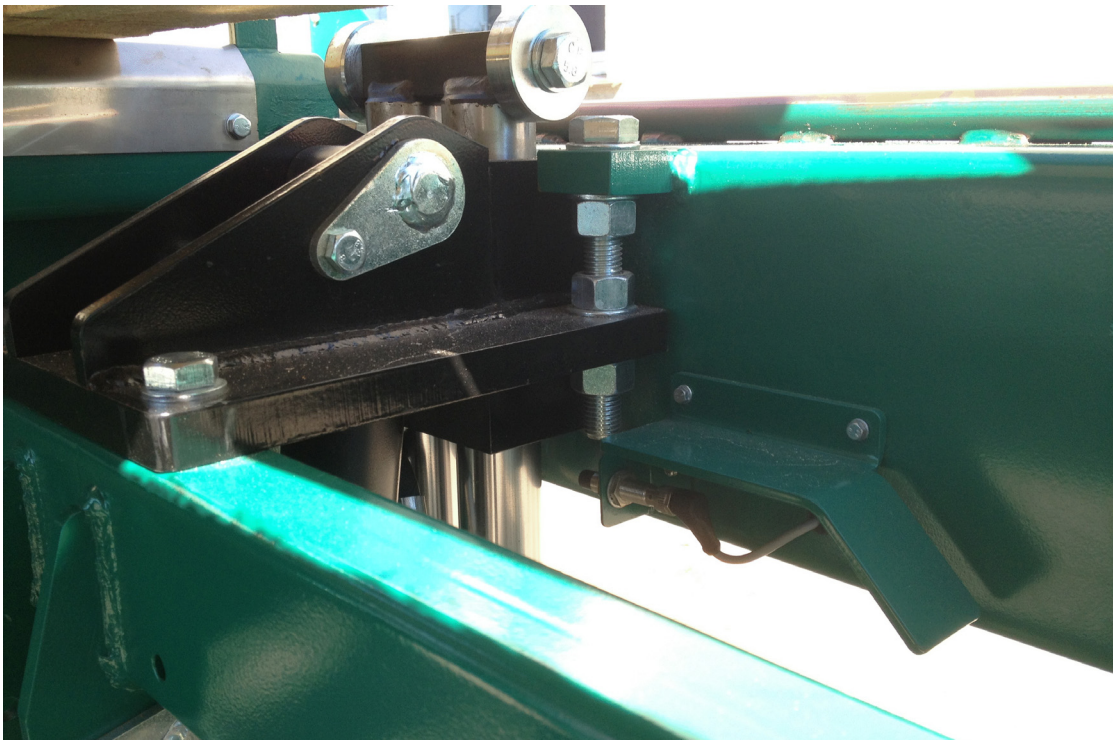


FIG. 5-7

To check if the side support sensor is working correctly, check if the control lamp located on the sensor come on when side support are raised.

5.7.2 Broken Blade Sensor

See Figure 5-8. 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 or obstructions that could result in false sensor readings. Remove the blade if necessary and check the sensor is lit when the motor is in the idle position (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 full turn. Tighten the jam nut.

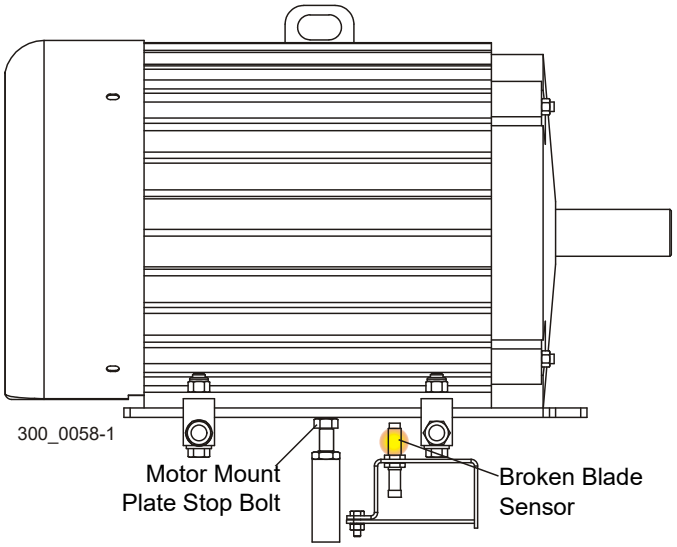


FIG. 5-8

5.7.3 Up/Down Ball Screw Sensor

See Figure 5-9. 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.

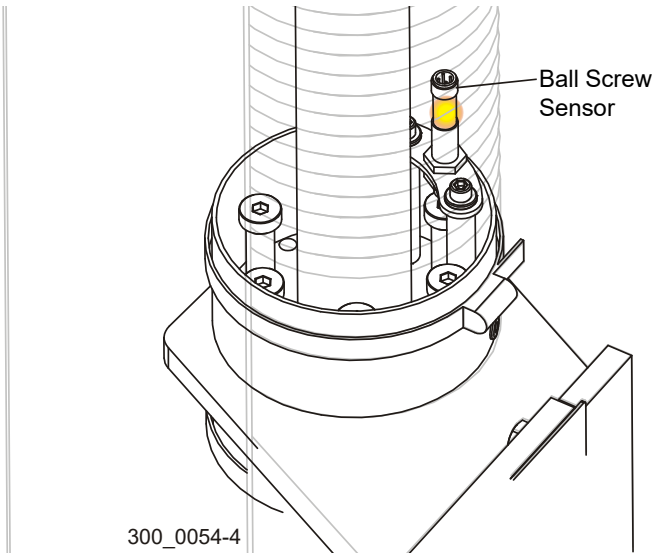


FIG. 5-9

5.8 Hydraulic System Maintenance

50 **1.** Check the hydraulic tank fluid every fifty hours of operation. The oil tank cup is equipped with oil level dipstick which should indicate a fluid level in the middle of the dipstick. Add an all-season hydraulic fluid such as Exxon Univis HVI 26 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 S28 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.

5.9 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 5-10.**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.

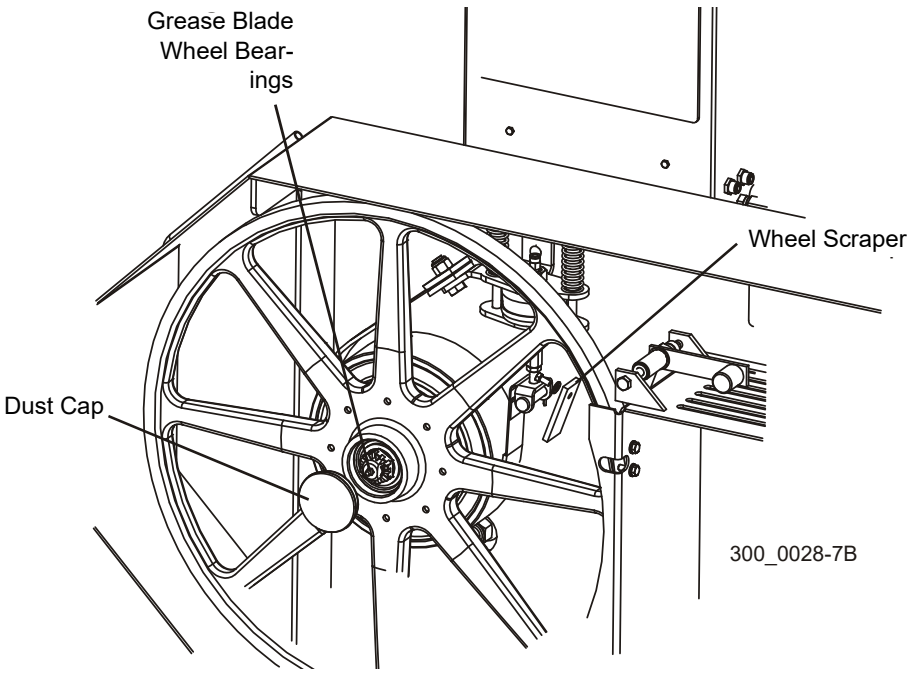


FIG. 5-10

5.10 Up/Down System

500

See Figure 5-11. 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.

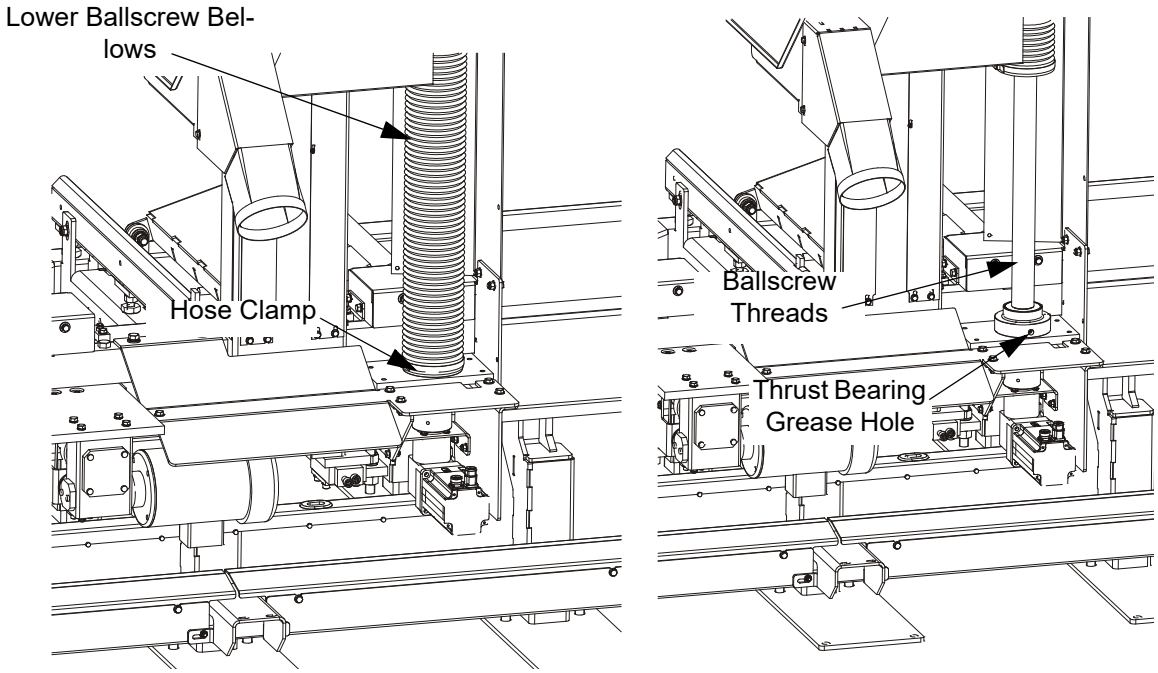


FIG. 5-11

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 5-12.

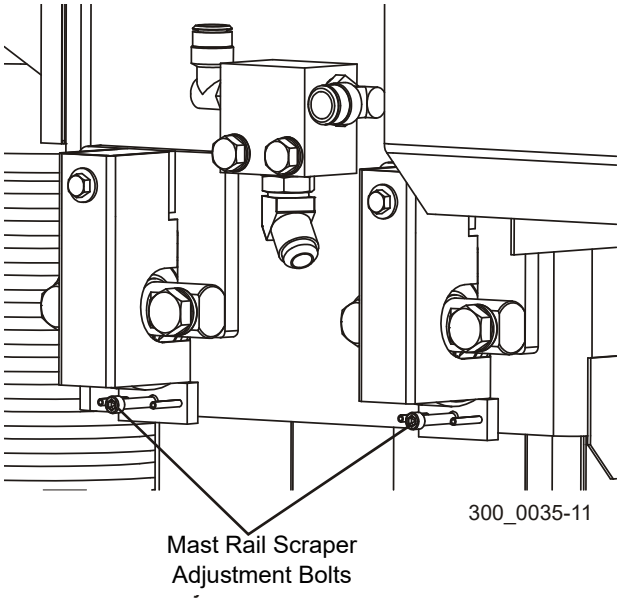


FIG. 5-12

5.11 Power Feed

50

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 (furthest from 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 330mm (13mm) [± 13“ (±1/2”)] from the top of the top rail at its lowest point.

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

See Figure 5-13.

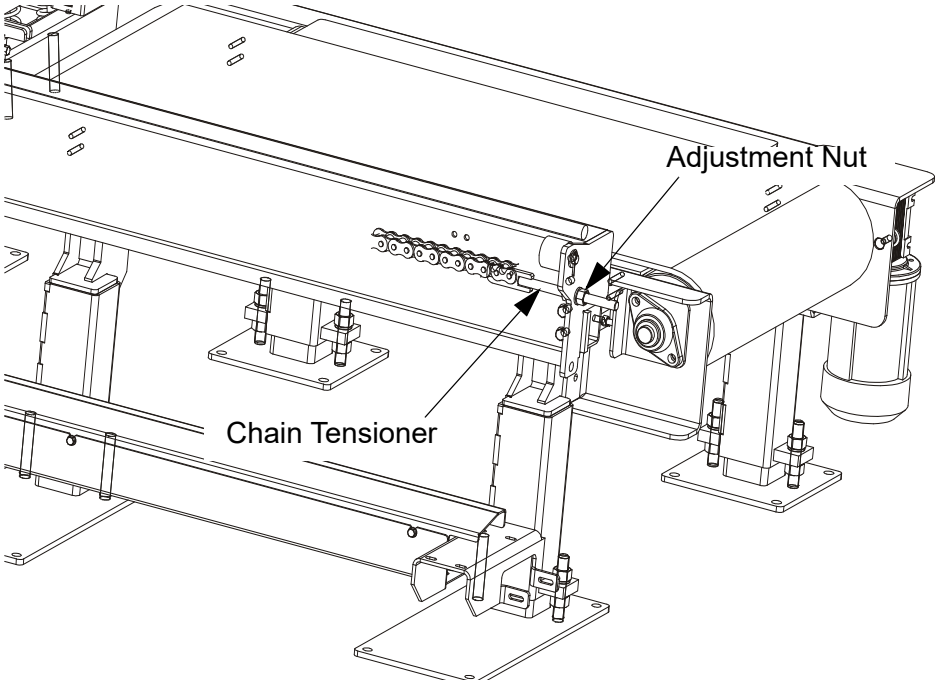


FIG. 5-13

See Figure 5-14. Refer to this figure for feed chain routing instructions.

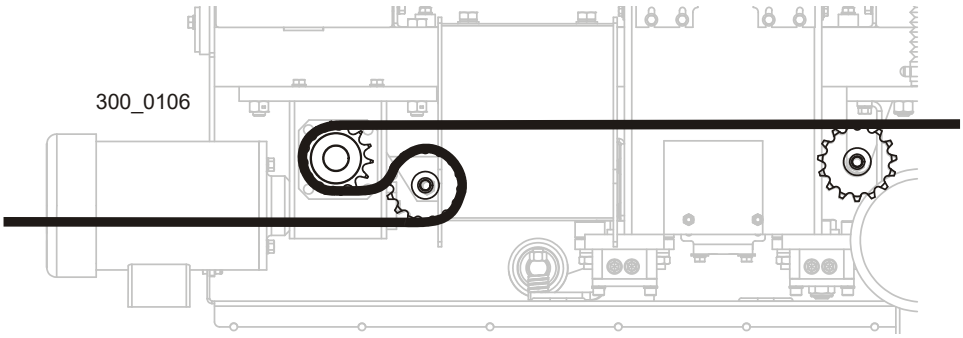


FIG. 5-14

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.

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 5-15. An access hole is provided in the bed frame tube to allow removal of the feed chain idler sprocket without disassembling the entire power feed unit. Move the saw carriage forward or backward until the sprocket bolt can be seen through the access hole.

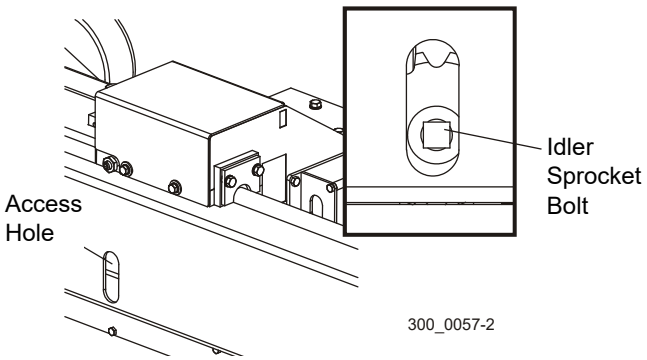


FIG. 5-15

See Figure 5-16. Check that the feed drive shaft coupler set screws are tight.

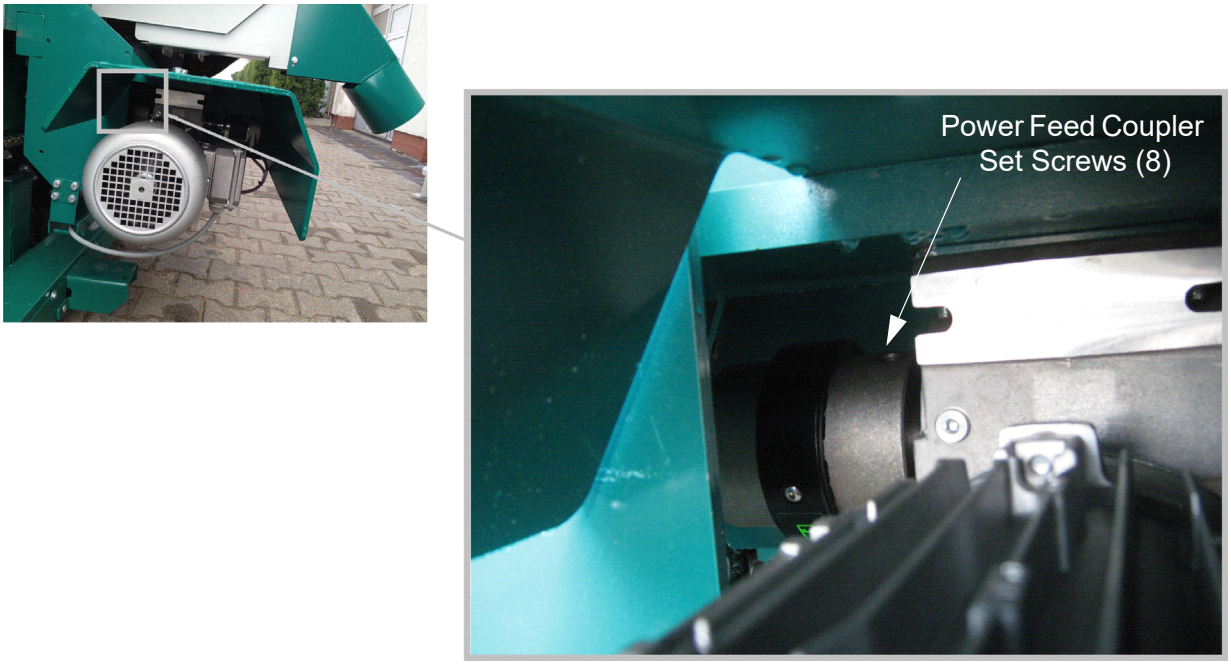


FIG. 5-16

5.12 Drive Belt Tension

50 Check the drive belt tension 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.

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 41 lbs. of deflection force [1]

[1] If installing a new drive belt, initially tension the belt to 57 lbs. then 41 lbs. for subsequent adjustments.

See Figure 5-17. 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.

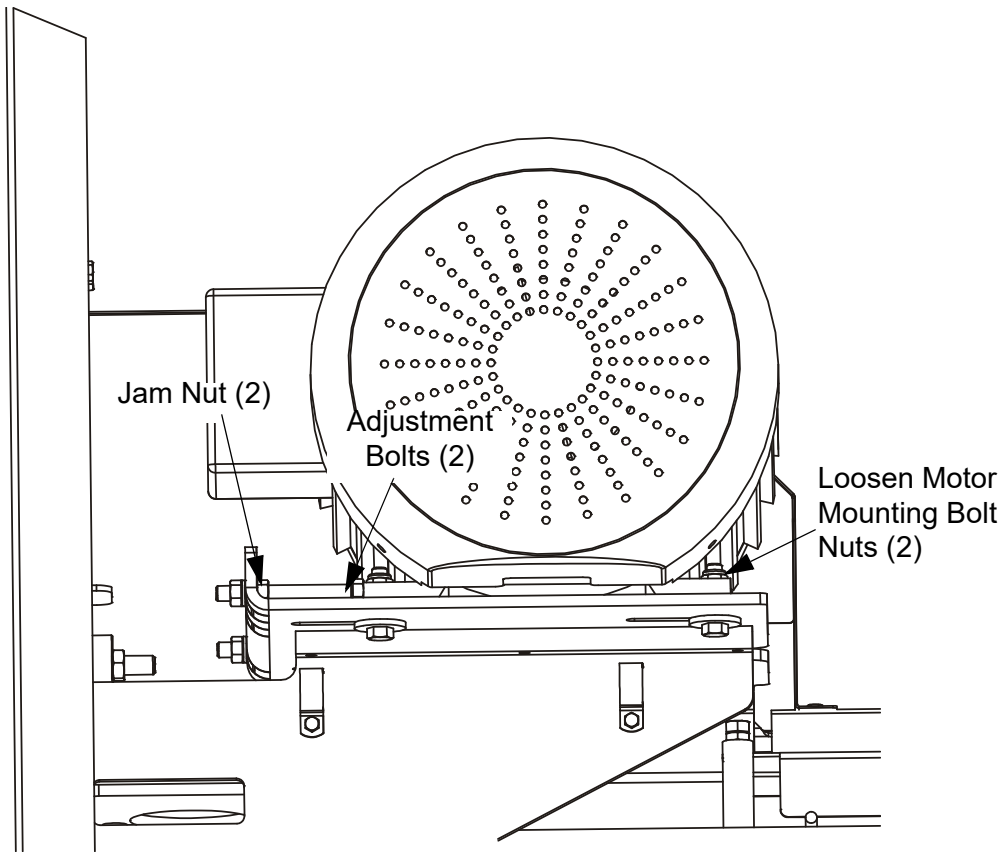


FIG. 5-17

Check alignment of the drive pulley and motor pulley after adjustment. Be sure the pulleys stay in the same plane and parallel. If necessary, loosen the motor mount bolts and use the adjustment bolts adjust the position of the motor to align the pulleys. Recheck belt tension and retighten the mounting bolts.

5.13 Turner Chain Tension

A/R

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

See Figure 5-18. 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.

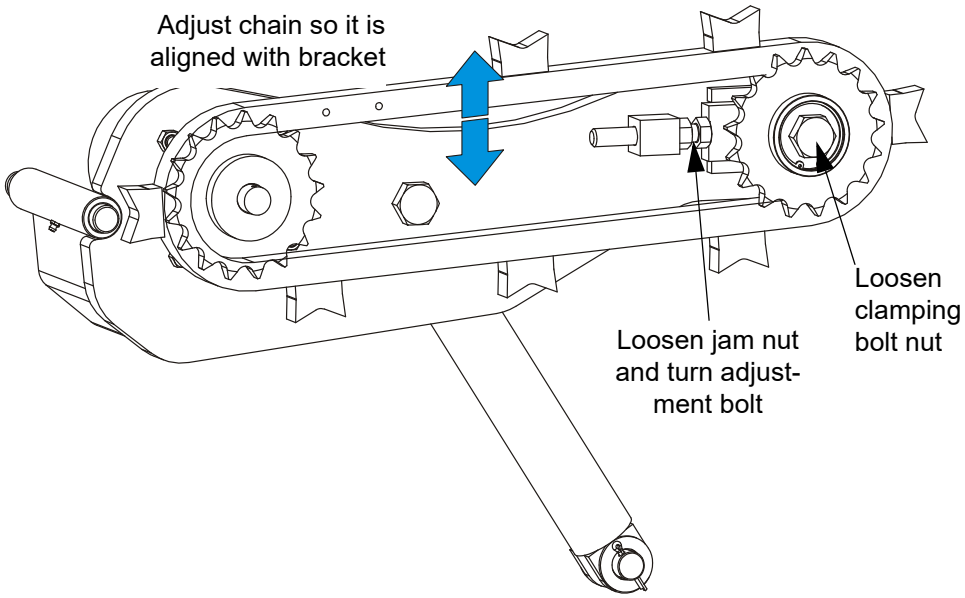


FIG. 5-18

5.14 Brake Strap Tension

A/R

Adjust the brake strap tension as necessary to ensure the blade braking time is shorter then 10 seconds. In case of the brake strap wear, replace the strap.

See Figure 5-19. Use the turnbuckle shown below to adjust the brake strap tension.

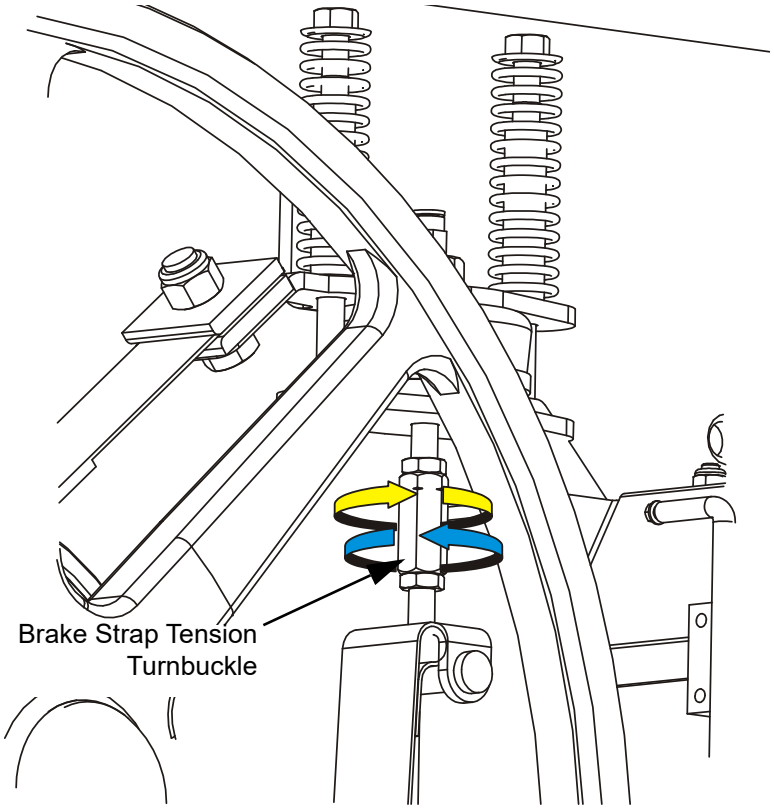


FIG. 5-19

5.15 Wear Life

See Table. 5-2. This chart lists estimated life expectancy of common replacement parts if proper maintenance and operation procedures are followed. Due to the many variables which exist during sawmill operation, actual part life may vary significantly. This information is provided so that you may plan ahead in ordering replacement parts.

Part Description	Estimated Life
B57 Blade Wheel Belts	400 hours
Up/Down Motor	2000 hours
Blade Guide Rollers	1000 hours
Drive Belt	800 hours
Power Feed Motor	1500 hours
Brake Strap	500 hours
Blade Wheel Bearings	1000 hours
Up/Down Rollers Bearings	1500 hours
Track Rollers Bearings	1000 hours
Up/Down Drive Belt and Power Feed Drive Belt	1000 hours
Blade Guide Rollers Bearings	500 hours
Changing the Hydraulic Oil Filter and Checking and Refilling the Oil Level	600 hours
Up/Down and Power Feed Chains with Sprockets	2 years or 2000 hours
Chain Log Turner – Changing Sprockets and Chain	1500 hours
Self-Lubricating Bushings	1500 hours

TABLE. 5-2

MAINTENANCE LOG

(Check Engine And Option Manuals For Additional Maintenance Procedures)

Inspect blade guide block/roller wear	See Section 5.2	Daily - Every Blade Change	DAILY MAINTENANCE PROCEDURES
Remove excess sawdust from blade wheel housings, sawdust chute and blade guides	See Section 5.3	Daily - Every Blade Change	
Inspect fingers inside sawdust chute	See Section 5.3	Daily - Every Blade Change	
Inspect blade wheel scrapers (Optional Crowned Blade Wheels Only)	See Section 5.8	Daily - Every Blade Change	
Oil track rail pads	See Section 5.4	Daily - Every 8 hours	
Clean sawdust from hydraulic loader fuses and bottom up/down ballscrew bellows	See Section 5.3	Daily - Every 8 Hours	
Check Blade Guide Block Spacing	See Section 5.2	Bi-Weekly - Every 25 Hours	

PROCEDURE	REFERENCE	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.									
		50 HRS	100 HRS	150 HRS	200 HRS	250 HRS	300 HRS	350 HRS	400 HRS	450 HRS	500 HRS
Clean and lubricate track, check track scrapers	See Section 5.4										
Check mast rails and adjust scrapers	See Section 5.9										
Grease pivot points and bearings/Oil chains	See Section 5.5										
Check drive belt tension	See Section 5.11										
Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only)	See Section 5.8										
Lubricate blade wheel bearings	See Section 5.8										
Lubricate feed chain and check chain tension	See Section 5.10										
Lubricate up/down ballscrew & thrust bearing	See Section 5.9										
Replace up/down and power feed gearbox oil [a]	See Section 5.9 See Section 5.10										
Inspect feed chain, sprockets and coupler	See Section 5.10										
Inspect hydraulic lines & fittings	See Section 5.7										
Check hydraulic fluid level	See Section 5.7										
Replace hydraulic system filter	See Section 5.7										
Inspect hydraulic pump motor brushes	See Section 5.7										

[a] Replace fluid after first 100 hours, then every year or 5000 hours thereafter.

MAINTENANCE LOG

PROCEDURE	REFERENCE	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.									
		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 5.4*										
Check mast rails and adjust scrapers	*See Section 5.9*										
Grease pivot points and bearings/Oil chains	*See Section 5.5*										
Check drive belt tension	*See Section 5.11*										
Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only)	*See Section 5.8*										
Lubricate blade wheel bearings	*See Section 5.8*										
Lubricate feed chain and check chain tension	*See Section 5.10*										
Lubricate up/down ballscrew & thrust bearing	*See Section 5.9*										
Replace up/down and power feed gearbox oil	*See Section 5.9* *See Section 5.10*										
Inspect feed chain, sprockets and coupler	*See Section 5.10*										
Inspect hydraulic lines & fittings	*See Section 5.7*										
Check hydraulic fluid level	*See Section 5.7*										
Replace hydraulic system filter	*See Section 5.7*										
Inspect hydraulic pump motor brushes	*See Section 5.7*										

MAINTENANCE LOG

PROCEDURE	REFERENCE	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.									
		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 5.4*										
Check mast rails and adjust scrapers	*See Section 5.9*										
Grease pivot points and bearings/Oil chains	*See Section 5.5*										
Check drive belt tension	*See Section 5.11*										
Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only)	*See Section 5.8*										
Lubricate blade wheel bearings	*See Section 5.8*										
Lubricate feed chain and check chain tension	*See Section 5.10*										
Lubricate up/down ballscrew & thrust bearing	*See Section 5.9*										
Replace up/down and power feed gearbox oil	*See Section 5.9* *See Section 5.10*										
Inspect feed chain, sprockets and coupler	*See Section 5.10*										
Inspect hydraulic lines & fittings	*See Section 5.7*										
Check hydraulic fluid level	*See Section 5.7*										
Replace hydraulic system filter	*See Section 5.7*										
Inspect hydraulic pump motor brushes	*See Section 5.7*										

MAINTENANCE LOG

PROCEDURE	REFERENCE	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.									
		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 5.4*										
Check mast rails and adjust scrapers	*See Section 5.9*										
Grease pivot points and bearings/Oil chains	*See Section 5.5*										
Check drive belt tension	*See Section 5.11*										
Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only)	*See Section 5.8*										
Lubricate blade wheel bearings	*See Section 5.8*										
Lubricate feed chain and check chain tension	*See Section 5.10*										
Lubricate up/down ballscrew & thrust bearing	*See Section 5.9*										
Replace up/down and power feed gearbox oil	*See Section 5.9* *See Section 5.10*										
Inspect feed chain, sprockets and coupler	*See Section 5.10*										
Inspect hydraulic lines & fittings	*See Section 5.7*										
Check hydraulic fluid level	*See Section 5.7*										
Replace hydraulic system filter	*See Section 5.7*										
Inspect hydraulic pump motor brushes	*See Section 5.7*										

MAINTENANCE LOG

PROCEDURE	REFERENCE	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.									
		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 5.4*										
Check mast rails and adjust scrapers	*See Section 5.9*										
Grease pivot points and bearings/Oil chains	*See Section 5.5*										
Check drive belt tension	*See Section 5.11*										
Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only)	*See Section 5.8*										
Lubricate blade wheel bearings	*See Section 5.8*										
Lubricate feed chain and check chain tension	*See Section 5.10*										
Lubricate up/down ballscrew & thrust bearing	*See Section 5.9*										
Replace up/down and power feed gearbox oil	*See Section 5.9* *See Section 5.10*										
Inspect feed chain, sprockets and coupler	*See Section 5.10*										
Inspect hydraulic lines & fittings	*See Section 5.7*										
Check hydraulic fluid level	*See Section 5.7*										
Replace hydraulic system filter	*See Section 5.7*										
Inspect hydraulic pump motor brushes	*See Section 5.7*										

MAINTENANCE LOG

PROCEDURE	REFERENCE	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.									
		2550 HRS	2600 HRS	2650 HRS	2700 HRS	2750 HRS	2800 HRS	2850 HRS	2900 HRS	2950 HRS	3000 HRS
Clean and lubricate track, check track scrapers	*See Section 5.4*										
Check mast rails and adjust scrapers	*See Section 5.9*										
Grease pivot points and bearings/Oil chains	*See Section 5.5*										
Check drive belt tension	*See Section 5.11*										
Rotate drive/idle blade wheel belts/Check for wear (Standard Belted Blade Wheels Only)	*See Section 5.8*										
Lubricate blade wheel bearings	*See Section 5.8*										
Lubricate feed chain and check chain tension	*See Section 5.10*										
Lubricate up/down ballscrew & thrust bearing	*See Section 5.9*										
Replace up/down and power feed gearbox oil	*See Section 5.9* *See Section 5.10*										
Inspect feed chain, sprockets and coupler	*See Section 5.10*										
Inspect hydraulic lines & fittings	*See Section 5.7*										
Check hydraulic fluid level	*See Section 5.7*										
Replace hydraulic system filter	*See Section 5.7*										
Inspect hydraulic pump motor brushes	*See Section 5.7*										

5.16 Safety Devices Inspection (CE Version Only)

WM4000 – Safety Devices Inspection

Safety devices on the WM4000 machine which must be checked before every shift:

- E-STOP button and its circuit
- Control circuits with the E-STOP button pressed
- Blade cover safety switches and their circuit
- Operator seat safety switch and its circuit
- Blade break sensor and its circuit
- Motor brake and its circuit

1. E-STOP button and its circuit inspection

- Turn on the blade motor;
- Press the E-STOP button located on the control box. The blade motor should be stopped.
- Turn the key switch to “Motor Start” position. Motor should remain stopped.
- Release E-STOP button. Motor should remain stopped until it is re-started by switching again key switch to “Motor Start” position.

2. Inspection of the control circuits with the E-STOP button pressed

- Turn on the blade motor;
- Press the E-STOP button located on the control box. The blade motor should be stopped.
- With the E-STOP button pressed, try to move the saw head up/ down and forward/backward using the joystick. Both systems should not start.
- With the E-STOP button pressed, try to start the debarker blade motor and move the debarker arm in and out. The debarker should not work.
- With the E-STOP button pressed, try to move the blade guide arm in and out. The blade guide arm should not work.
- With the E-STOP button pressed, try to start any hydraulic function. The hydraulic system system should not work.

3. Blade cover safety switches and their circuit inspection

- Turn on the blade motor;
- Open the blade housing cover;
- The blade motor should be stopped;
- Try to start the motor. The blade motor should remain stopped;
- Close the blade housing cover;
- The blade motor should remain stopped until it is re-started by switching again key switch to “Motor Start” position.

4. Operator seat safety switch and its circuit

- Turn on the blade motor;
- Rise from operator seat;
- The blade motor should be stopped;
- Try to start the motor. The blade motor should remain stopped;
- Sit down on the operator seat. The blade motor should remain stopped;
- Try to start the motor. The blade motor should be started.

5. Blade break sensor and its circuit

- Stop the motor;
- Place a piece of metal (for ex. flat screwdriver) in front of the sensor. The control LED light

located on the sensor should come on.

6. Motor brake and its circuit inspection

- Turn on the blade motor. Stop the motor using the key switch. Measure the braking time.
- The braking time should always be shorter than 10 seconds. If the braking time is longer, it is necessary to adjust or replace the motor brake. See your motor option manual.

5.17 Blade Guides

See Table. 5-3.

PROBLEM	CAUSE	SOLUTION
Heat In Blade	Blade guide blocks not properly aligned.	Align blade guides (*See Section 6.2.*).
	Groove in blade guide roller not aligned with with gap between blade guide blocks.	Adjust roller to start a new groove (*See Section 6.2.5*).
Slow Or Wavy Sawing	Blade guides not properly aligned.	Align blade guides (*See Section 6.2.*).
	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.

TABLE. 5-3

SECTION 6 ALIGNMENT

6.1. Bed Frame

6.1.1 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 6-1.

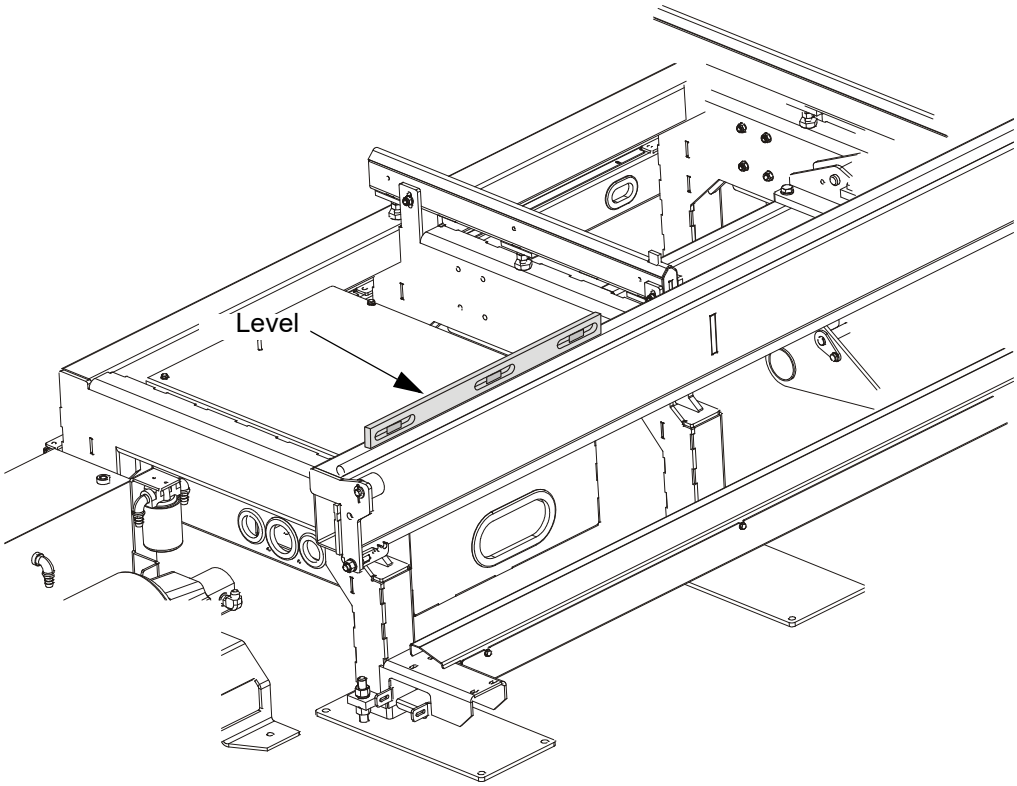


FIG. 6-1

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

6.1.2 Level Bed Frame In Width Direction

See Figure 6-2. 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.

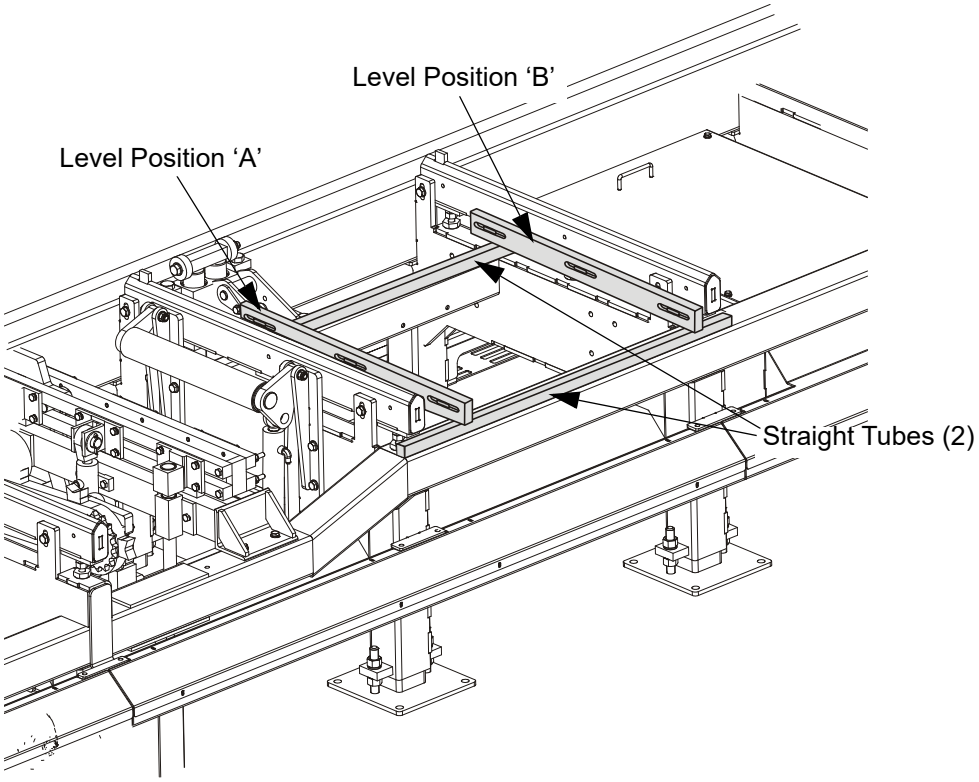


FIG. 6-2

6.1.3 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 6-3. Adjust the blade guides so they do not touch the blade in any way. Loosen clamp bolt (H) and turn the top guide block bolt (F) counterclockwise to raise the top guide block off the blade. 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 clamp bolt (G) and turn roller bolt (C) if necessary to move

roller away from blade.

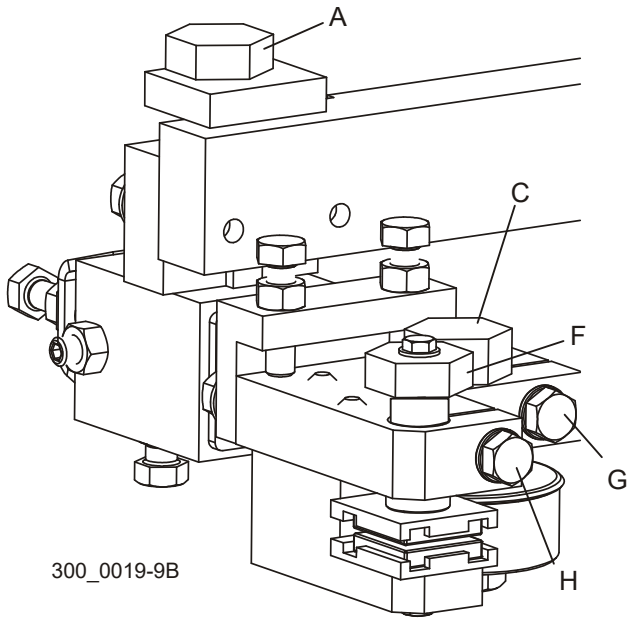


FIG. 6-3

See Figure 6-4. 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.

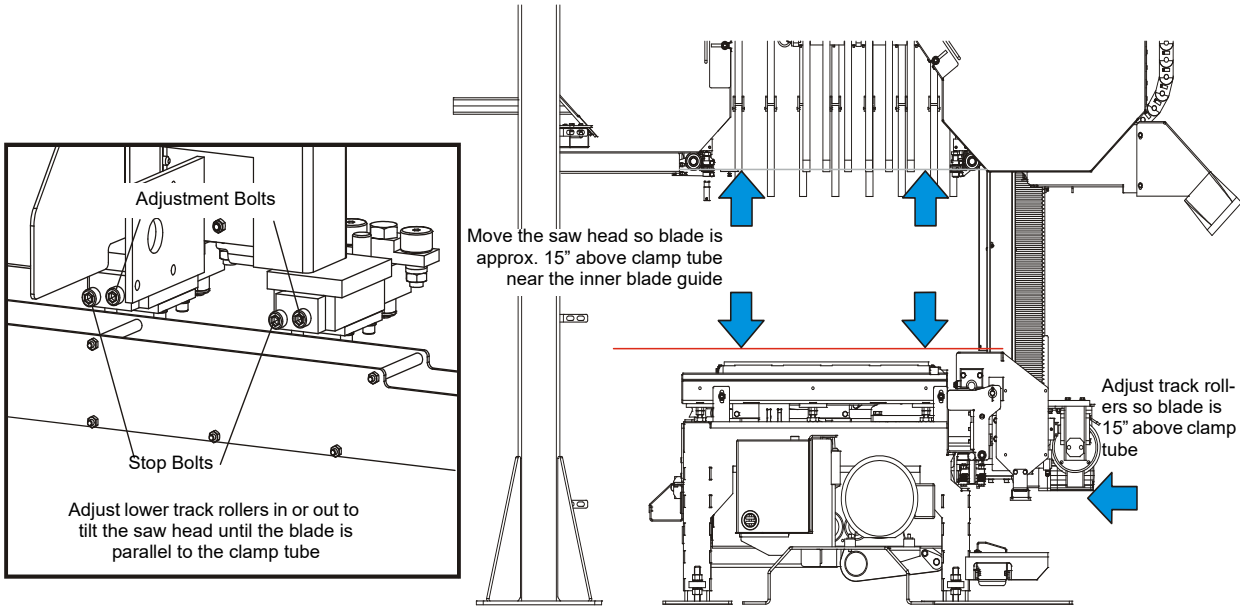


FIG. 6-4

6.1.4 Level Bed Rails

See Figure 6-5. 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 [±1/16”]). Turn the bed rail adjustment bolts to raise or lower the bed rail, if necessary. Repeat for the

remaining bed rails.

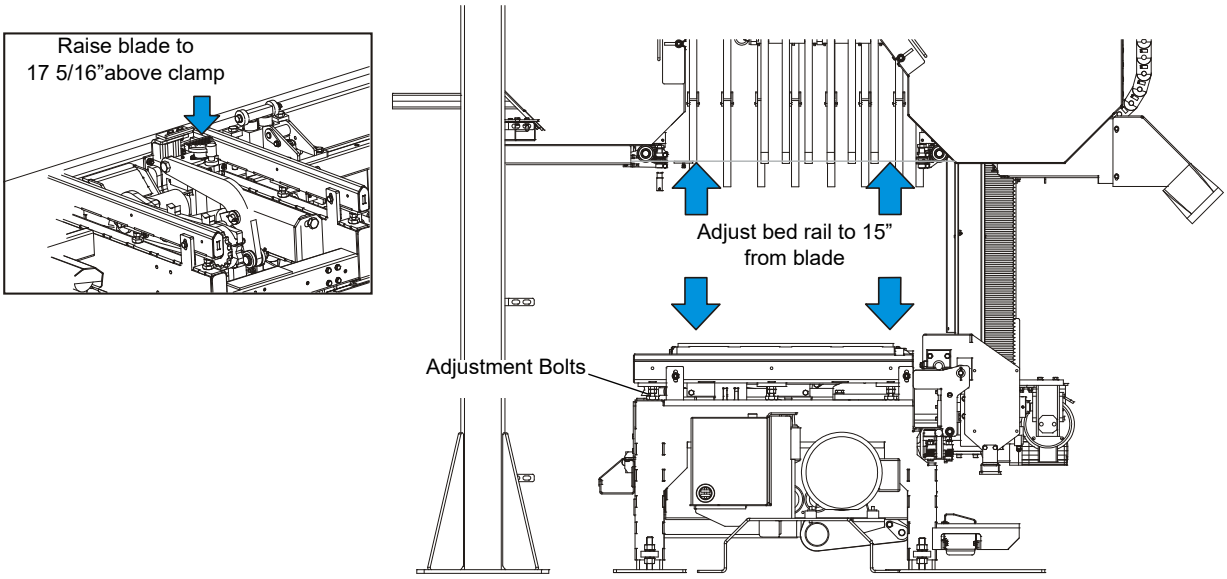


FIG. 6-5

6.1.5 Align Side Supports

See Figure 6-6. 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.

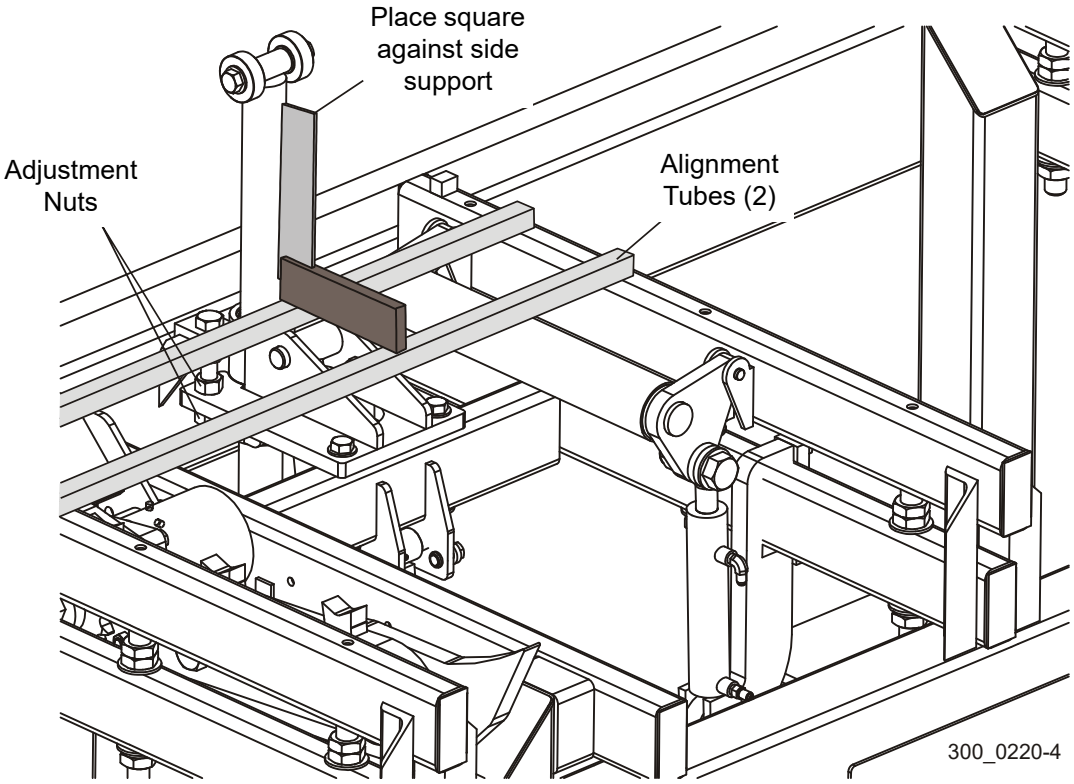


FIG. 6-6

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.

6.2. Blade Guides (Standard Block/Roller Guides)

NOTE: Block/Roller Guides are standard on the WM3500. *See Section 6.3* for optional Block Guide alignment.

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.

6.2.1 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 6-7. The major components of the blade guide assemblies are the top and bottom guide blocks and guide roller.

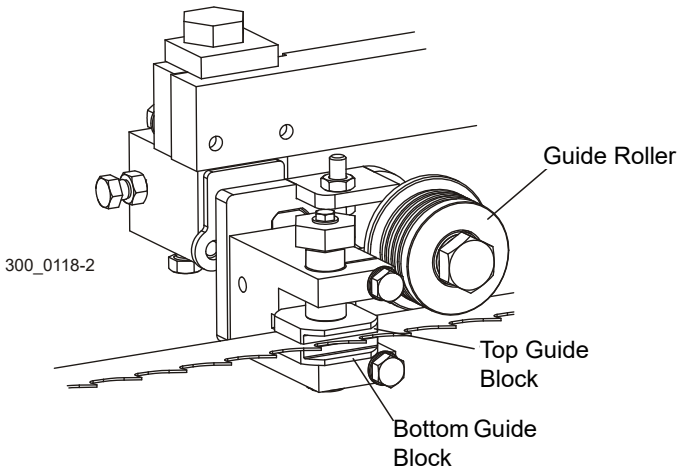


FIG. 6-7

See Figure 6-8. 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”(6mm). The flange of the roller should be positioned 1/6”(4mm) from the back edge of the blade at the inner guide assembly and 1/5”(5mm) from the blade at the outer-guide assembly. The blocks should be adjusted to .02”(0,5mm) from the blade.

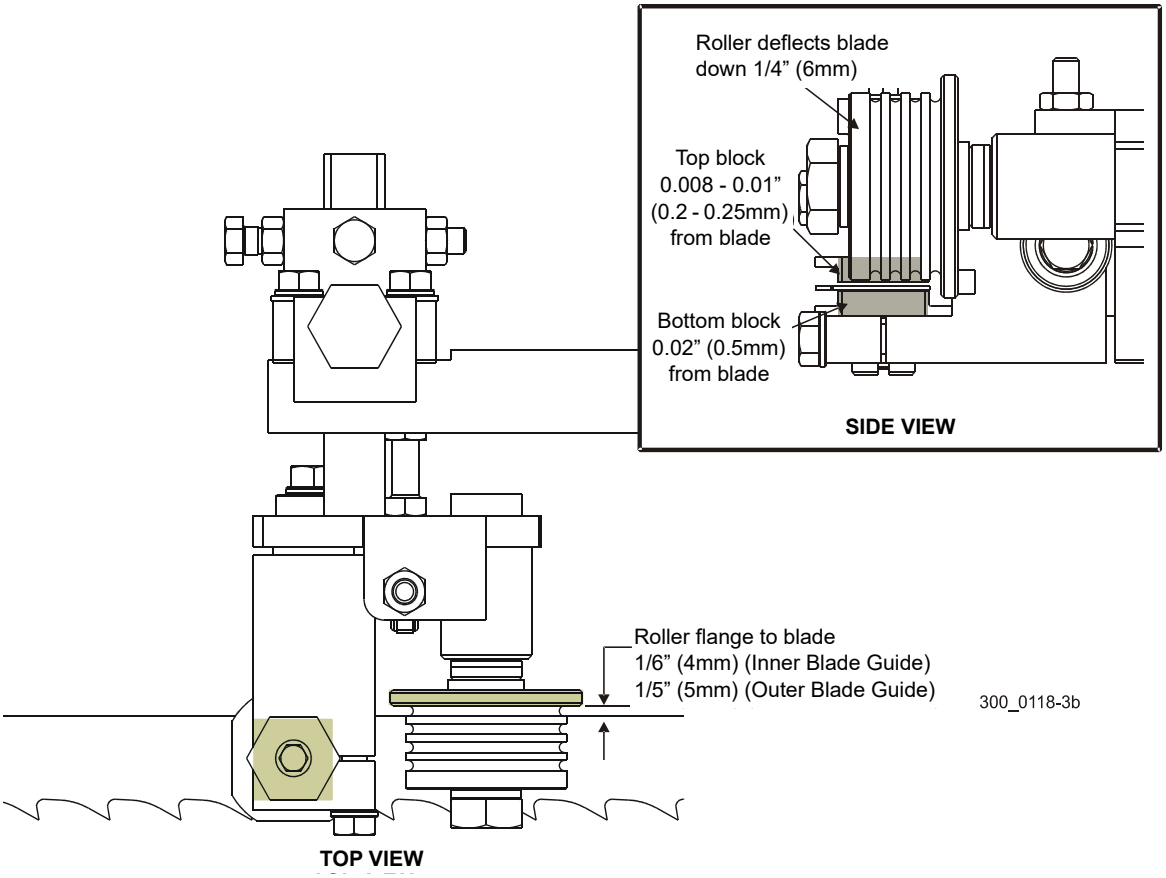


FIG. 6-8

See Figure 6-9. Adjustment bolts are provided to obtain the proper blade guide align-

ment. The various blade guide adjustments are described below.

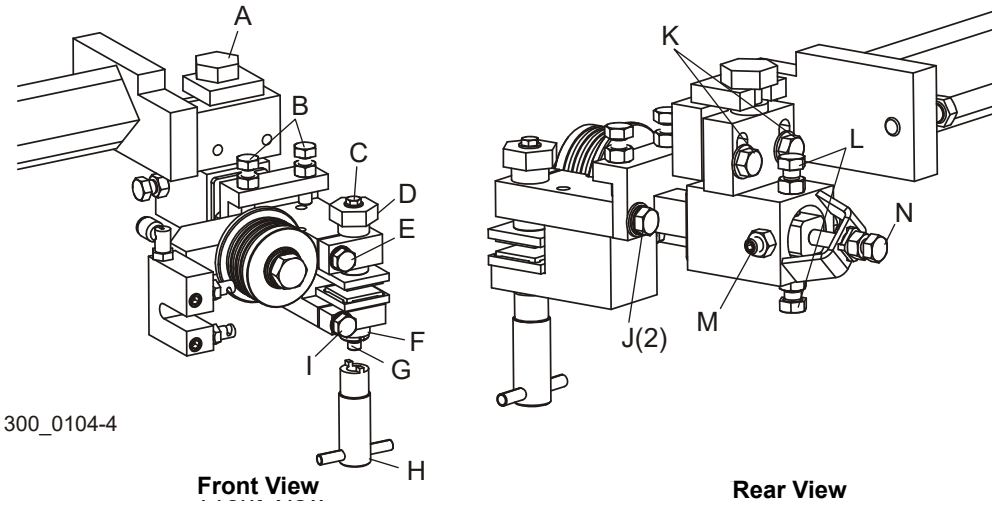


FIG. 6-9

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 (K) if assembly is properly lubricated.
B	**Guide Tilt Bolts** - Use to adjust the bolts to tilt the blade guides so the guide blocks are parallel to the blade. Loosen clamp bolts (J), but leave them snug. To adjust each bolt, use a 1/2” wrench to loosen the jam nut, adjust the bolt and retighten the jam nut. Retighten clamp bolts (J).
C	**Top Guide Block Bolt** - Use to disassemble top guide block. Use 5/16” nut driver to remove bolt.
D	**Top Guide Block Adjustment Bolt** - Use to raise or lower top guide block. Use a 1/2” wrench to loosen clamp bolt (E) and turn by hand. Turn adjustment bolt by hand counterclockwise to raise top guide block; clockwise to lower top guide block.
E	**Top Guide Block Clamp Bolt** - Loosen with 1/2” wrench to allow adjustment of top guide block adjustment bolt (D).
F	**Bottom Block Adjustment Bolt** - Use to adjust bottom guide block. Loosen clamp bolt (I) and use supplied tool (H) to turn bolt.
G	**Bottom Guide Block Bolt** - Use to disassemble bottom guide block. Use 5/32” hex wrench to remove bolt.
H	**Bottom Block Adjustment Tool** - Use to adjust bottom guide block bolt (F).
I	**Bottom Guide Block Clamp Bolt** - Loosen with 1/2” wrench to allow adjustment of bottom guide block adjustment bolt (F).
J	**Guide Block Clamp Bolts** - Loosen both bolts but leave snug with 1/2” wrench to allow adjustment of guide tilt bolts (B).

K	**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.
L	**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.
M	**Blade Guide Clamp Bolt** - Holds blade guide assembly securely in mounting bracket. Loosen this bolt and one tilt bolt (L) 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.
N	**Blade Guide Stop Bolt** - Provides a stop to prevent the guide assembly from getting pushed back during operation. Use a 1/2” 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.

6.2.2 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 4.7*).

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.

> **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.

6.2.3 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 6-10.

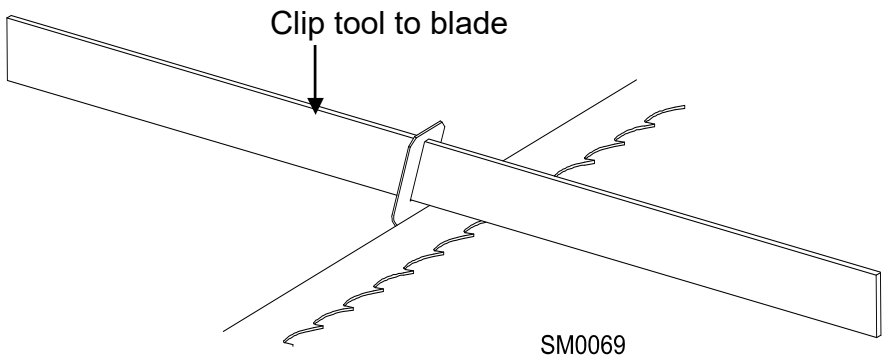


FIG. 6-10

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 6-11.

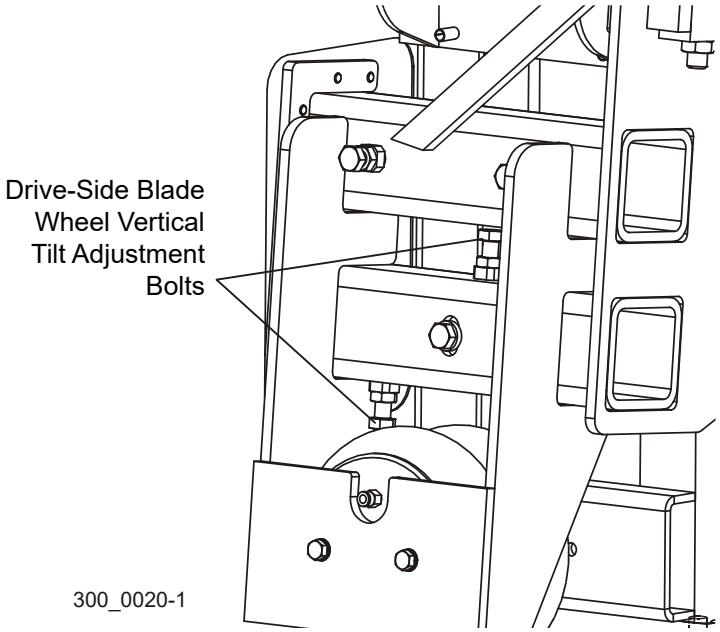


FIG. 6-11

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 6-12.

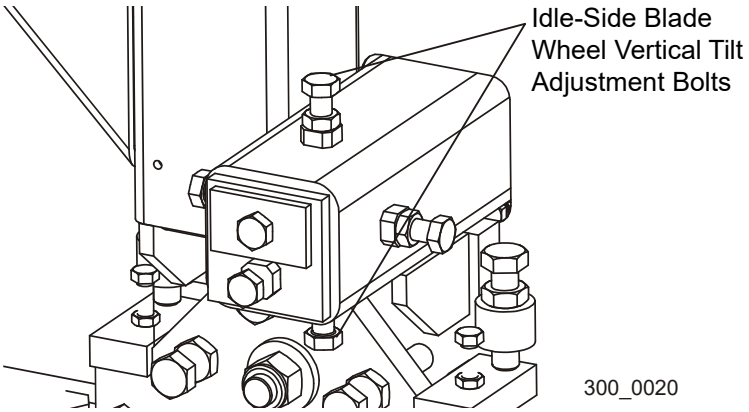


FIG. 6-12

6.2.4 Blade Guide Arm Alignment

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

See Figure 6-13. 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.

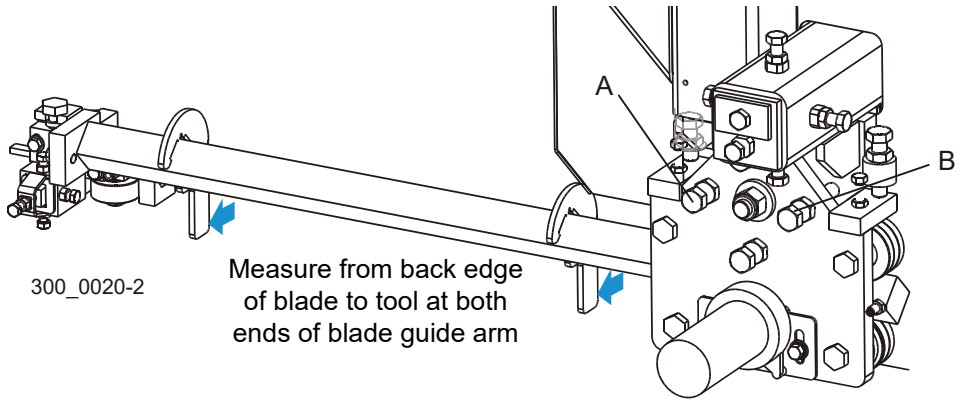


FIG. 6-13

See Figure 6-14. 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.

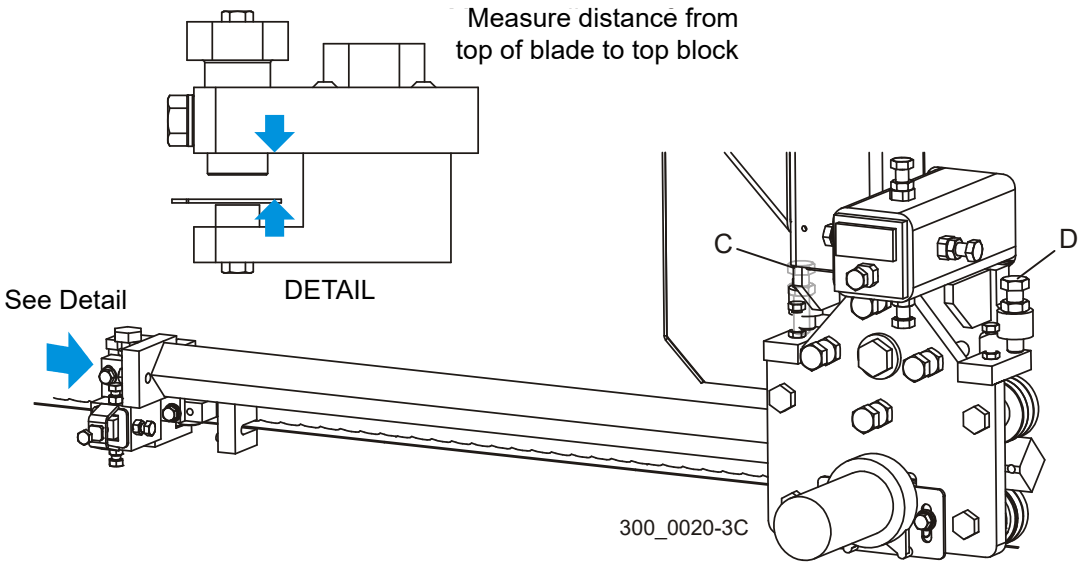


FIG. 6-14

6.2.5 Blade Guide Alignment

Each AWMV 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.

1. Inspect the guide blocks and repair or replace as necessary. Remove the blade from the sawmill.

   See Figure 6-15.

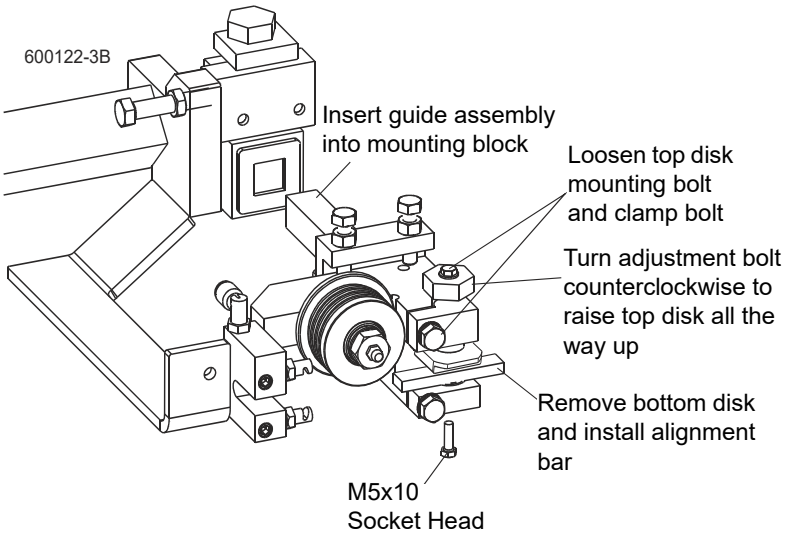


FIG. 6-15

2. Loosen the top block clamp bolt and mounting bolt. Turn the adjustment bolt counter-clockwise to raise the top block all the way up. Remove the bottom guide block from each blade guide assembly and install the provided alignment bar.

3. Install each blade guide assembly to the mounting blocks and push all the way back.

4. Install, tension and track a new blade. Adjust the outer blade guide assembly so the roller flange is 1/5"(5mm) from the back of the blade. Adjust the inner blade guide assembly so the roller flange is 1/6" (4mm) from the blade.

   See Figure 6-16. Tighten the two previously-loosened tilt adjustment screws to secure the blade guide assembly. 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.

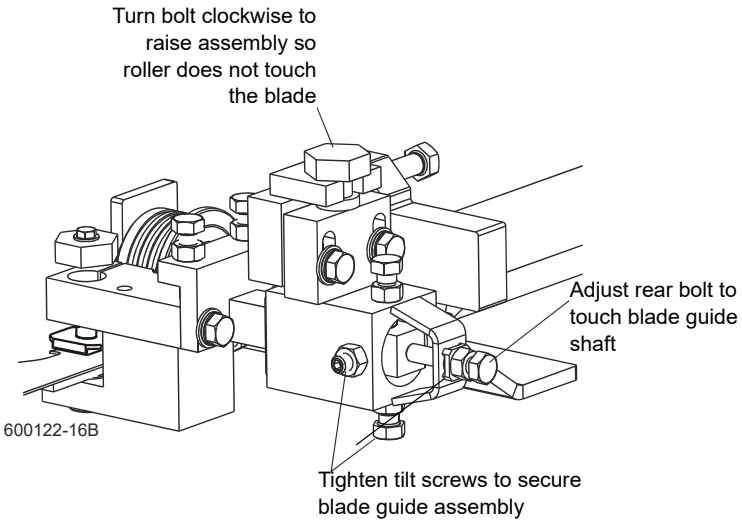


FIG. 6-16

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

5. 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 6-17.

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.

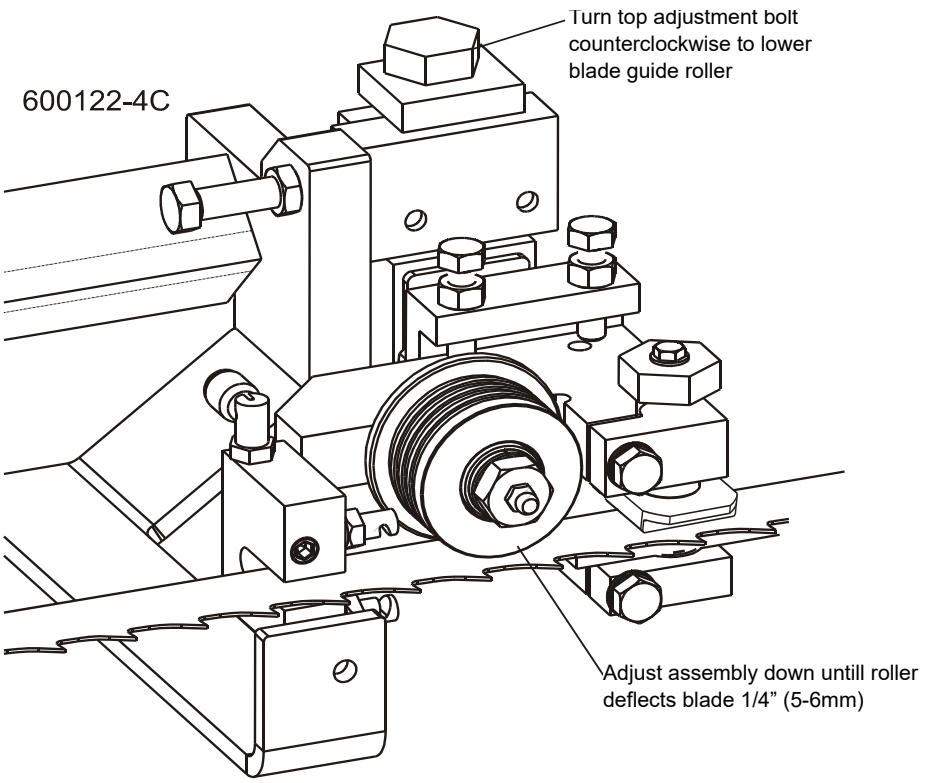


FIG. 6-17

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

6. 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.

7. Open the adjustable blade guide arm 1/2" (15 mm) from full open.

8. 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 6-18.

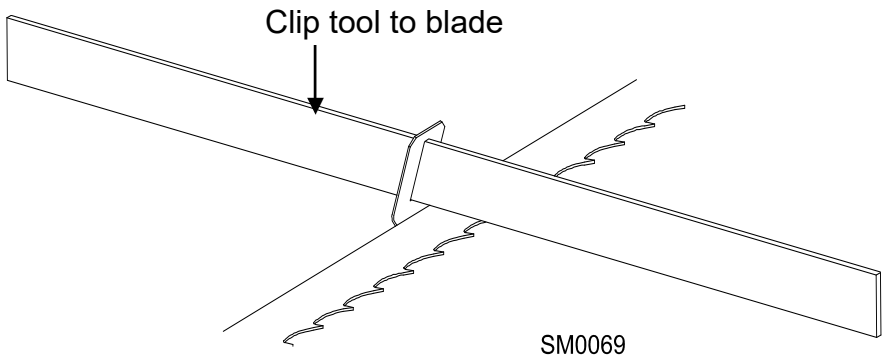


FIG. 6-18

9. 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.

10. 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.

11. 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.

12. Loosen one set screw at the side of the blade guide assembly.

See Figure 6-19. 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.

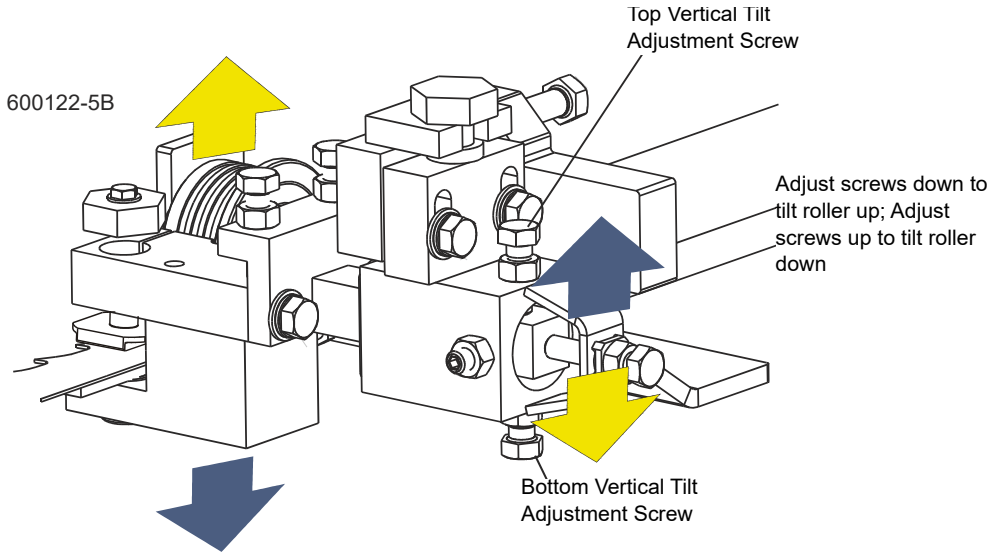


FIG. 6-19

13. 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.

14. 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.

15. Remove the blade guide alignment tool from the blade and adjust the blade guide arm halfway in.

16. Remove the clip from the blade guide alignment tool. Place the tool against the face of the outer blade guide roller.

See Figure 6-20.

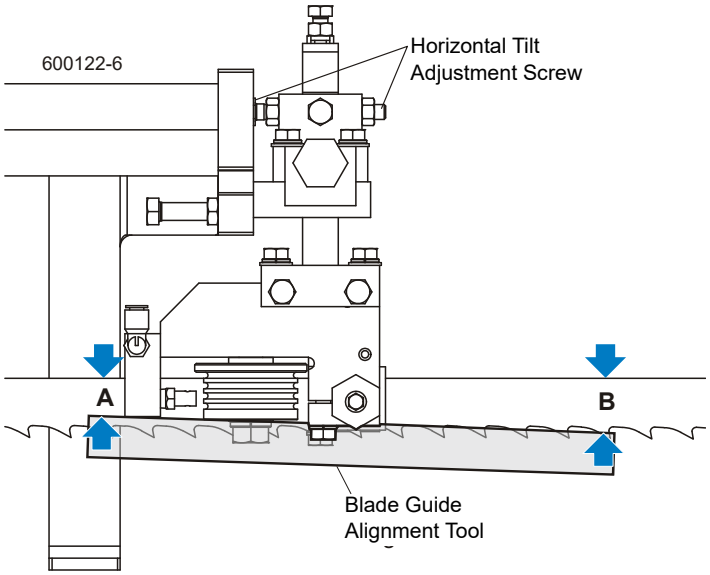


FIG. 6-20

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

18. 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’ ±1/8" [3 mm]).

See Figure 6-21. 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.

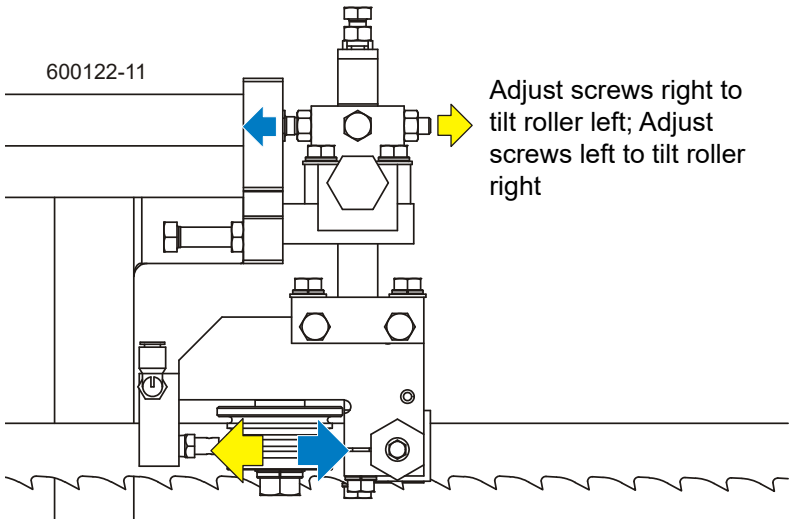


FIG. 6-21

19. 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.

20. Measure the distance between the flange on the inner blade guide roller to the back edge of the blade. This distance should measure 1/6" (4 mm). Adjust the roller back or forward if necessary.

See Figure 6-22. 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.

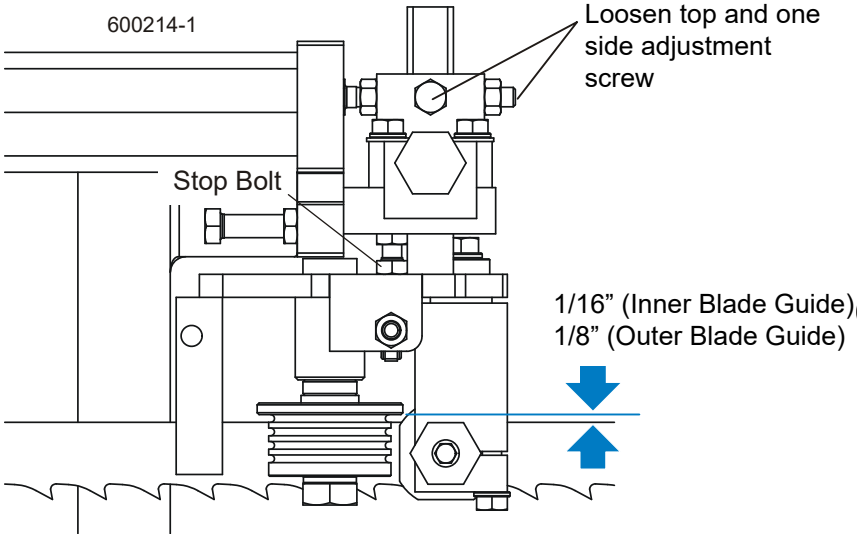


FIG. 6-22

21. Measure the distance between the flange on the outer blade guide roller to the back edge of the blade. This distance should measure 1/5" (5.0 mm). Adjust the roller back or forward if necessary.

Perform the following adjustments to make sure the blade guide assembly is parallel to the blade.

22. Loosen the alignment bar mounting bolt. Use the provided bottom block adjustment tool to adjust the alignment bar up so the bar is close to, but not touching the bottom of the blade. Retighten the alignment bar mounting bolt

23. Check that the gap from the alignment bar to the blade is the same along entire length of the bar. Shine a flashlight behind the blade guide assembly to help you see the gap between the bar and the blade.

See Figure 6-23.

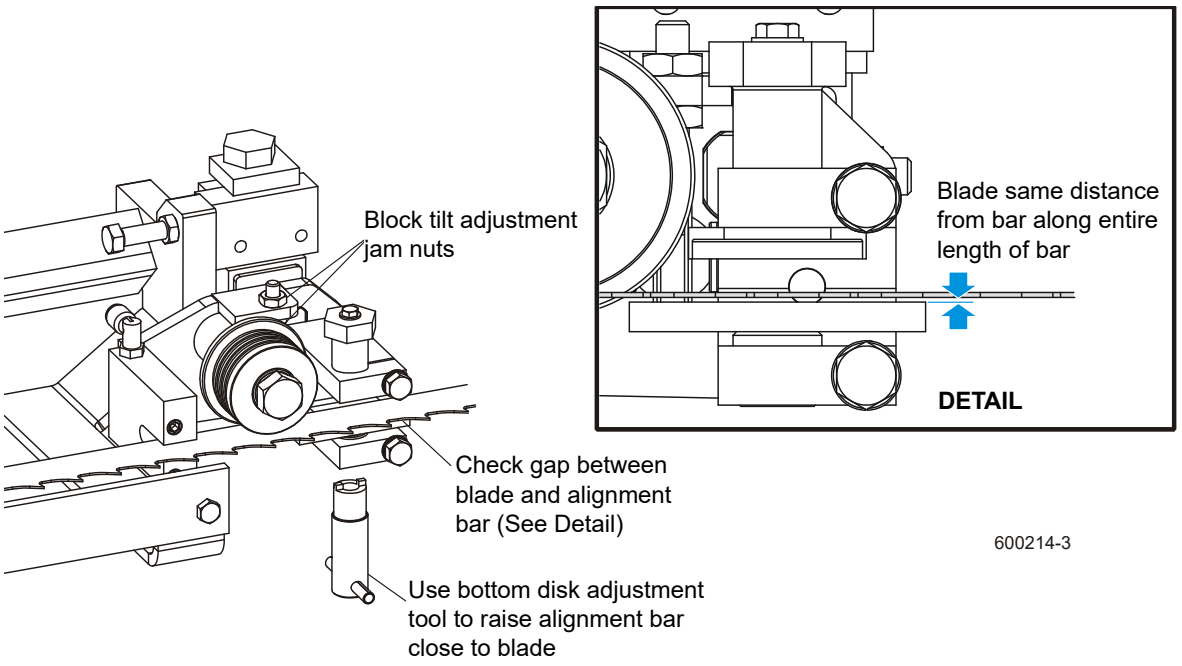


FIG. 6-23

Adjust the blade guide blocks the proper distance from the blade.

24. Remove the blade and remove the alignment bars from the blade guide assemblies. Install new or reconditioned bottom guide blocks to both blade guide assemblies (leave mounting bolts loose). Use the provided bottom block adjustment tool to lower the bottom block all the way down. Install, tension and track the blade.

See Figure 6-24.

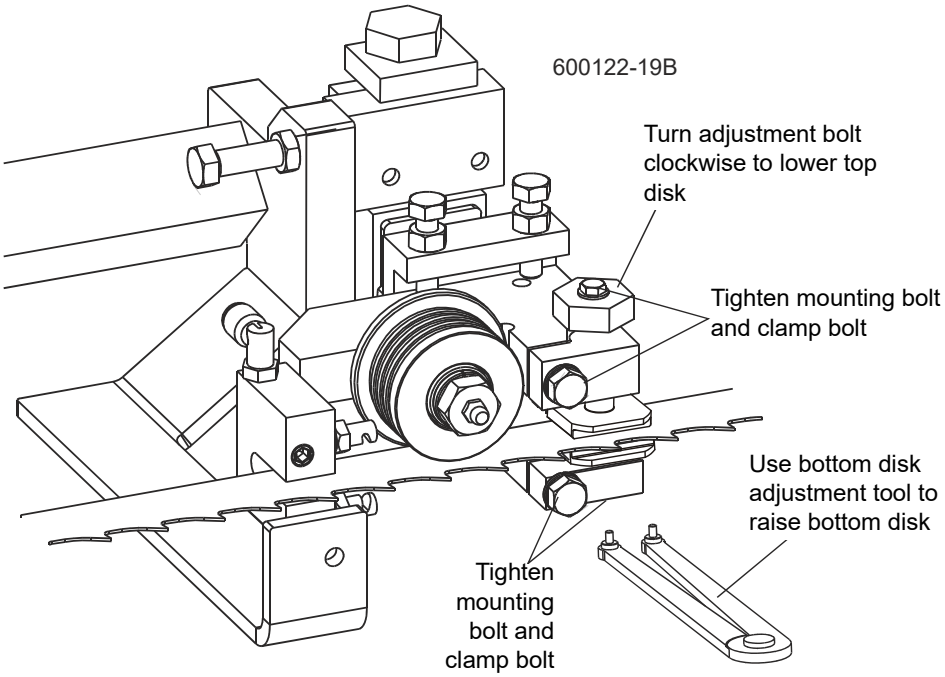


FIG. 6-24

25. Use the bottom block adjustment tool to raise the bottom block to .02" (0,5mm) from the blade. Use the provided shim to set the distance from the block to the blade. Tighten the bottom block mounting bolt and clamp bolt.

26. Turn the top block adjustment bolt clockwise to lower the top block to .008" - .010" (0,2-0,25mm) from the blade (using the shim as a guide). Tighten the top block mounting bolt and clamp bolt.

27. After tightening the clamp bolt, recheck the distance from the top block to the blade and readjust if necessary.

6.3 Blade Guides (Optional Block Guides)

NOTE: Block Guides are optional on the WM3500. *See Section 6.2.* for standard Block/Roller Guide alignment.

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.

6.3.1 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 6-25. The major components of the blade guide assemblies are the top and bottom guide blocks and guide roller.

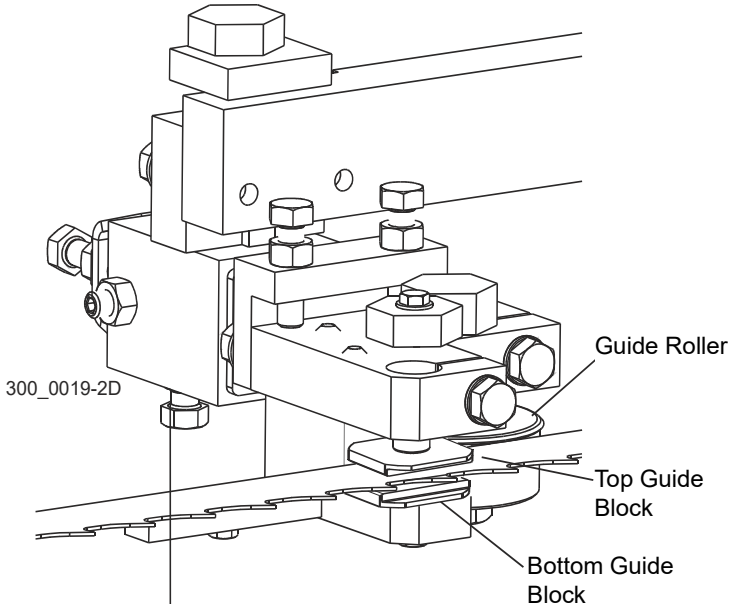


FIG. 6-25

See Figure 6-26. The objective to aligning the blades guides is to properly position the guide blocks and guide roller in relation to the blade. The blocks should be aligned with the back edge of the blade as viewed from the top. They must also be parallel to the blade as viewed from the front. The roller should be 1/16” - 1/8” from the back edge of the blade.

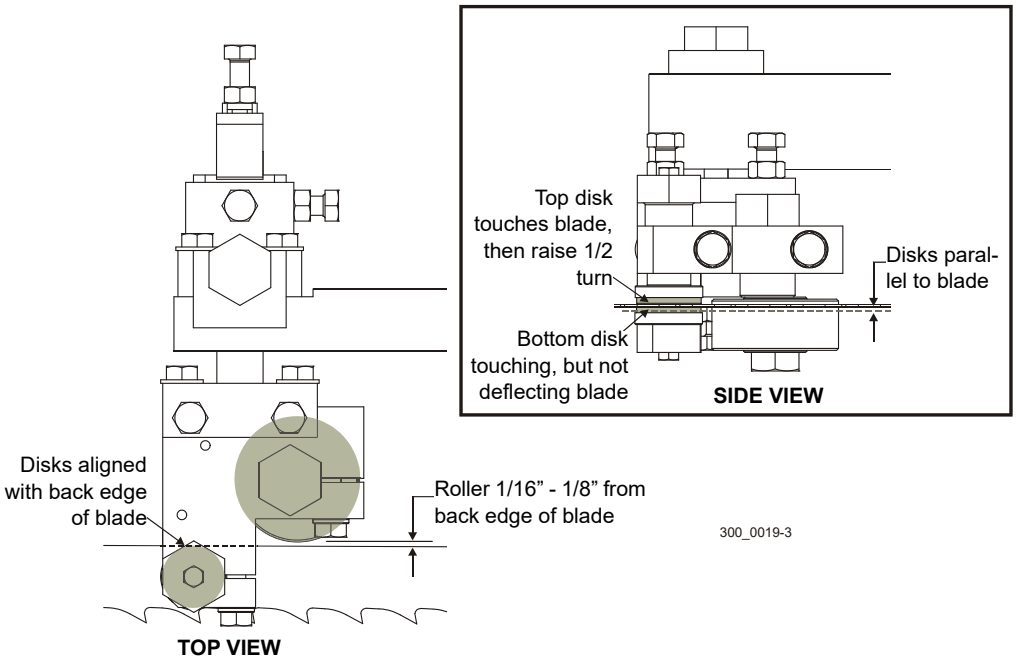


FIG. 6-26

See Figure 6-27. Adjustment bolts are provided to obtain the proper blade guide align-

ment. The various blade guide adjustments are described below.

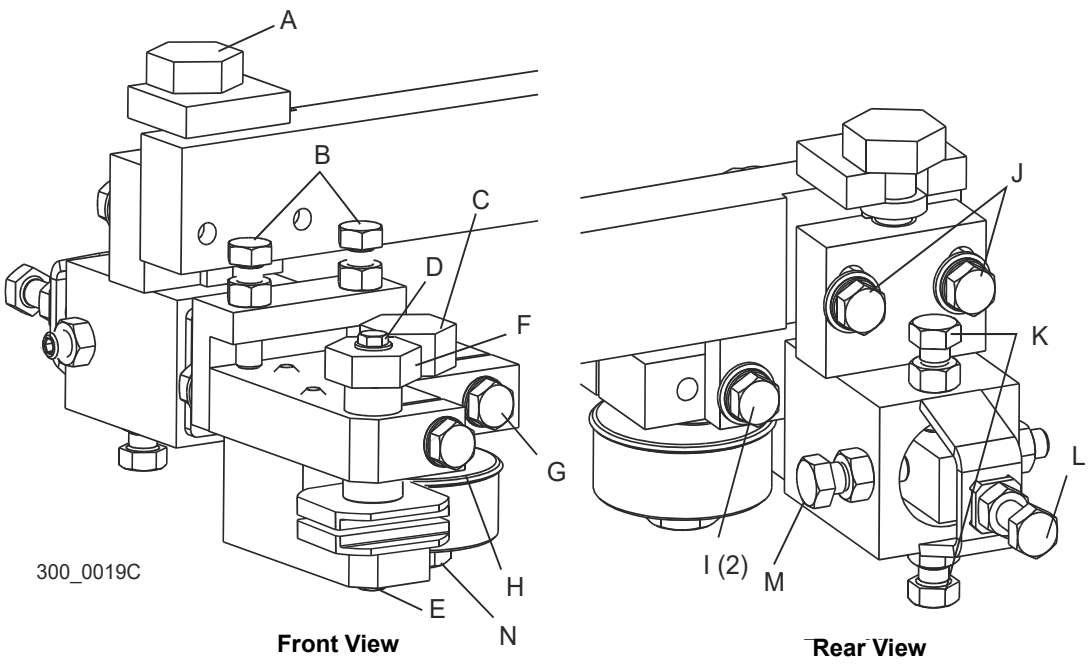


FIG. 6-27

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 (J) if assembly is properly lubricated.
B	**Guide Tilt Bolts** - Use to adjust the bolts to tilt the blade guides so the guide blocks are parallel to the blade. Loosen clamp bolts (I), but leave them snug. To adjust each bolt, use a 1/2” wrench to loosen the jam nut, adjust the bolt and retighten the jam nut. Retighten clamp bolts (I).
C	**Roller Adjustment Bolt** - Use to move guide roller toward or away from the blade or to adjust the roller up or down as the blade wears a groove in the roller. Use a 1/2” wrench to loosen clamp bolt (G) and turn roller adjustment bolt by hand to move roller toward or away from blade. Retighten clamp bolt (G).
D	**Top Guide Block Bolt** - Use to disassemble top guide block. Use 5/16” nut driver to remove bolt.
E	**Bottom Guide Block Bolt** - Use to disassemble bottom guide block. Use 5/16” nut driver to remove bolt.
F	**Top Guide Block Adjustment Bolt** - Use to raise or lower top guide block. Use a 1/2” wrench to loosen clamp bolt (H) and turn by hand. Turn adjustment bolt by hand counterclockwise to raise top guide block; clockwise to lower top guide block.
G	**Roller Clamp Bolt** - Loosen with 1/2” wrench to allow adjustment of roller adjustment bolt (C).

H	**Top Guide Block Clamp Bolt** - Loosen with 1/2” wrench to allow adjustment of top guide block adjustment bolt (E).
I	**Guide Block Clamp Bolts** - Loosen both bolts but leave snug with 1/2” wrench to allow adjustment of guide tilt bolts (B).
J	**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.
K	**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.
L	**Blade Guide Stop Bolt** - Provides a stop to prevent the guide assembly from getting pushed back during operation. Use a 1/2” 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.
M	**Blade Guide Clamp Bolt** - Holds blade guide assembly securely in mounting bracket. Loosen this bolt and one tilt bolt (K) 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.
N	**Roller Mount Bolt** - Remove this bolt to flip or replace the roller. Once the top half of the roller is worn, remove the bolt and flip the roller so the worn half is on the bottom.

6.3.2 Preparing For Blade Guide Alignment

Recommended tools:

- Wrenches: 1/2”, 3/4”, & 1”
- 5/16” Nut Driver
- Blade Guide Alignment Blocks
- Blade Guide Alignment Tool
- Blade Guide Arm Alignment Tool
- Flashlight

1. Remove the blade from the sawmill. Blow sawdust off of the blade guide assemblies. Remove sawdust from the blade housings. Scrape any sawdust buildup from the blade wheel rims. If sawdust buildup is present on the wheels, perform the wheel scraper inspection and maintenance as described in *Section 5.8*.

2. Adjust the outer blade guide arm in or out until the outer blade guide is approximately 24” from the inner blade guide.

   See Figure 6-28. At both blade guide assemblies, loosen clamp bolt (H) and turn bolt (F) counterclockwise to raise the top guide block all the way up. Remove bolt (N) and remove

the guide roller and roller cover from each blade guide assembly.

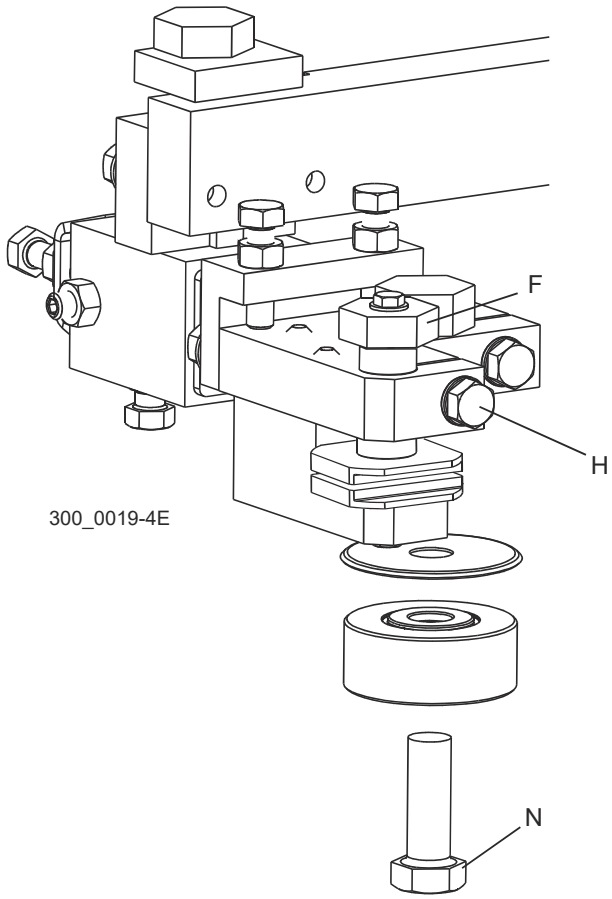


FIG. 6-28

3. Remove the bottom guide blocks from both blade guide assemblies.

4. Install, tension and track a new blade on the blade wheels (*See Section 4.7*).

NOTE: The blade tension MUST be released when adjusting the blade wheels to track the blade.

5. Install the provided alignment blocks to the blade guide assemblies where the bottom guide blocks were. Use the longer bolt provided with the alignment block.

See Figure 6-29.

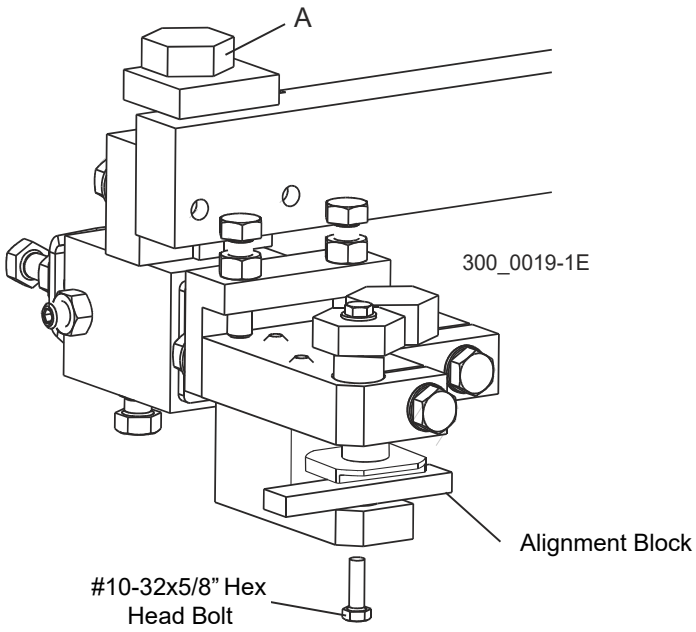


FIG. 6-29

6. Adjust the blade guides so the alignment blocks do not contact the blade. Turn bolt (A) counterclockwise to lower the blade guide assembly until the alignment block does not touch 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.

6.3.3 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 6-30.

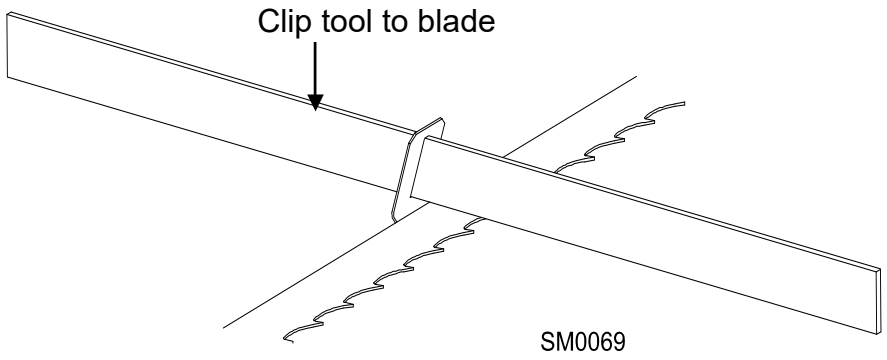


FIG. 6-30

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 6-31.

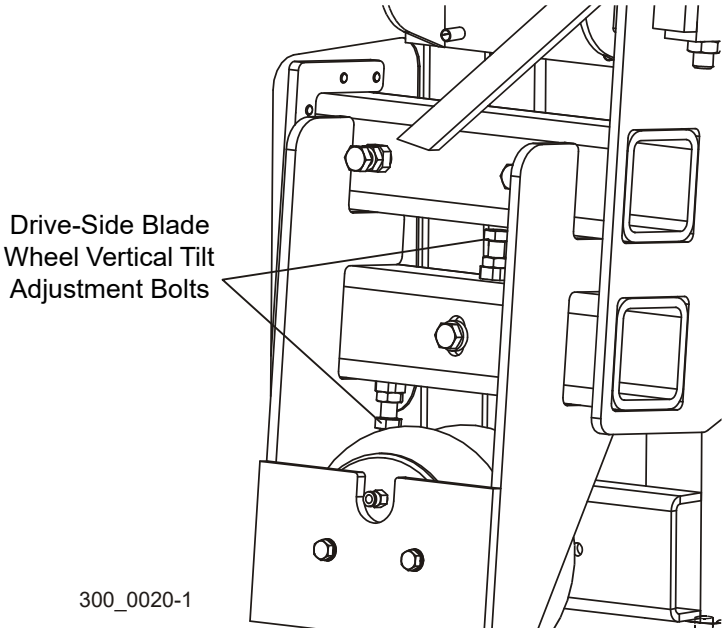


FIG. 6-31

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 6-32.

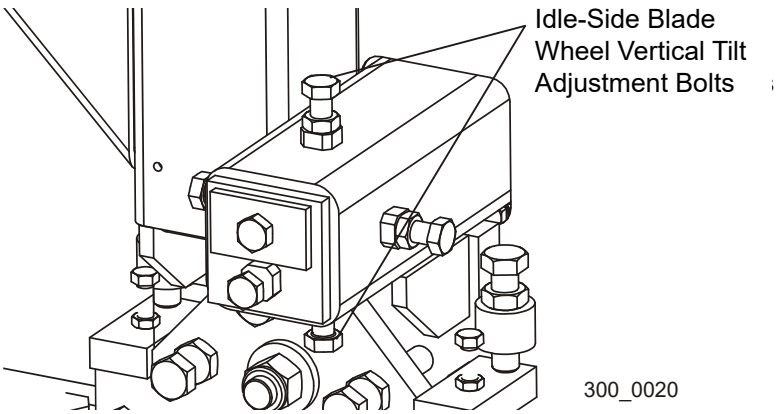


FIG. 6-32

6.3.4 Blade Guide Arm Alignment

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

See Figure 6-33. 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.

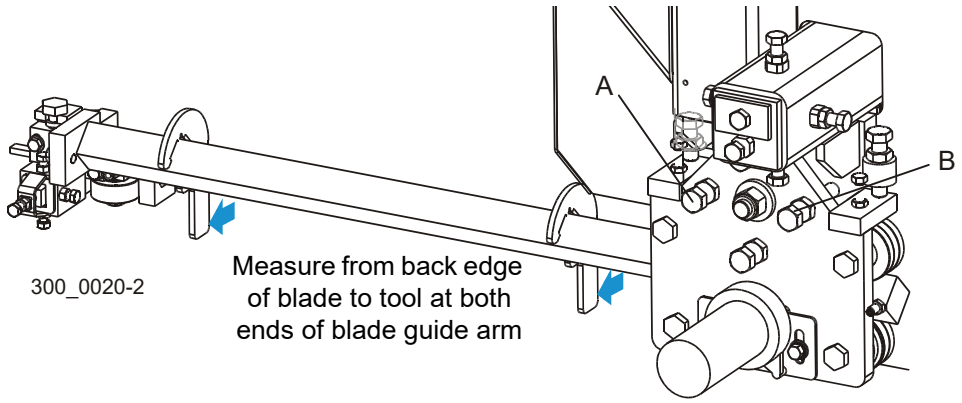


FIG. 6-33

See Figure 6-34. 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.

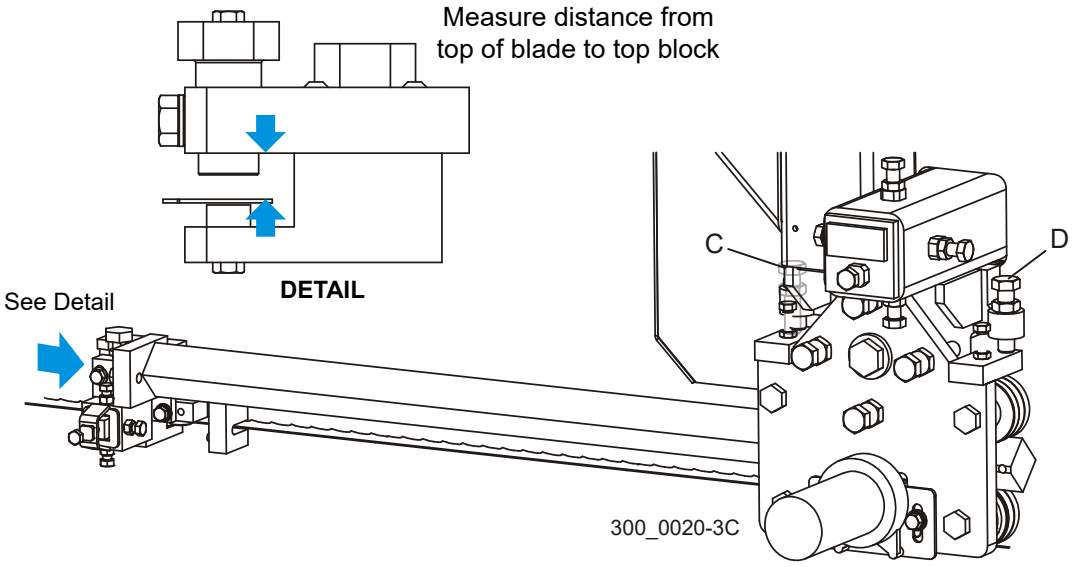


FIG. 6-34

6.3.5 Blade Guide Alignment

1. Check that the alignment blocks are parallel to the blade. Adjust bolt (A) to raise the blade guide assembly until the block almost touches 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.

2. Check that the gap from the alignment block to the blade is the same along entire length of the block. Shining a flashlight behind the blade guide assembly will help you to see the gap between the block and the blade. To adjust, loosen clamp bolts (I), but leave snug. Determine which bolt (B) to use to tilt the blade guide assembly as desired. Loosen the jam nut and turn the bolt until the alignment block is parallel to the blade. Retighten the jam nut and clamp bolts (I). Repeat for the second blade guide assembly.

See Figure 6-35.

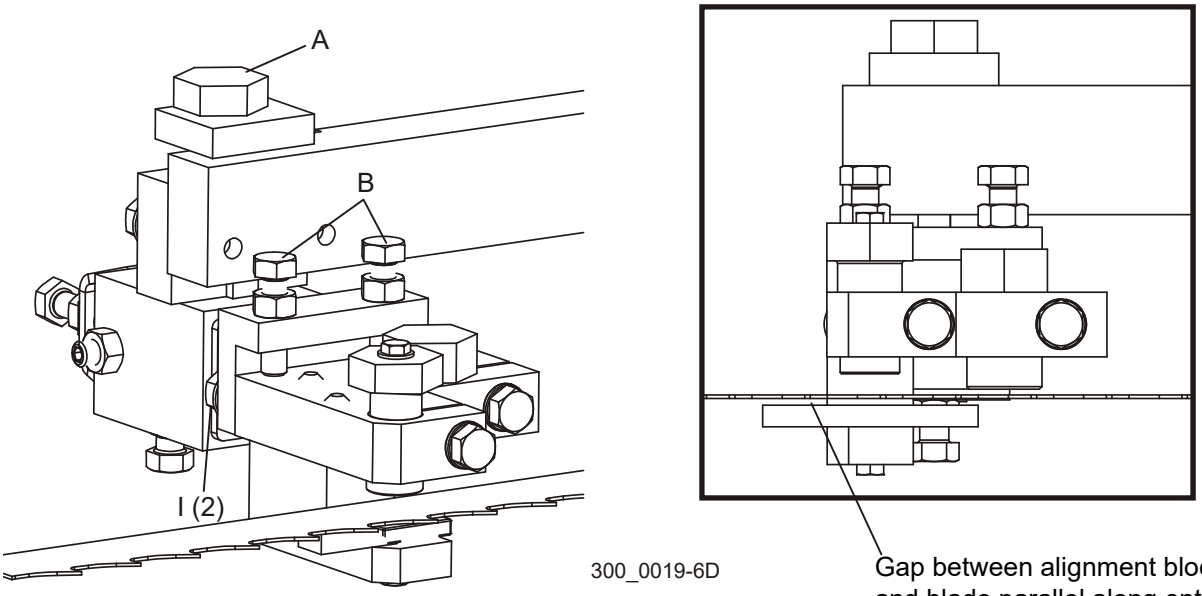


FIG. 6-35

3. Remove tension from the blade and remove the alignment blocks from the blade guide assemblies. Install new or reconditioned bottom guide blocks to both blade guide assemblies. Tension and track the blade.

4. Turn bolt (A) counterclockwise to adjust each blade guide assembly down until the bottom guide block is .008” - .010” from the blade.

   See Figure 6-36.

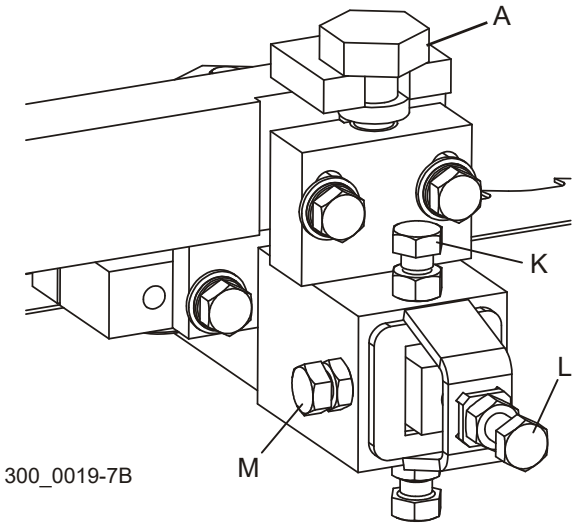


FIG. 6-36

5. Install new or reconditioned top guide blocks and check the position of the guide blocks in relation to the blade. The back of the blocks should be aligned with the back edge of the blade. To adjust, loosen one bolt (K) and bolt (M). Slide the blade guide assembly in or out as necessary. Loosen the jam nut on bolt (L) and adjust the bolt until it contacts the end of the blade guide shaft. Retighten the jam nut.

6. Turn bolt (F) clockwise to adjust the top guide block down until the blade is firmly clamped between the guide blocks. Tighten clamp bolt (H).

7. Check the tilt of each blade guide assembly using the blade guide alignment tool. 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 against the bottom of the blade.

8. 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.

9. 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.

10. If the two measurements are not equal within 1/32", adjust the vertical tilt of the inner blade guide assembly. Loosen the jam nuts on bolts (K). Adjust the bolts up to tilt the blade down. Adjust the bolts down to tilt the blade up. Retighten the jam nuts and recheck the tilt of the inner blade guide assembly with the blade guide alignment tool.

See Figure 6-37.

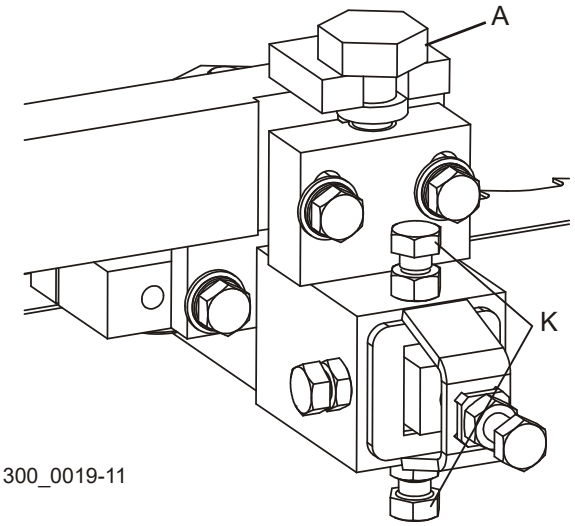


FIG. 6-37

11. Remove the tool from the blade and reattach it near the outer blade guide assembly.

12. 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 1/32", adjust the vertical tilt of the outer blade guide assembly using bolts (K) as described above.

13. Loosen clamp bolt (H) and turn bolt (F) counterclockwise to raise the top guide block on each blade guide assembly until it is .008” - .010” from the blade. Tighten clamp bolt (H).

14. Reinstall the blade guide roller, roller cover and bolt (N). Install the roller upside down if the top half is worn with blade grooves. Use a new roller if both halves of the old roller are worn.

15. Check that each guide roller is 1/8” from the back edge of the blade. To adjust, loosen clamp bolt (G) and turn bolt (C) to move roller toward or away from blade. Raise or lower the roller to avoid the blade contacting an existing groove in the roller. Retighten clamp bolt (G).

See Figure 6-38.

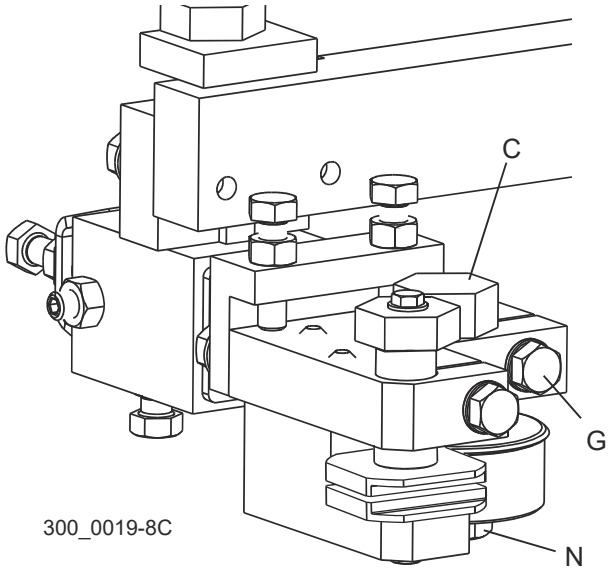


FIG. 6-38

SECTION 7 SPECIFICATION

7.1 Overall Dimensions

See Table. 7-1. The overall dimensions of the WM4000 are listed below.

	WM4000
Length (without control station)	8,8m
Length (w/control and 0,8m between)	10,2m (12,8m)
Width (without pantograph)	2,8m
Width (with pantograph)	4,9-6,1m
Height (Max Head Position)	2,7-3,4m
Pantogragh Tube Height	3,4m
Sawmill Weight	3800-4250kg
Transfer Deck Option Weight	958kg
Log Infeed Deck Option Weight (3,6m)	789kg
Log Infeed Deck Option Weight (6,1m)	1054kg
Incline Conveyor Option Weight	635kg

TABLE. 7-1

See Figure 7-1. The major components of the blade guide assemblies are the top and bottom guide blocks and guide roller.

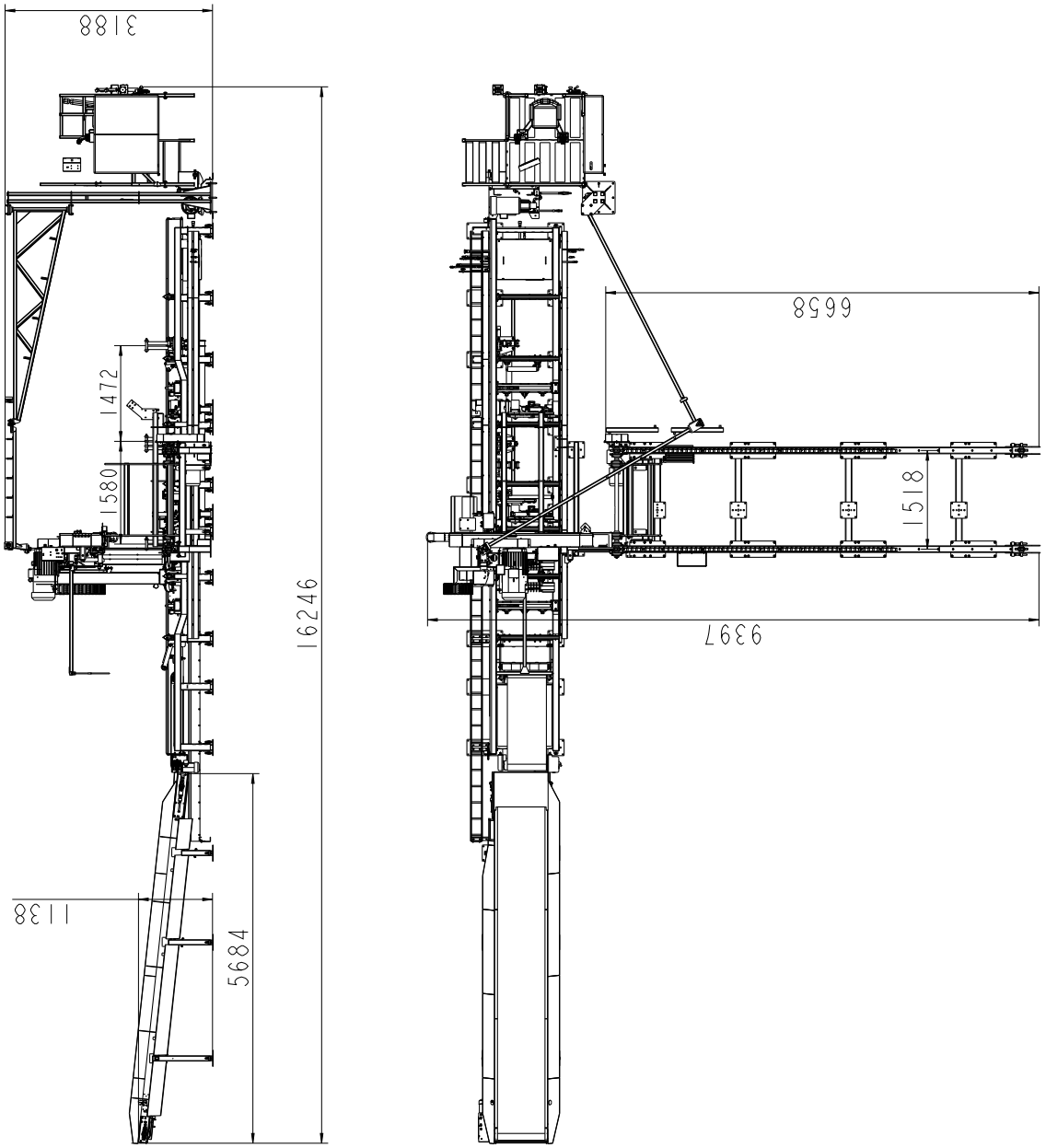


FIG. 7-1

7.2 Motor Specifications

See Table. 7-2. The power options available for the WM4000 sawmills are listed below.

Engine/Motor Type	Manufacturer	Model No.	Power	Other Specifications
30HP Electric Motor [1]	Siemens	1LA9186-4WA60	22kW	1465 RPM

TABLE. 7-2

[1] The electric motors supplied on Wood-Mizer sawmills carry a rating assigned by the motor manufacturer for the continuous duty operation of the motor, potentially, 24 hours per day, day after day. This rating is useful in sizing motors for use in applications like blowers for heating and ventilation that are never cycled off except for system maintenance.

7.3 Noise Level

See Table. 7-3. The noise level of the WM4000 sawmill is listed below. ***

	Engaged
Sawmill Equipped With Electric Motor	L_{EX8} = 82,9 dB (A)

TABLE. 7-3

7.4 Blade Specifications

See Table. 7-4. The blades available for the WM4000 sawmills are listed below.

Blade Type	Manufacturer	Blade Dimensions
	Wood-Mizer	Lenght: 4980mm Width: 32mm, 35mm, 38mm

TABLE. 7-4

7.5 Dust Extractor Specifications

See Table. 7-5. Specifications of the dust extractors.***

Airflow	2300m^3/h
Inlet diameter	150mm
Motor power	3kW
Number of sacks	2pcs

TABLE. 7-5

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* The noise level measurement was taken in accordance with PN-EN ISO 3746 Standard . The noise exposure level given above concerns an 8-hour work day.
** The measured values refer to emission levels, not necessarily to noise levels in the workplace. Although there is a relation between emission levels and exposure levels, it is not possible to determine with certainty if preventives are needed or are not needed. The factors affecting a current level of noise exposure during work are inter alia room characteristics and characteristics of other noise sources, e.g. number of machines and machining operations nearby. Also, the permissible exposure level value may vary depending on country. This information enables the machine's user to better identify hazards and a risk .
***External chip and dust extraction equipment with fixed installations are dealt with in EN 12779:2016-04

Capacity of sacks	0.25mp
Weight	110kg
Recommended conveying air velocity in the duct	28m/s

TABLE. 7-5

IMPORTANT! The dust extractor hoses must be grounded or made with materials not accumulating electrostatic charge.

7.6 Cutting Capacity

See Table. 7-6. The WM4000 can accept logs as listed below.

	WM4000
Maximum Log Diameter	100 cm
Maximum Log Length	6,5 m 6,3m (with board removal)
Maximum Log Weight	2000 kg

TABLE. 7-6

7.7 Air Supply Specification

See Table. 7-7. See the table below for air supply specifications:

Air Supply	**Pressure**
WM4000	Min. 6 bar

TABLE. 7-7

SECTION 8 HYDRAULIC & AIR INFORMATION

8.1Hydraulic Schematic

See Figure 8-1.

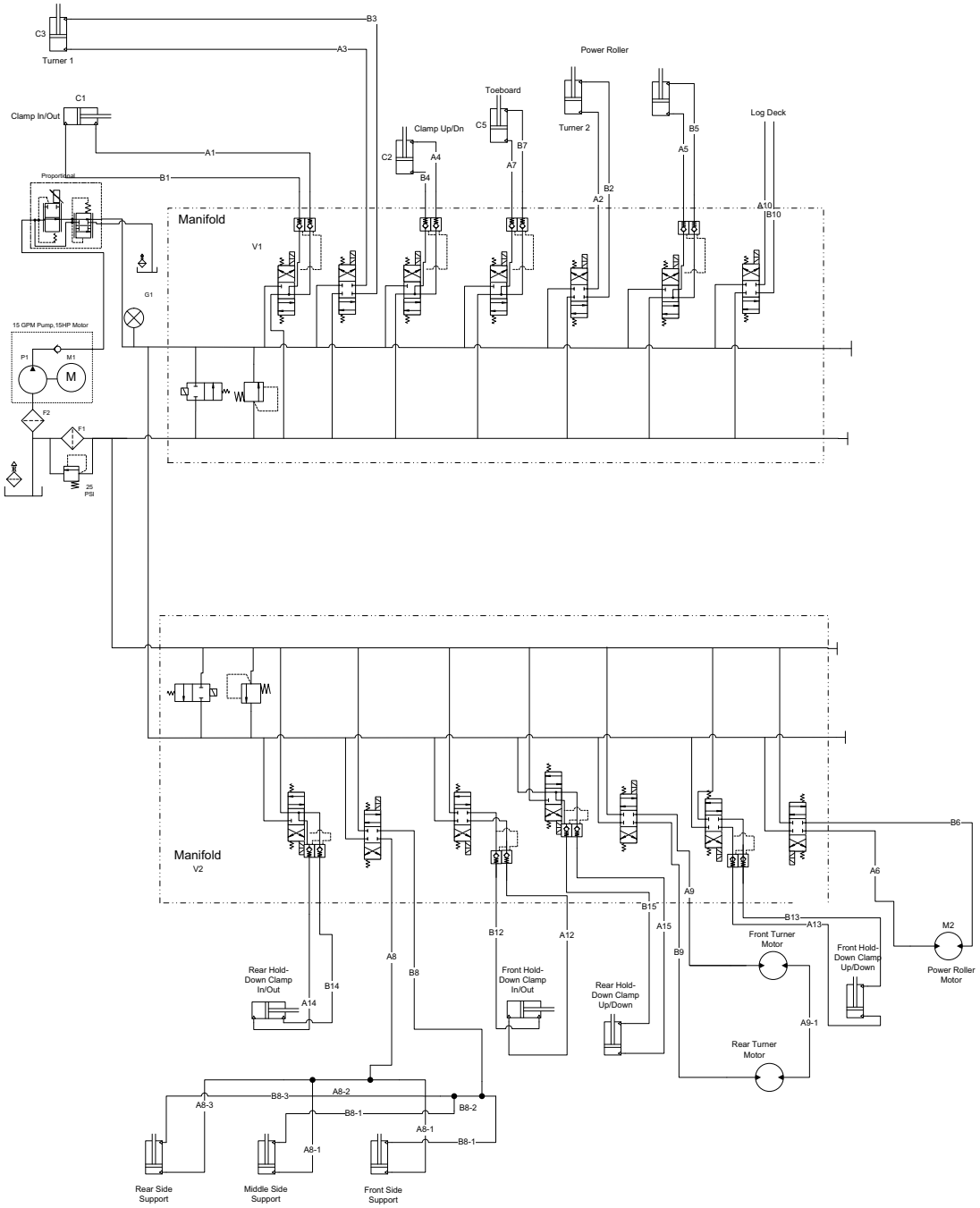

FIG. 8-1

Turner 1 -
Clamp In/Out -
Proportional -
Manifold -
Clamp Up/Down -
Toe Board -
Turner 2 -
Power Roller (Driven Log Levelling Roller) -
Log Deck -
15 GPM Pump, 15HP Motor -
Rear Hold-Down Clamp In/Out -
Front Hold-Down Clamp In/Out -
Rear Hold-Down Clamp Up/Down -
Rear Turner Motor -
Front Turner Motor -
Front Hold-Down Clamp Up/Down -
Power Roller Motor (Driven Log Levelling Roller Motor) -
Rear Side Support -
Middle Side Support -
Front Side Support -

8.2 Hydraulic Components

See Table. 8-1.

ID	Manufacturer	Wood-Mizer Part.#	Description
C1		088589	Hyd. Cylinder, CJ-S96-16-70/32/178
C2		088590	Hyd. Cylinder, CJ-S278-16-40/28/254
C3	J-D Hydraulic	606520	Hyd. Cylinder, 2” Bore x 10” Stroke
C4	J-D Hydraulic	094002	Hyd. Cylinder, 28/150,1/4 NPT Port
C5		088681	Hyd. Cylinder, CJ-S170-16-40/25/152
F1		P22683	Filter, Hydraulic Fluid Cartridge
M1	Lincoln	008743	Motor, 10HP 3525RPM, LINCOLN LM24962
M2		007331	MOTOR,HYDRALIC,TG0475US080A ABP
M3	Parker	P21506	Motor, Hydraulic Power Roller
P1	Grainger	042782	Hydraulic Pump, 6GPM 50Hz
V1, V2		025689	Valve, 8-Section Hydraulic
C1		094002	Hyd. Cylinder, 28/150,1/4 NPT Port
C2		088589	Hyd. Cylinder, CJ-S96-16-70/32/178
C3			
C4			
C5			
F1			
M1			
M2			
M3			
P1			

TABLE. 8-1

8.3 Hydraulic Hoses

See Table. 8-2.

Valve 1

ID	Color Code	Qty.	LENGTH "A"	Application	Wood-Mizer Part No.
A1	White	1	4,9m	3/8” 2-Plane Clamp (In/Out)	
B1	Orange	1	4,9m	3/8” 2-Plane Clamp (In/Out)	
A3	Pink	1	3m	3/8” 1st Turner (Up-Down)	
B3	None	1	3,1m	3/8” 1st Turner (Up-Down)	
A4	Yellow	1	4,6m	1/4” 2-Plane Clamp, (Up/Down)	
B4	Green	1	4,6m	1/4” 2-Plane Clamp, (Up/Down)	
A7	Brown	1	2,9m	1/4” 1st Toe Board	
B7	Silver	1	2,9m	1/4” 1st Toe Board	
A2	Green	1	4,7m	3/8” 2nd Turner (Up-Down)	
B2	Orange	1	4,9m	3/8” 2nd Turner (Up-Down)	
A5	Black	1	6m	1/4” Power Roller (Up-Down)	
B5	Claret	1	6m	1/4” Power Roller (Up-Down)	
A10	None	1		Log Deck	
B10	None	1		Log Deck	

TABLE. 8-2

See Table. 8-3.

Valve 2

ID	Color Code	Qty.	LENGTH "A"	Application	Wood-Mizer Part No.
A14	Yellow	1	6,3m	1/4” 2nd Pull-Down Clamp (In/Out)	
B14	Green	1	6,3m	1/4” 2nd Pull-Down Clamp (In/Out)	
A8		1	2,4m	3/8” Side Supports (from pump to first Tee Fitting)	
B8		1	2,4m	3/8” Side Supports (from pump to first Tee Fitting)	
A8-1		2	0,9m	3/8” Front Side Support (from first Tee Fitting to first Side Support and from second Tee Fitting to second Side Support)	
B8-1		2	1,1m	3/8” Front Side Support (from first Tee Fitting to first Side Support and from second Tee Fitting to second Side Support)	

TABLE. 8-3

A8-2		1	0,85m	3/8” Side Support (from first Tee Fitting to second Tee Fitting)	
B8-2		1	0,85m	3/8” Front Side Support (from first Tee Fitting to second Tee Fitting)	
A8-3		1	1,8m	3/8” Rear Side Support (from second Tee Fitting to rear Side Support)	
B8-3		1	2,1m	3/8” Rear Side Support (from second Tee Fitting to rear Side Support)	
A12	White	1	3,5m	1/4” 1st Pull-Down Clamp (In-Out)	
B12	Orange	1	3,5m	1/4” 1st Pull-Down Clamp (In-Out)	
A15	Red	1	7,1m	1/4” 2nd Pull-Down Clamp (Up/Down)	
B15	Blue	1	7,1m	1/4” 2nd Pull-Down Clamp (Up/Down)	
A9	None	1	4m	3/8” Turner (from pump to front Turner)	
A9-1	None	1	3,5m	3/8” Turner (from front Turner to rear Turner)	
B9	None	1	5,8m	3/8” Turner (from rear Turner to pump)	
A13	Red	1	3,6m	1/4” 1 st Pull-Down Clamp (Up/Down)	
B13	Blue	1	3,6m	1/4” 1 st Pull-Down Clamp (Up/Down)	
A6	Pink	1	6,8m	1/4” Power roller, Hydro-Motor	
B6	Silver	1	6,8m	1/4” Power roller, Hydro-Motor	

TABLE. 8-3

INDEX

T

EC declaration of conformity

according to EC Machinery Directive 2006/42/EC, Annex II, 1.A

Manufacturer:

Wood-Mizer Industries sp. z o.o.
Nagórna 114, 62-600 Koło; Poland
Tel. +48 63 26 26 000

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Following machine in our delivered version complies with the appropriate essential safety and health requirements of the EC Machinery Directive 2006/42/EC based on its design and type, as brought into circulation by us. In case of alteration of the machine, not agreed by us, this declaration is no longer valid.

We, the undersigned herewith declare, that:

Designation of the machine:	**Sawmill**
TYPE:	WM3500S; WM4000S
No. of manufacturer:	……..
Is in conformity with the following EC directives:	EC Machinery Directive 2006/42/EC EC Electromagnetic Compatibility Directive 2014/30/EU
And is in conformity with the following Harmonized Standards:	PN-EN 1807-2:2013 PN-EN 60204-1:2010 PN-EN ISO 13849-1:2016-02 PN-EN ISO 13857:2010
Notified Body according to annex IV :	INSTYTUT TECHNOLOGII DREWNA Centrum Weryfikacji Wyrobów Przemysłu Drzewnego ul. Winiarska 1, 60-654 Poznań
Notification No	1583
Responsible for:	EC type examination
EC type-examination certificate no.	0677/2018
Responsible for Technical Documentation:	Tomasz Agaciński / Engineering Manager Wood-Mizer Industries Sp. z o.o. 62-600 Koło, ul. Nagórna 114, Poland Tel. +48 63 26 26 000
Place/Date/Authorized Signature:	Koło,28.11.2018
Title:	Engineering Manager