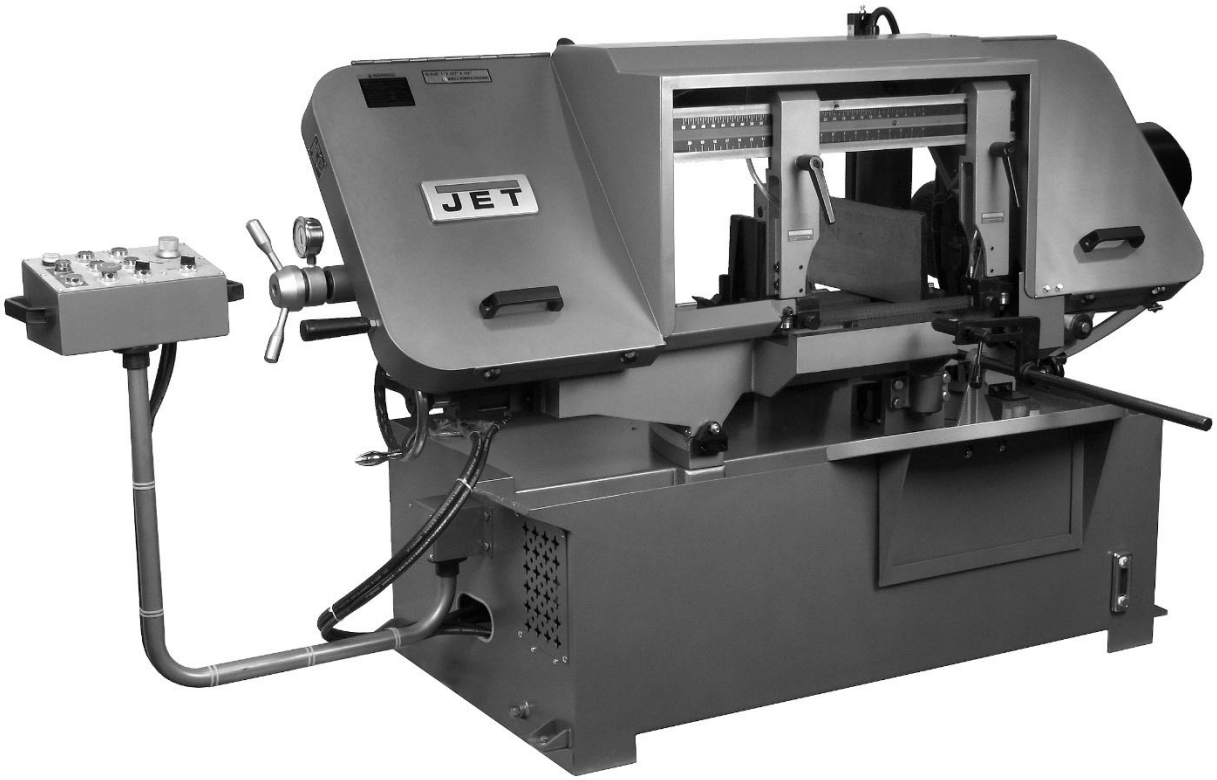
Operating Instructions and Parts Manual
12″x20″ Semi-Automatic Variable-Speed Mitering Band Saw
Models HBS-1220MSA, HBS-1220MSAH



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1.0 IMPORTANT SAFETY INSTRUCTIONS

WARNING – To reduce risk of injury:

1. Read and understand the entire owner's manual before attempting assembly or operation.
2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
3. Replace warning labels if they become obscured or removed.
4. This band saw is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a band saw, do not use until proper training and knowledge have been obtained.
5. Do not use this band saw for other than its intended use. If used for other purposes, JET disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
6. Always wear leather gloves when handling saw blades. The operator shall not wear gloves when operating the machine.
7. Machinery must be anchored to the floor.
8. Secure work. Use clamps or a vise to hold work, when practical. It is safer than using your hands and it frees both hands to operate the machine.
9. All doors shall be closed, all panels replaced, and other safety guards in place prior to the machine being started or operated.
10. Be sure that the blade is not in contact with the workpiece when the motor is started. The motor shall be started and you should allow the saw to come up to full speed before bringing the saw blade into contact with the workpiece.
11. Keep hands away from the blade area.
12. Remove any cut off piece carefully while keeping your hands free of the blade area.
13. Saw must be stopped and electrical supply must be cut off before any blade replacement or adjustment of blade support mechanism is done, or before any attempt is made to change the drive belts or before any periodic service or maintenance is performed on the saw.
14. Remove loose items and unnecessary workpieces from area before starting machine.
15. Bring adjustable saw guides and guards as close as possible to the workpiece.
16. Always wear protective eye wear when operating, servicing, or adjusting machinery. Eyewear shall be impact resistant, protective safety glasses with side shields complying with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection.
17. Wear proper apparel. No loose clothing or jewelry which can get caught in moving parts. Confine long hair.
18. Anti-skid floor strips, nonslip footwear and safety shoes are recommended.
19. Wear hearing protection (plugs or muffs) if sound reaches unsafe levels.
20. The workpiece, or part being sawn, must be securely clamped before the saw blade enters the workpiece.
21. Remove cut off pieces carefully, keeping hands away from saw blade.
22. Saw must be stopped and electrical supply cut off or machine unplugged before reaching into cutting area.
23. Avoid contact with coolant, especially guarding your eyes.
24. Make certain the switch is in the OFF position before connecting the machine to the power supply.
25. This saw must be grounded in accordance with the National Electrical Code and local codes and ordinances. This work should be done by a qualified electrician. The saw must be grounded to protect the user from electrical shock. **Caution:** For circuits which are far away from the electrical service box, the wire size must be increased in order to deliver ample voltage to the motor. To minimize power losses and to prevent motor overheating and burnout, the use of wire sizes for branch circuits or electrical extension cords according to the following table is recommended.

Conductor length	AWG (American Wire Gauge) Number
	240 volt lines
0-50 ft.	# 14
50-500 ft.	# 14
Over 100 ft.	# 12

Table 1

26. Disconnect electrical power before servicing. Whenever changing accessories or general maintenance is done on the machine, electrical power to the machine must be disconnected before work is done.
27. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
28. Keep safety guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately after completion of maintenance.
29. Check damaged parts. Before further use of the machine, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
30. Maintain all machine tools with care. Follow all maintenance instructions for lubricating and the changing of accessories.
31. No attempt shall be made to modify or have makeshift repairs done to the machine. This not only voids the warranty but also renders the machine unsafe.
32. Keep work area clean. Cluttered areas invite accidents. Keep the floor around the machine clean and free of scrap material, oil and grease.
33. Keep visitors a safe distance from the work area. Keep children away.
34. Make your workshop child proof with padlocks, master switches or by removing starter keys.
35. Give your work undivided attention. Looking around, carrying on a conversation and “horse-play” are careless acts that can result in serious injury.
36. Maintain a balanced stance at all times so that you do not fall into the blade or other moving parts. Do not overreach or use excessive force to perform any machine operation.
37. Use the right tool at the correct speed and feed rate. Do not force a tool or attachment to do a job for which it was not designed. The right tool will do the job better and more safely.
38. Use only recommended accessories; improper accessories may be hazardous.
39. Keep saw blades sharp and clean for the best and safest performance.
40. Turn off the machine before cleaning. Use a brush or vacuum to remove chips or debris — do not use bare hands. Never brush away chips while machine is in operation.
41. Do not stand on the machine. Serious injury could occur if the machine tips over.
42. Never leave the machine running unattended. Turn the power off and do not leave the machine until it comes to a complete stop.
43. Avoid dangerous working environments. Do not use stationary machine tools in wet or damp locations. Keep work areas clean and well lit.

⚠ **WARNING:** This product can expose you to chemicals including cadmium and DEHP which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to http://www.p65warnings.ca.gov.

⚠ **WARNING:** Some dust, fumes and gases created by power sanding, sawing, grinding, drilling, welding and other construction activities contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead based paint
- crystalline silica from bricks, cement and other masonry products
- arsenic and chromium from chemically treated lumber

Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles. For more information go to http://www.p65warnings.ca.gov/ and http://www.p65warnings.ca.gov/wood.

SAVE THESE INSTRUCTIONS

Familiarize yourself with the following safety notices used in this manual:

⚠CAUTION This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

⚠WARNING This means that if precautions are not heeded, it may result in serious, or possibly even fatal, injury.

2.0 **Table of contents**

3.0 **Machine introduction**

The JET HBS-1220MSA series Mitering Band Saws incorporate a number of design features and innovations to make these saws a powerful and productive addition to machine shops, maintenance shops, tool rooms, and fabrication and welding shops.

The swivel control panel allows the operator access to all machine controls from either side of machine. The 6-point contact blade guide assemblies ensure greater accuracy and longer blade life. The semi-automatic cycle enables the operator to initiate these steps from the control panel: coolant flow, blade start, bow down, rate of descent, blade stop, bow up. Additionally, the MSAH model allows control panel operation of the hydraulic vise.

This highly versatile band saw is a proven time saver, offering optimal sawing performance.

Mail the provided registration card, or register your product online -

http://www.jettools.com/us/en/service-and-support/warranty/registration/

4.0 **About this manual**

This manual is provided by JET, covering the safe operation and maintenance procedures for a JET Model HBS-1220MSA and HBS-1220MSAH Horizontal Band Saw. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. Your machine has been designed and constructed to provide consistent, long-term operation if used in accordance with the instructions set forth in this document.

If there are questions or comments, please contact your local supplier or JET. JET can also be reached at our web site: www.jettools.com.

Retain this manual for future reference. If the machine transfers ownership, the manual should accompany it.

⚠WARNING Read and understand the entire contents of this manual before attempting assembly or operation! Failure to comply may cause serious injury!

The specifications in this manual were current at time of publication, but because of our policy of continuous improvement, JET reserves the right to change specifications at any time and without prior notice, without incurring obligations.

5.0 **Specifications**

Table 2

Stock number		**424476**	**424475**
Model number		HBS-1220MSA	HBS-1220MSAH
Motor and Electricals			
Main motor type		TEFC induction	
Horsepower		3 HP (2.25 kW)	
Phase		3 PH	
Voltage		230/460 V (prewired 230 V) [1]	
Cycle		60 Hz	
Listed FLA (full load amps)		8.5/4.2 A	
Motor speed		1720 RPM	
On/off switch		Magnetic	
Power transfer		Drive belt with variable speed pulley	
Power cable and plug		not supplied	
Recommended circuit size [2]		15 A	
Sound emission [3]		75 dB	
Hydraulic motor		1/2 HP (0.37 kW), 3PH, 230/460V, 60Hz, 1.91/0.96 A	
Vise operation		manual	hydraulic
Coolant pump		1/8 HP (0.09 kW), 3PH, 230/460V, 60Hz, 0.2/0.1 A	
Capacities			
Round	90 deg.	300 mm (11-13/16 in.)	
	45 deg.	285 mm (11-7/32 in.)	
Square (WxH)	90 deg.	300 x 300 mm (11-13/16 x 11-13/16 in.)	
	45 deg.	285 x 285 mm (11-7/32 x 11-7/32 in.)	
Rectangle (WxH)	90 deg.	420 x 300 mm (16-1/2 x 11-13/16 in.) 460 x 220 mm (18-1/8 x 8-5/8 in.) 490 x 100 mm (19-1/4 x 4 in.)	
	45 deg.	285 x 320 mm (11-7/32 x 12-9/16 in.)	
Maximum jaw opening		500 mm (19-5/8 in.)	
Blade size (WxTxL)		27 x 0.95 x 3960 mm (1 x 0.037 x 156 in.)	
Blade wheel size (Dia. x W)		Ø434 x 30 mm (17-3/32 x 1-3/16 in.)	
Blade speed		Variable, 90-370 SFPM	
Gearbox		850 mL (1/4 gal.)	
Hydraulic tank		1.5L (3/8 gal.)	
Cutting fluid/coolant tank		39.9 L (10-1/2 gal.)	
Main materials			
Stand		Steel	
Bow		Cast iron and steel	
Blade wheels		Cast iron	
Bed		Cast iron	
Vise jaws		Cast iron	
General dimensions			
Height of bed from floor		700 mm (28 in.)	
Overall dimensions, assembled (LxWxH)		2210 x 800 x 1346 mm (87 x 31.5 x 53 in.)	
Shipping dimensions (LxWxH)		2230 x 820 x 1350 mm (87.8 x 32.28 x 53.14 in.)	
Weights			
Net weight (approx.)		650 kg (1430 lb.)	659 kg (1450 lb.)
Shipping weight (approx.)		730 kg (1606 lb.)	739 kg (1625 lb.)

[1] Conversion to 460V requires purchase of additional components. See sect. 7.1.
[2] Subject to local and national electrical codes.
[3] The specified values are emission levels and are not necessarily to be seen as safe operating levels. As workplace conditions vary, this information is intended to allow the user to make a better estimation of the hazards and risks involved only.
L = length, W = width, H = height, T = thickness, Dia = diameter, SFPM=surface feet per minute

⚠WARNING Read and understand the entire contents of this manual before attempting assembly or operation. Failure to comply may cause serious injury.

6.0 Setup and assembly

6.1 Shipping contents

1 Band saw
1 Chip tray
1 Work stop assembly:
  1 Work stop with handle
  1 Work stop rod
  1 Work stop bracket
  1 Plastic knob
1 Operating Instructions and Parts Manual
1 Product registration card
1 Factory-cut test piece
1 Tool box (HBS1221MSA-TB), containing:
  4 Hex cap screws M12x70 (for leveling)
  4 Hex nuts M12 (for leveling)
  1 Phillips screwdriver
  1 Flat blade screwdriver
  4 Hex wrenches, 3,4,5,6mm
  2 Open end wrenches, 11/13, 17/19mm
  1 Set of keys (electrical panel access)

6.2 Tools required for assembly

All tools needed for assembly are provided in the tool box. Additional tools may be necessary for maintenance and adjustments.

6.3 Uncrating and spotting

1. Finish uncrating the saw and inspect for damage. Should any have occurred, contact your local distributor. Do not discard packing material until saw is assembled and running satisfactorily.
2. Compare contents of shipping carton with the contents list in this manual. Report shortages, if any, to your distributor.
3. Remove four screws holding machine to shipping pallet.
4. Leave any packing material between vise clamps and bow intact until band saw has been lifted to its final position.
5. Use lifting straps that are isolated from the band saw's finished surfaces and clear of any handles or levers; lift machine and place in desired location. For best performance, the band saw should be located on a solid and level foundation. Allow room for servicing and for moving large stock around the machine when determining location.
6. Install four leveling screws with hex nuts (provided) into flanges on base. Place a level on the table surface and check side-to-side and front-to-back. Adjust leveling screws until machine is level in both directions and tighten nuts.
7. Clean all rust preventative from surfaces with kerosene or cleaner/degreaser. Do not use gasoline, paint thinner, mineral spirits, etc., as these may damage painted surfaces. After cleaning, apply a light coat of oil to exposed metal surfaces.

6.4 Assembly

Install chip tray on edge of base above the two screws (see cover photo).

Mount control panel support box to machine base, as shown in Figure 6-1. (Note: Do not cut straps holding cables to control panel support.)

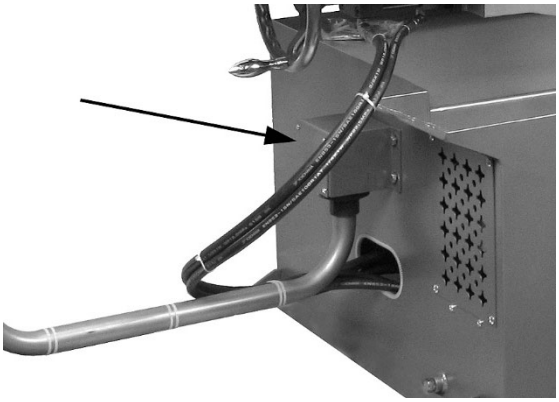


Figure 6-1

6.5 Lubrication

The band saw is shipped with appropriate levels of gear and hydraulic oil. The user should verify these by checking sight glass levels before operating.

Cutting fluid or coolant must be supplied by the operator. See *sect. 11.0* for information.

7.0 Electrical connections

⚠WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded while in use to protect the operator from electrical shock and possible fatal injury.

The HBS-1220MSA and HBS-1220MSAH band saw is rated at 230/460V, 3 phase. It is prewired for 230 volt. Confirm that power available at the saw's location matches that for which the saw is wired.

To access electrical panel, push button on rear door to make handle pop outward, then rotate handle counterclockwise. Keys are provided in the tool box for locking the electrical panel door.

Before wiring, make sure saw is disconnected from power source or that the fuses have been removed or breakers tripped in the circuit to which the saw will be connected. **Use appropriate Lock-Out/Tag-Out procedures.**

After wiring, if saw runs backward, disconnect from power and switch any two of the three power leads. Before connecting to power source, be sure switch is in *off* position.

7.1 Voltage conversion

The band saw can be converted from 230V to 460V operation; consult wiring diagram labels on the appropriate junction boxes on machine. Diagrams are also found at back of this manual. (Note: In case of discrepancy, labels on machine take precedence.)

Conversion will require additional 460V components. See your dealer or contact JET to purchase these items.

1. Make sure saw is **disconnected from power source**, or fuses removed or breakers tripped in the circuit to which saw is being connected.
2. Change incoming power leads into wiring terminal box on right side of base.
3. Change incoming leads on main motor, hydraulic motor, and coolant pump, inside the respective junction boxes.

Open the machine's electrical panel (refer to Figure 7-1):

4. On the transformer, move R1 wire from 240V to 460V terminal.
5. Replace 230V Overload Relay for Oil Pump with 460V Overload Relay for Oil Pump (p/n HBS1220MSA-OOP460).
6. Replace 230V Overload Relay for Main Motor with 460V Overload Relay for Main Motor (HBS1220MSA-OMM460).
7. Replace two 230V fuses with two 460V/1A fuses (p/n HBS1220MSA-FU1A).
8. Close all covers before starting the saw.

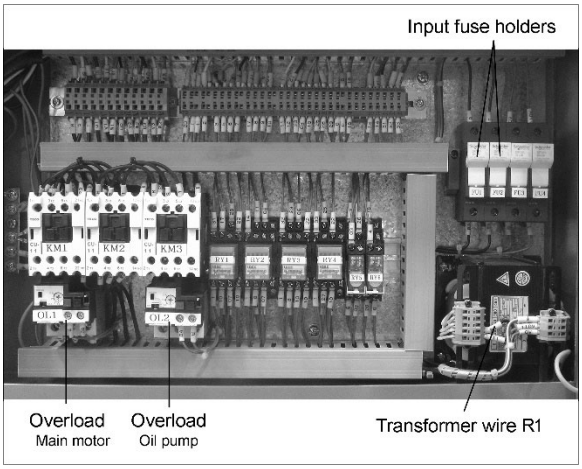


Figure 7-1

8.0 Adjustments

⚠WARNING Disconnect saw from power source before making adjustments, unless indicated otherwise.

8.1 Removing and installing blade

A general purpose blade has been installed, tensioned, and tracked on the band saw and should not require immediate attention. For future blade replacement, proceed as follows:

1. Raise bow enough for blade to clear table slot.
2. Disconnect machine from power source.
3. Open blade wheel cover (A, Figure 8-1). Make sure rubber stop at top of bow is properly adjusted to prevent cover from falling.
4. Remove upper gap cover (B) and lower blade guard (C).
5. Release blade tension by turning blade tension handle (D) counterclockwise.

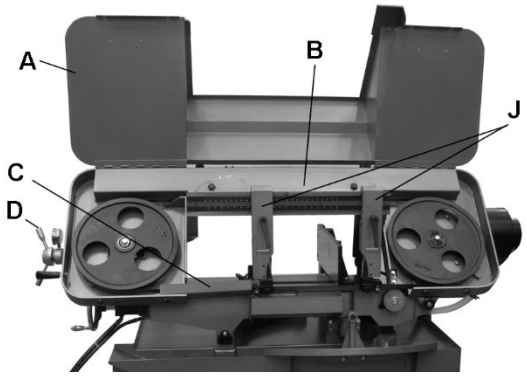


Figure 8-1: installing blade=

6. Remove blade from both wheels and out of each blade guide.

7. Make sure teeth of new blade are pointing in proper direction of travel. Work blade all the way up into blade guide bearings (E) and guide blocks (F) with back of blade against back-up bearing (G), as shown in Figure 8-2.

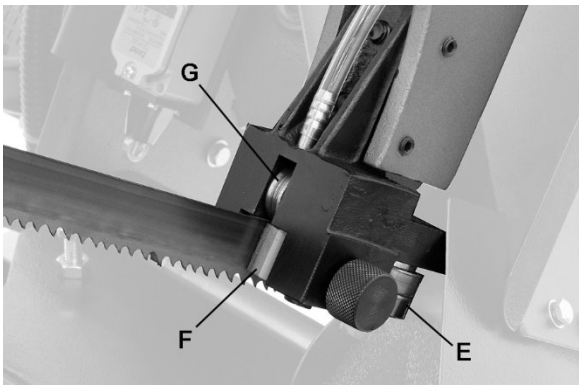


Figure 8-2: blade guides

NOTE: If roller bearings need adjustment refer to sect. 8.5.

8. Position blade through upper slot. Put light tension on blade and work it onto both wheels. **Make sure back of blade is against shoulder of both wheels.**

9. When you are sure that back of blade is against shoulder of both wheels and properly inserted into guides, finish putting tension on blade.

10. Connect power and jog blade on/off button to be sure blade is in place and tracking properly. If blade is not tracking properly refer to *sect. 8.3.*

8.2 Blade tension

Blade tension has been preset by the manufacturer; if further adjustment is required, or after installing a new blade, turn handwheel (D, Figure 8-1) clockwise to appropriate tension for the installed blade.

8.3 Blade tracking

⚠WARNING Blade tracking requires saw to be operating. Use extreme caution and keep hands away from moving blade areas.

Blade tracking has been initially set by the manufacturer. Adjustment is rarely required when blade is correctly welded and used properly. For proper blade tracking, the back of blade should be located against blade wheel shoulder. If it is not, proceed as follows.

NOTE: Do not hurry tracking adjustments. Patience and accuracy here will pay off with more accurate cutting and much longer machine and blade life.

1. Raise bow enough to allow motor to operate.

2. Loosen four knobs and open wheel cover (A, Figure 8-1). Remove upper gap cover (B, Figure 8-1), lower blade guard (C, Figure 8-1), and guide brackets (J, Figure 8-1).

3. NOTE: Maintain proper tension at all times using blade tensioning mechanism.

4. Loosen center locking screws (H_1, Figure 8-3) in all three hex adjustment screws (H_2).

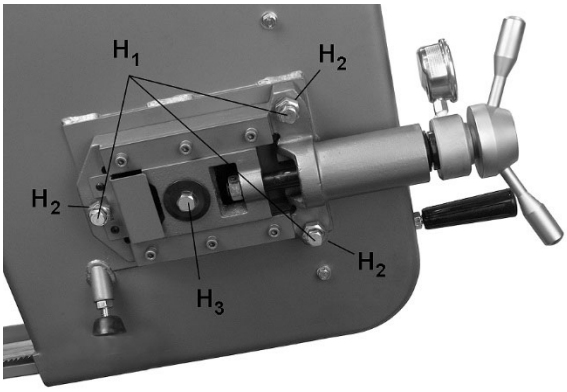


Figure 8-3

⚠CAUTION While performing the following, keep blade from rubbing excessively on wheel shoulder, which can damage wheel and/or blade.

5. Start saw blade, and slowly turn single hex adjustment screw (H_3, Figure 8-13) to tilt idler wheel. Turn screw *outward* so that blade starts to move away from wheel shoulder; then immediately turn screw *inward* so that blade stops, then moves slowly back toward shoulder.

6. Turn off saw blade.

7. Hold hex adjustment screws (H_2) with a wrench and tighten center locking screws (H_1). Make sure hex adjustment screws do not move while tightening the center screws.

8. Install the two guide brackets. Position guides so that bearings just touch the blade. Refer to *sect. 8.5*.

9. Install upper gap cover (B, Figure 8-1) and left blade guard (C, Figure 8-1).

10. Close blade wheel cover (A, Figure 8-1) and secure with the four knobs.

8.4 Blade guide bracket adjustment

The brackets (J, Figure 8-1) should be set as close to vise jaw as possible. The right bracket has minimal adjustment and is set by the manufacturer to clear the stationary vise jaw. The left bracket can be moved to accommodate position of floating vise jaw. Loosen handle and slide bracket into position, then retighten handle.

8.5 **Blade guide bearing adjustment**

Proper adjustment of blade guide bearings is critical to efficient operation of the saw. The blade guide bearings have been adjusted by the manufacturer. They should rarely require adjustment except after a blade change. Failure to maintain proper blade adjustment may cause serious blade damage or inaccurate cuts.

It is always better to try a new blade when cutting performance is poor. If performance remains poor after changing the blade, make the necessary adjustments.

If a new blade does not correct the problem, check the blade guides for proper spacing. For most efficient operation and maximum accuracy, provide only very slight clearance between blade and guide bearings. The bearings will still turn freely with this clearance. If the clearance is incorrect, the blade may track off the drive wheel.

⚠CAUTION Check blade to make sure welded section is same thickness as rest of blade. If blade is thicker at weld, the guide bearings may be damaged.

If required, adjust guide bearings as follows:

1. Disconnect machine from power source.
2. Two bearing guide assemblies are used in each set of blade guides. The inner bearing guide assembly is fixed; the outer bearing guide assembly is mounted to an eccentric shaft and is adjustable.
3. On the inner bearing guide, hold the bushing with the 19mm wrench and loosen the center locking screw with a hex wrench (see Figure 8-4).
4. Position the bearing by turning the bushing. Set the bearing in contact with blade then back it off very slightly so that it will still turn by hand.
5. Tighten center locking screw while holding the eccentric bushing in position with the 19mm wrench.
6. The support bearing (see G, Figure 8-2) prevents deflection of blade under pressure from the workpiece. Set support bearing so that it nearly contacts back edge of blade but can still be turned by hand when blade is not running.
7. Use knurled knob to tighten carbide guides against blade. Do not overtighten.

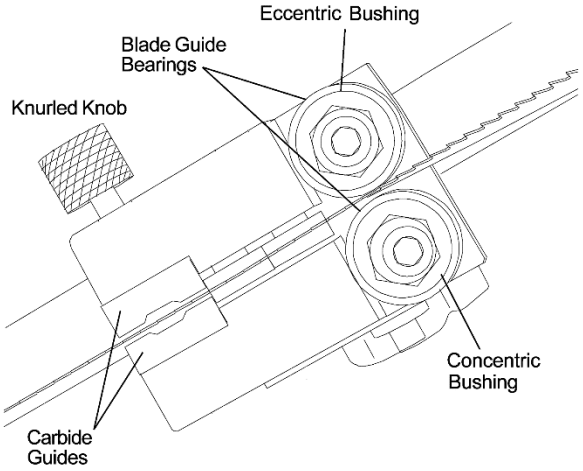


Figure 8-4

8.6 **Test cutting to verify adjustment**

Test cuts can be used to determine whether or not you have adjusted the blade accurately. Use 2-inch round bar stock to perform these test cuts, as follows:

1. With bar stock securely clamped in the vise, make a cut through the bar stock (see Figure 8-5).
2. Mark the top of the bar stock.
3. Move the bar stock about 1/4-inch past the blade so that you can begin a second cut.
4. Rotate the bar stock 180 degrees so the mark you made is now at the bottom of the cut.
5. Make a cut through the bar stock.
6. Use a micrometer to measure the thickness variation of the disk you have cut from the bar stock. Measure at top and bottom of disk.

The saw blade can be considered correctly adjusted when the variation measure is no more than 0.012 inch across the face of the disk.

If you do not have a piece of 2-inch bar stock available for a test cut, use a larger diameter test piece rather than a smaller one. The maximum thickness variation on any test piece should be no more than 0.003 inch, per side, per inch of stock diameter.

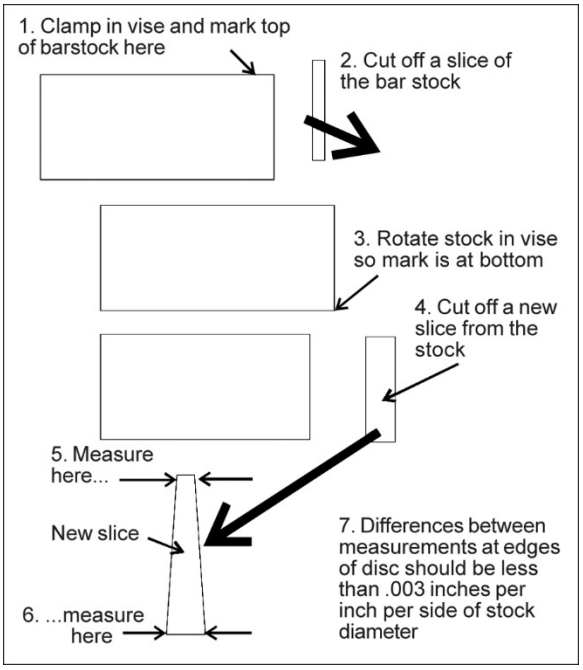


Figure 8-5

8.7 **Changing blade speed**

1. Raise blade approximately six inches above workpiece and turn feed rate knob to zero.
2. Turn power on, and turn speed adjuster knob (Figure 8-6) to match appropriate material. Turn counterclockwise to increase speed, clockwise to decrease.

⚠CAUTION Turn speed adjuster knob only when blade is running.

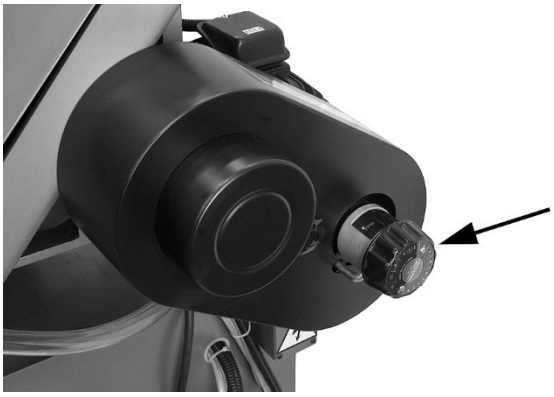


Figure 8-6: blade speed adjustment

3. The indicator on the mechanism shows speeds in graduations of 90,130,170,235,370 FPM. The graduations may not match the recommended feed rate; an approximate speed may therefore be required. For example, to set a speed rate of 110 feet per minute, the indicator would be set about midway between 70 and 130 FPM.
4. *Sect. 12.0* shows recommended speeds for basic materials. Refer to a machinist's handbook for more detailed recommendations.

8.8 **Broken blade safety device**

If blade breaks during operation, the limit switch shown in Figure 8-7 will automatically stop the machine.

Figure 8-7

8.9 **Vise adjustments**

8.9.1 **General movements**

1. Place workpiece between vise jaws with required amount to be cut-off extending out past blade. (Figure 8-9 shows recommended positioning of various workpiece shapes within the vise.)
2. Lift rack block (K, Figure 7-8) and manually slide floating vise jaw in general proximity to workpiece. Let block fall to re-engage rack.
3. Model MSA: Rotate handwheel (L) to tighten jaw against workpiece

   Model MSAH: Use vise button on control panel to tighten jaw.
4. To retract vise jaw, lift rack block and manually slide floating jaw away (all models), or use vise release button on control panel (model MSAH only).

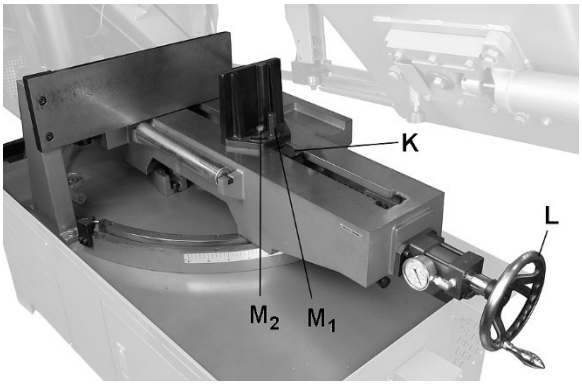


Figure 8-8: vise adjustments

8.9.2 **Miter cuts**

If making an angled cut, the fixed vise jaw remains stationary, while bow and bed are rotated (see *sect. 8.12* for miter angle adjustments).

Loosen locking bolt (M_1, Figure 7-8) and adjust floating jaw against workpiece so that it conforms to workpiece shape. If needed, slightly loosen hex bolt (M_2) to allow easier movement. Tighten locking bolt (M_1) before operating.

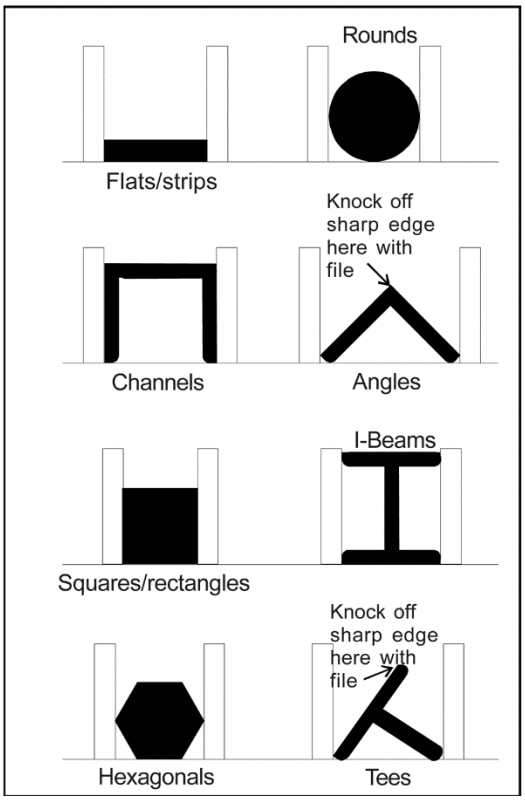


Figure 8-9

8.10 Adjusting work stop

The work stop assembly (Figure 8-10) is used when multiple pieces will be cut to identical length. Simply adjust rod (A), L-bracket (B), and stop (C) to desired positions, and tighten all handles/levers.

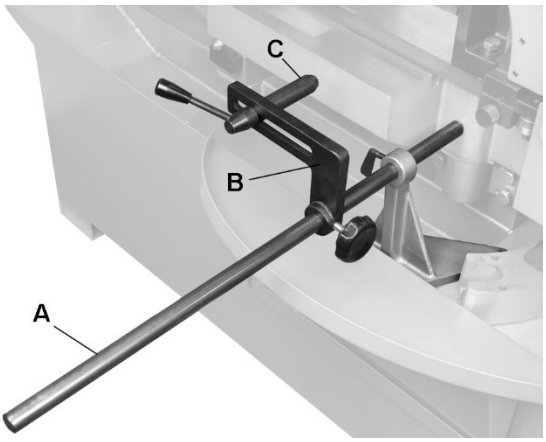


Figure 8-10: work stop

8.11 Limit switch adjustment

Limit switches have been correctly adjusted by the manufacturer. If further adjustment is required, proceed as follows.

8.11.1 Upper Limit Switch

The upper limit switch stops bow at highest position. To set upper limit switch, loosen handle on support bracket (Figure 8-11). Slide limit switch to desired trip point; use scale on post as a general guide. Tighten handle.

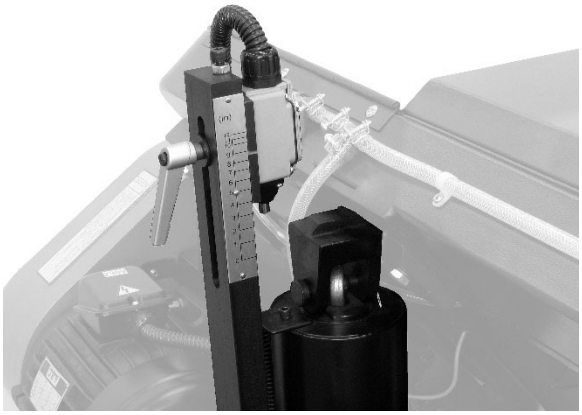


Figure 8-11

8.11.2 Lower Limit Switch

The lower limit switch must be set so that blade stops after workpiece has been cut through. To adjust, loosen jam nut (D, Figure 8-12) and turn stop screw (E) as required. Retighten jam nut.

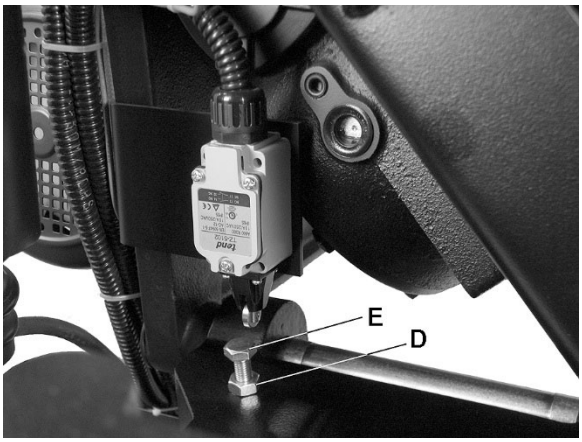


Figure 8-12

8.12 Miter angle adjustment

1. Pull both locking handles (Figure 8-13) toward front of machine.
2. Manually push bow into desired position. An angle reference scale is mounted to rear of left slide.
3. Push both locking handles backward until tight.

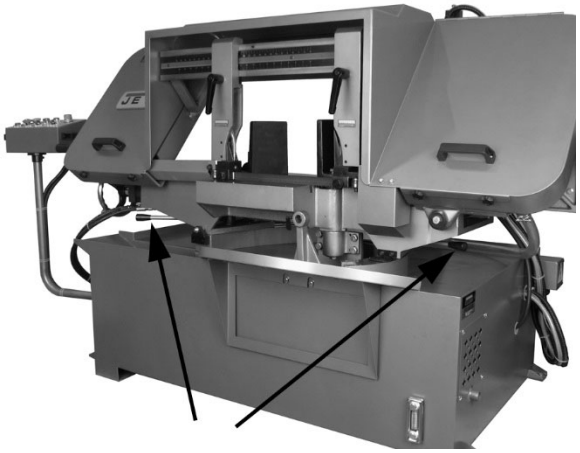


Figure 8-13

9.0 **Operating controls**

Refer to Figure 9-1.

Power Indicator Light (A) – Illuminates whenever machine is receiving electrical power.

Blade Start (B) – Press to start blade movement.

Blade Stop (C) – Press to stop blade movement.

Emergency Stop (D) – Press to instantly stop all machine functions. To restart machine, rotate E-stop button clockwise until it releases.

Bow Up (E) – Press to raise bow while in Automatic Mode. Bow will rise until limit switch is activated. *This button is rendered inactive in all modes while blade is engaged in workpiece.*

Bow Down (F) – Press to lower bow while in Automatic Mode. *This button is rendered inactive in all modes while blade is engaged in workpiece.*

Hydraulic Vise Close (G) – Press and hold to clamp workpiece in vise [HBS-1220MSAH only].

Hydraulic Vise Open (H) – Press and hold to release workpiece in vise [HBS-1220MSAH only].

Coolant Switch (J) – Turn knob to “I” to start coolant flow. Turn to “O” to stop coolant flow. Flow may also be regulated at the two valves located atop the bow.

Bow Feed Rate Control (K) – sets speed of bow descent, i.e. amount of downward force that is applied to workpiece. The feed rate is proportional to the opening of the valve. When set to zero, bow is locked in raised position. Turn knob counterclockwise to increase feed rate; clockwise to reduce feed rate.

Manual/Auto Selector (L) – Choose manual or automatic bow movement.

Figure 9-1

10.0 **Operation**

Refer to Figure 9-1.

10.1 **Manual mode**

1. Raise bow and set feed rate knob to zero.
2. Make sure workpiece is secure within vise and set for desired width of cut.
3. Make sure left blade guide bracket is adjusted as close as possible to left vise jaw.
4. Turn selector switch (L) to manual mode.
5. Press Start (B) to begin blade movement. Activate coolant flow (J).
6. Turn downfeed control (K) to desired rate. Bow will descend until operation is complete. Then blade stops and bow remains in down position.
7. Press and hold Bow Up (E) to return bow to raised position, then release button.

NOTE: In manual mode, Bow Up/Down and Vise Open/Close buttons (E/F/G/H) are rendered inactive while blade is engaging workpiece.

If E-stop (D) is pressed in manual mode, all functions will cease. While E-stop is engaged, you may press and hold Blade Up button (E) to return bow to raised position. Release the button and bow will stop functioning. To resume operations, rotate E-stop button clockwise until it disengages.

10.2 **Automatic mode**

1. Raise bow and set feed rate knob to zero.
2. Make sure workpiece is secure within vise and set for desired width of cut.
3. Turn switch (L) to auto mode.
4. Press Start (B) to begin blade movement.
5. Turn downfeed control (K) to desired rate. Bow will descend until operation is complete. Then blade stops and *bow will automatically return to raised position.*
6. If Stop (C) is pressed during the operation, both blade and bow will stop. Press and hold Bow Up (E) to return bow to raised position.

NOTE: In auto mode, Bow Up/Down and Vise Open/Close buttons (E/F/G/H) are rendered inactive while blade is engaging workpiece.

If E-stop (D) is pressed in auto mode, all functions will cease. While E-stop is engaged, you may press and hold Blade Up button (E) to return bow to raised position. Release the button and bow will stop functioning. To resume operations, rotate E-stop button clockwise until it disengages.

10.3 Blade selection

The HBS-1220MSA/H is provided with a blade adequate for a variety of jobs on a variety of common materials. A 4/6 vari tooth bi-metal blade (5512107) and a 6/10 vari tooth bi-metal blade (5512108) are also available from JET.

Sect. 12.0 shows recommended speeds for various materials. These selections, while appropriate for many shop cutting needs, do not encompass the wide variety of blades of special configuration (tooth pitch and set) and special alloys for cutting unusual or exotic materials.

A coarse blade could be used for a solid steel bar but a finer tooth blade would be used on a thin-wall tube. In general, the blade choice is determined by the thickness of the material; the thinner the material, the finer the tooth pitch.

A minimum of three teeth should be on the workpiece at all times for proper cutting. The blade and workpiece can be damaged if the teeth are so far apart that they straddle the workpiece.

For very high production on cutting of special materials, or for hard-to-cut materials such as stainless steel, tool steel, or titanium, ask your industrial distributor for more specific blade recommendations.

Also, the supplier who provides the workpiece material should be prepared to provide very specific instructions regarding the best blade (and coolant or cutting fluid, if needed) for the material and shape supplied.

10.4 Blade break-in procedure

New blades are very sharp and, therefore, have a tooth geometry which is easily damaged if a careful break-in procedure is not followed. Consult the blade manufacturer's literature for break-in of specific blades on specific materials. However, the following procedure will be adequate for break-in of JETsupplied blades on lower alloy ferrous materials.

1. Clamp a round section workpiece in the vise. The workpiece should be 2 inches or larger in diameter.
2. Set the saw on low speed. Start the cut with a very light feed rate.
3. When the saw has completed 1/3 of the cut, increase the feed rate slightly and allow the saw to complete the cut.
4. Keep the same hydraulic cylinder setting and begin a second cut on the same or similar workpiece.
5. When the blade has completed about 1/3 of the cut, increase the feed rate. Watch the chip formation until cutting is at its most efficient rate (see *sect. 10.5*) and allow the saw to complete the cut.
6. The blade is now considered ready for regular service.

10.5 Evaluating cutting efficiency

Is the blade cutting efficiently? The best way to determine this is to observe the chips formed by the cutting.

If chip formation is powdery, then feed rate is much too light, or the blade is dull.

If chips are curled, but colored — that is, either blue or straw-colored from heat generated during the cut — then feed rate is too high.

If chips are slightly curled and are not colored by heat, the blade is sufficiently sharp and is cutting at an efficient rate.

11.0 User-maintenance

⚠WARNING Always disconnect power to machine before performing maintenance, unless indicated otherwise. Failure to comply may result in serious personal injury.

Clean up accumulated saw cuttings after use. Make sure lead screw is kept free of saw cuttings and other material that would cause damage.

Remove dust or debris from motor fan area with compressed air or vacuum.

If power cord is worn, cut, or damaged in any way, have it replaced immediately.

Release tension on blade if saw will not be used for a time.

Periodically clean chip sludge from cutting fluid basin.

⚠WARNING A handle is provided for manually lifting bow for servicing purposes. If bow is raised without the assistance of the hydraulic controls, use appropriate blocking to prevent bow from falling. See *Figure 11-1*. Failure to comply may cause injury.

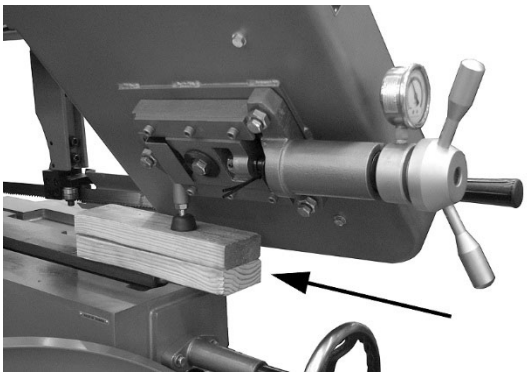


Figure 11-1: blocking example

11.1 Lubrication

See *sect. 11.3,* Table 3, for lubrication chart.

All ball bearings are permanently lubricated and sealed. They require no further attention.

Use a light machine oil to lubricate moving parts as needed.

Periodically apply light coat of machine oil to exposed metal surfaces, such as vise bed, to prohibit rust.

11.1.1 Gear box

Drain and refill gear box according to Table 3 recommendations.

To check gear box oil level, place bow in down position and wait a few moments for oil to settle. Check level in sight glass on side of gear casing. Correct level is dot in middle of sight glass.

To change gear box oil:

1. Connect machine to power and raise bow to highest position.
2. Unscrew and remove drain plug (Figure 11-2), and allow lubricant to drain completely. Follow local regulations for proper disposal of used oil.

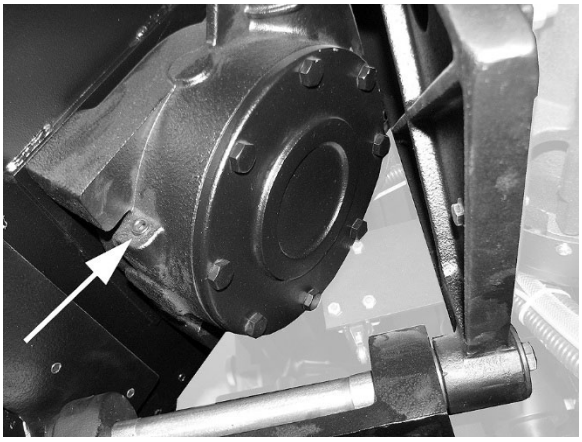


Figure 11-2: gear box drain plug

3. Reinstall drain plug.
4. Remove fill plug at opposite side of gear case (next to sight glass) and insert approximately 850 mL (1/4 gal.) of Mobil® SHC Gear Oil 460, or equivalent, until level reaches dot in middle of sight glass.
5. Reinstall fill plug.
6. Lower bow. Recheck sight glass, top off if needed.

11.1.2 Servicing hydraulic oil

1. Disconnect machine from power source.
2. Remove hydraulic reservoir access panel.
3. Check oil level (A, Figure 11-3). If level is below yellow (upper) line, the reservoir should be filled.
4. Disconnect electrical power.
5. Remove reservoir fill cap (B).
6. Add oil up to yellow (upper) line. Install fill cap.
7. If a significant amount of oil must be added, check for oil leaks in pump components, lines, and hydraulic cylinder. Correct source of leakage before operating saw.
8. Connect electrical power. Raise and lower bow to confirm that saw is operating correctly.

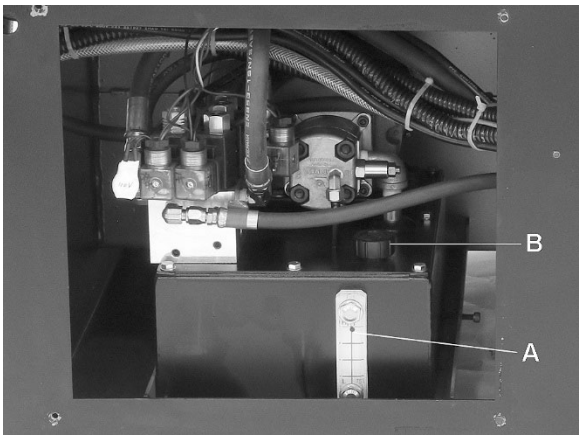


Figure 11-3: hydraulic oil servicing

11.1.3 Servicing cutting fluid

Pour cutting fluid or coolant mixture into chip tray so that it drains through strainer into basin. The sight glass is located on front of base.

Numerous cutting fluids on the market are formulated for special applications. Consult your local distributor for details if you have a long range production task or are required to cut more exotic materials. Refer to the cutting fluid provider's instructions for mixing recommendations and fluid life span.

To drain cutting fluid, use drain plug located on left side of machine base, near pump access panel. Follow local regulations when disposing of used machine fluids.

11.2 **Additional servicing**

Any additional servicing should be performed by authorized service personnel.

11.3 **Lubrication schedule**

Item or location	Recommended lubricant	Frequency
Vise lead screw bearing housing	Light machine oil	Monthly
Vise lead screw	Light machine oil	Monthly
Hydraulic cylinder pivot areas	Light machine oil	Every 6 months
Blade tension screw	General purpose grease	Every 6 months
Blade brush bearing	Light machine oil	Monthly
Gear box	Mobil® SHC Gear Oil 460, or equivalent multi-purpose gear oil	Check periodically; top off as needed. Change after first 50 hours of operation; then at least once a year.
Cutting fluid	(May vary based upon operating needs)	Check level and fluid quality periodically. For flush and refill schedule, refer to cutting fluid/coolant supplier's instructions.
Hydraulic oil	Mobil DTE® Excel Series 32 (or equivalent ISO 32)	Check periodically; top off as needed. Change every 1 to 2 years or after 3000 operating hours, whichever comes first.

Table 3

12.0 **Blade speed recommendations**

Speed FPM	Material
90	Tool steel, stainless steel, alloy steel, copper alloys, hard cast iron
130	Mild steel, soft cast iron, medium hard brass, medium hard bronze
170	Soft brasses and bronzes, hard aluminum
235	Plastic, soft and medium aluminum, other light materials
370	Plastic, wood, other light materials

Table 4

13.0 **Troubleshooting HBS-1220MSA/MSAH**

Table 5

* **WARNING:** Some corrections may require a qualified electrician.

Symptom	Possible Cause	Correction*
Motor will not start.	No incoming power.	Check plug connection.
	Blown electrical panel fuses or tripped circuit breakers.	Replace fuses, or reset breakers.
	Defective motor, switch, power cable, or plug.	Qualified electrician/service personnel should inspect these items.
Motor runs too hot.	Excessive blade tension.	Reduce tension.
	Drive belt tension too high.	Reduce belt tension.
	Blade too coarse for material (especially with tubular stock).	Use blade with finer tooth pitch.
	Blade too fine for material (especially with heavier, soft material).	Use blade with coarser tooth pitch.
	Insufficient gear lubrication.	Make sure gearbox is filled to sight glass.
Band Saw vibrates excessively.	Base on uneven surface.	Adjust base for even support.
	Saw blade has cracks.	Replace blade immediately.
	Too heavy a cut.	Reduce feed rate and blade speed.
Miter cuts not accurate.	Material not clamped properly, or vise screws not tightened.	Tighten vise screws securely. Use an adjustable square or protractor to verify angle settings.
	Blade is worn, cutting crooked.	Replace blade.
Cuts not square.	Feed rate too fast.	Decrease feed rate.
	Incorrect blade toothing in relation to workpiece.	Check a machinist's handbook for recommended blade type.
	Blade is worn, cutting crooked.	Replace blade.
	Incorrect adjustment of guide bearings.	Readjust guide assemblies.
	Guide bearings are worn.	Replace guide bearings.
	Blade guide assemblies too far apart.	Adjust guide assemblies as close to workpiece as possible.
	Workpiece incorrectly positioned in vise.	Check positioning and clamping in the vise.
	Poor blade tension.	Check and correct if needed.

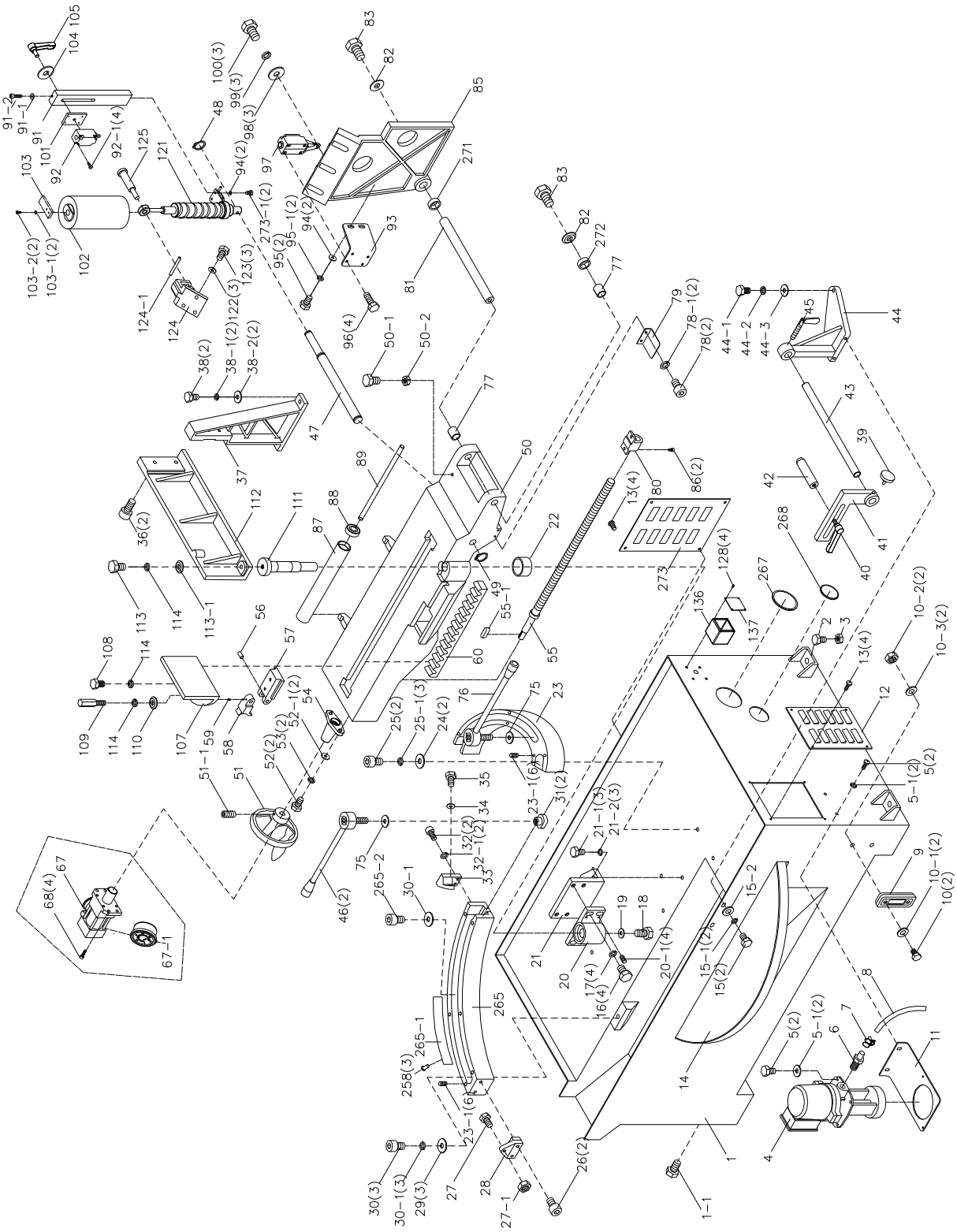
Symptom	Possible Cause	Correction*
Cuts not square. (cont.)	Blade tracking too far from wheel shoulders.	Adjust blade tracking.
Finished surface of workpiece is rough, unsatisfactory.	Blade is dull.	Replace blade.
	Improper blade for cutting operation.	Check a machinist's handbook for blade recommendations.
	Feed rate too fast.	Reduce feed rate.
	Blade tension too low.	Increase blade tension.
Excessive blade breakage.	Incorrect blade tension.	Adjust blade tension.
	Incorrect blade speed or feed rate.	Adjust accordingly.
	Workpiece loose in vise.	Clamp workpiece securely.
	Blade rubs on wheel flange.	Adjust blade tracking.
	Tooth pitch too coarse for material.	Use appropriate blade for material.
	Teeth in contact with workpiece before saw is started.	Start motor before blade contacts workpiece.
	Blade guides are misaligned.	Adjust blade guides as needed.
	Blade too thick for wheel diameter.	Use thinner blade.
	Cracking at weld; poor annealing of blade.	Replace blade.
Unusual wear on side/back of blade.	Blade guides worn.	Replace guides.
	Blade guide bearings not adjusted.	Adjust blade guide bearings.
	Blade guide bearing bracket is loose.	Tighten blade guide bearing bracket
Premature blade dulling.	Teeth too coarse.	Use finer tooth blade.
	Blade speed too fast.	Reduce speed.
	Inadequate feed rate.	Adjust cylinder dial setting as needed.
	Hard spots or scale on material.	Hard Spots: Increase feed rate. Scale: Reduce speed and increase feed rate.
	Work hardening of material (especially stainless steel).	Increase feed rate.
	Blade installed backwards.	Remove blade, twist inside-out and re-install.
	Insufficient blade tension.	Adjust tension as needed.
No coolant flow.	Pump motor burned out.	Replace pump.
	Filter screen clogged.	Clean filter screen.
	Coolant level low.	Add coolant to tank.

14.0 **Replacement Parts**

Replacement parts are listed on the following pages. To order parts or reach our service department, call 1-800-274-6848 Monday through Friday, 8:00 a.m. to 5:00 p.m. CST. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

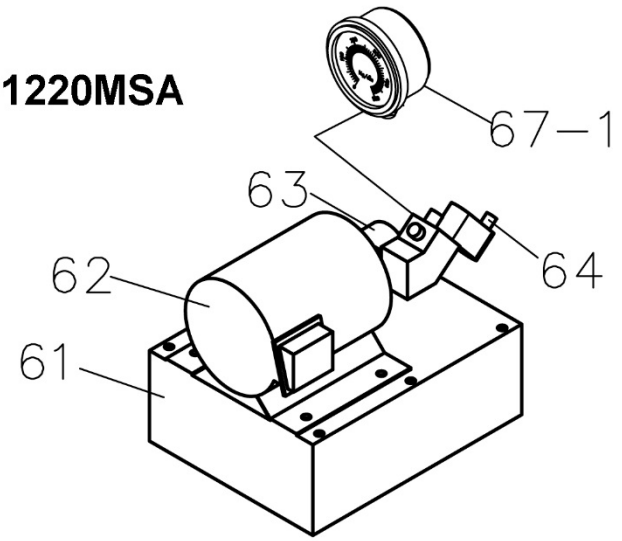
Non-proprietary parts, such as fasteners, can be found at local hardware stores, or may be ordered from JET. Some parts are shown for reference only, and may not be available individually.

14.1.1 **HBS-1220MSA/MSAH Base Assembly – Exploded View**

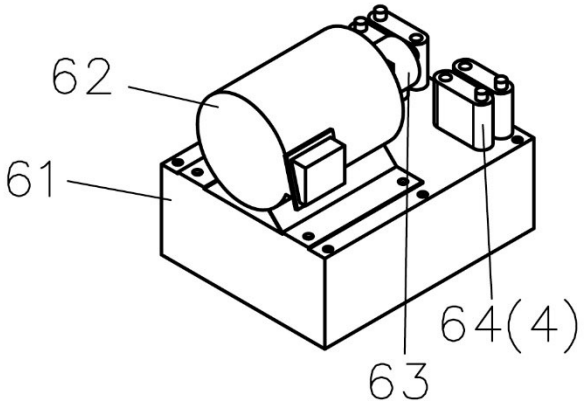


14.1.2 **HBS-1220MSA/MSAH Oil Pump Assembly – Exploded View**

HBS-1220MSA



HBS-1220MSAH



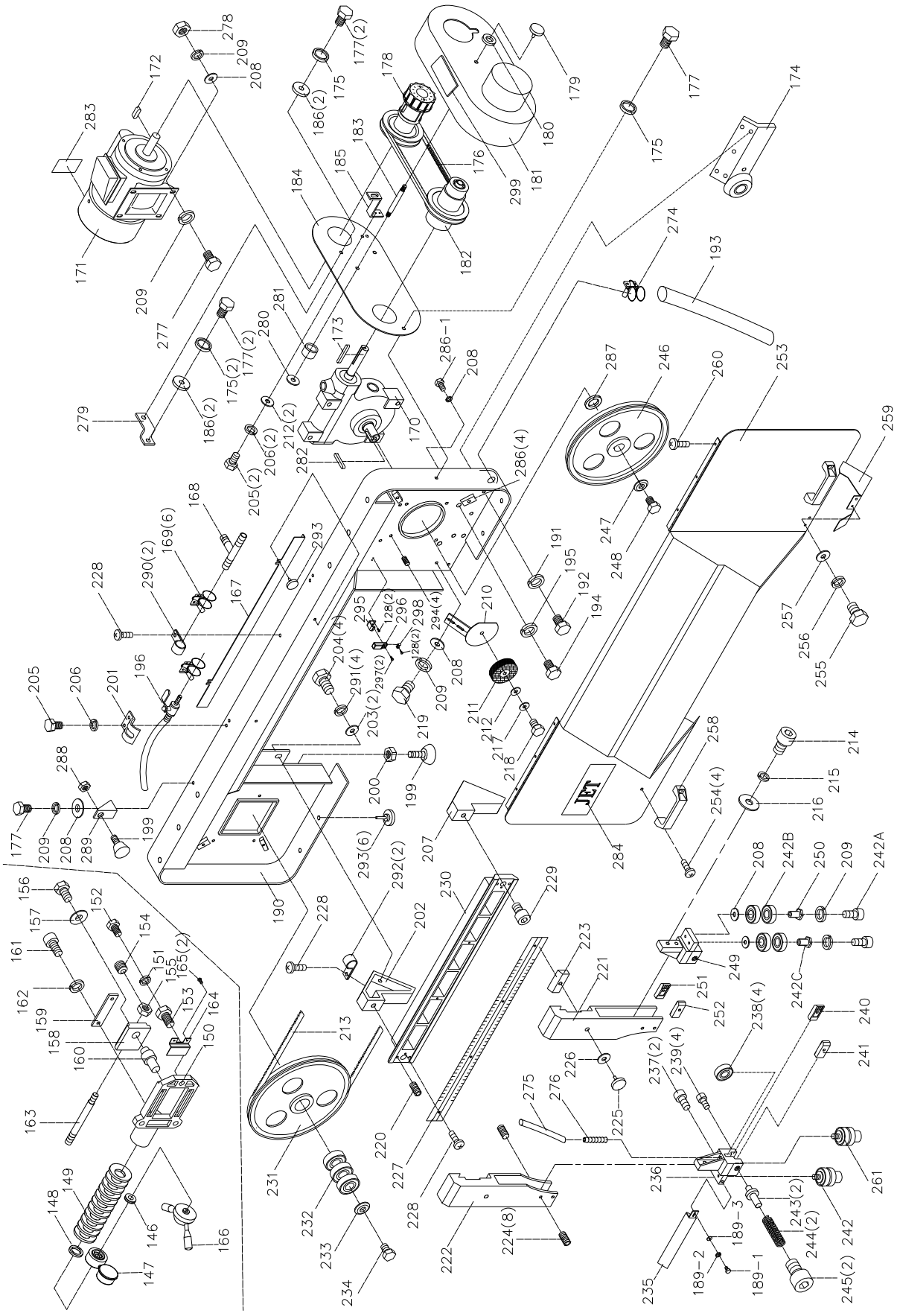
14.1.3 **HBS-1220MSA/MSAH Base Assembly – Parts List**

Index No	Part No	Description	Size	Qty
1	HBS1220MSA-01	Machine Base		1
1-1	5512197	Drain Plug	3/8"PT	1
2	TS-1492071	Hex Cap Screw	M12-1.75 x 70	4
3	TS-1540081	Hex Nut	M12-1.75	4
4	J-5712921A	Coolant Pump	1/8HP 230/460V 3PH	1
5	TS-1482031	Hex Cap Screw	M6-1.0 x 16	4
5-1	TS-2360121	Flat Washer	M12	4
6	5507596	Hose Fitting		1
7	5507597	Hose Clamp		1
8	5712331	Hose	5/16"	1
9	5507599	Coolant Gauge		1
10	TS-1491041	Hex Cap Screw	M10-1.5 x 30	2
10-1	HBS1220MSA-10-1	Soft Washer	M10	2
10-2	TS-1540071	Hex Nut	M10-1.5	2
10-3	TS-1550071	Flat Washer	M10	2
11	5712351	Coolant Pump Bracket		1
12	J-5512195G	Cover Panel		1
13	TS-0254011	Socket Head Button Screw	1/4"-20 x 3/8"	12
14	J-5507604G	Drip Tray		1
15	TS-1490021	Hex Cap Screw	M8-1.25 x 16	2
15-1	TS-2361081	Lock Washer	M8	2
15-2	TS-1550061	Flat Washer	M8	2
16	TS-1492021	Hex Cap Screw	M12-1.75 x 30	4
17	TS-2360121	Flat Washer	M12	4
18	TS-1490021	Hex Cap Screw	M8-1.25 x 16	1
19	TS-1550061	Flat Washer	M8	1
20	5507609	Turning Slide Bracket		1
20-1	TS-1524021	Socket Set Screw	M8-1.25 x 10	4
21	5507610	Center Fixed Bracket		1
21-1	TS-1492031	Hex Cap Screw	M12-1.75 x 35	3
21-2	TS-2361121	Lock Washer	M12	3
22	5507611	Thrust Bearing		1
23	HBS1220MSA-23	Turning Slide, Right		1
23-1	TS-1524021	Socket Set Screw	M8-1.25 x10	12
24	TS-1550071	Flat Washer	M10	2
25	TS-1505061	Socket Head Cap Screw	M10-1.5 x 40	3
25-1	TS-2361101	Lock Washer	M10	3
26	TS-1503051	Socket Head Cap Screw	M6-1.0 x 20	2
27	TS-1491041	Hex Cap Screw	M10-1.5x30	1
27-1	TS-1540071	Hex Nut	M10-1.5	1
28	5507616	Bracket		1
29	TS-1550071	Flat Washer	M10	2
30	TS-1505061	Socket Head Cap Screw	M10-1.5 x 40	2
30-1	TS-2361101	Lock Washer	M10	3
31	5512705	Sliding Nut		2
32	TS-1503071	Socket Head Cap Screw	M6-1.0x30	2
32-1	TS-2361061	Lock Washer	M6	2
33	HBS1220MSA-33	Bracket		1
34	TS-1540071	Hex Nut	M10-1.5	1
35	TS-1491031	Hex Cap Screw	M10-1.5 x 25	1
36	TS-1505031	Socket Head Cap Screw	M10-1.5 x 25	2
37	HBS1220MSA-37	Mounting Bracket		1
38	TS-149105	Hex Cap Screw	M10-1.5 x 35	2
38-1	TS-2361101	Lock Washer	M10	2
38-2	TS-1550071	Flat Washer	M10	2
39	HBS1220MSA-39	Locking Knob	3/8"-16	1
40	HBS1220MSA-40	Handle	M12 x 25	1
41	5712421	Work Stop Bracket		1
42	5712451	Work Stop		1
43	5712431	Work Stop Rod		1

Index No	Part No	Description	Size	Qty
44	J-5507628G	Support		1
44-1	TS-1503071	Socket Head Cap Screw	M6-1.0 x 30	1
44-2	TS-2361061	Lock Washer	M6	1
44-3	TS-1550041	Flat Washer	M6	1
45	HBS1220MSA-45	Thumb Screw	5/16"-18	1
46	5507630	Adjustable Handle		2
47	HBS1220MSA-47	Cylinder Lower Support Rod		1
48	5507632	C-Retaining Ring, Ext	S-20	1
49	5507633	C-Retaining Ring, Ext	S-25	2
50	HBS1220MSA-50	Bed		1
50-1	TS-1491041	Hex Cap Screw	M10-1.5 x 30	1
50-2	TS-1540071	Hex Nut	M10-1.5	1
51	HBS1220MSA-51	Handwheel Assembly		1
51-1	TS-0270051	Socket Set Screw	5/16"-18 x 1/2"	1
52	TS-1490051	Hex Cap Screw	M8-1.25 x 30	2
52-1	TS-1550061	Flat Washer	M8	2
53	TS-2361081	Lock Washer	M8	2
54	J-5512677G	Lead Screw Seat		1
55	5512183	Vise Lead Screw		1
55-1	KEY5520	Key, Dbl Rd Hd	5 x 5 x 20mm	1
56	5512122	Pin		1
57	J-5512124	Slide Bracket		1
58	J-5512125	Rack Block		1
59	TS-1523031	Socket Set Screw	M6-1.0 x 10	1
60	J-5512123	Rack		1
61	HBS1220MSA-61	Tank		1
62	5512191	Hydraulic Motor	1/2HP 230/460V 3PH	1
63	5512190	Hydraulic Pump Assembly		1
64	5512187	Solenoid Valve w/Coil	MSA	1
	5512187	Solenoid Valve w/Coil	MSAH	4
67	HBS1220MSAH-67	Vise Hydraulic Cylinder		1
67-1	HBS1220MSAH-67-1	Oil Pressure Gauge	tank side MSA, vise side MSAH	1
68	TS-1504061	Socket Head Cap Screw	M8-1.25 x 30	1
75	TS-155010	Flat Washer	M16	2
76	HBS1220MSA-76	Lock Handle		1
77	5712571	Needle Bearing		2
78	TS-1503031	Socket Head Cap Screw	M6-1.0 x 12	2
78-1	TS-2361061	Lock Washer	M6	2
79	5507654	Guide Plate		1
80	5512182	Lead Screw Seat		1
81	5512153	Pivot Shaft		1
82	TS-2360121	Flat Washer	M12	2
83	TS-1492011	Hex Cap Screw	M12-1.72 x 20	2
85	J-5512168G	Pivot Bracket		1
86	TS-2208201	Hex Cap Screw	M8-1.25 x 20	2
87	HBS1220MSA-87	Roller		1
88	BB-6302	Ball Bearing	6302	2
89	HBS1220MSA-89	Roller Shaft		1
91	HBS1220MSA-91	Adjusting Bracket		1
91-1	TS-1540061	Hex Nut	M8	1
91-2	TS-1504061	Socket Head Cap Screw	M8-1.25 x 30	1
92	5512145	Limit Switch	5101	1
92-1	TS-1504041	Socket Head Cap Screw	M8-1.25 x 20	4
93	J-5512169G	Limit Switch Plate		1
94	TS-1550061	Flat Washer	M8	4
95	TS-1490021	Hex Cap Screw	M8-1.25 x 16	2
95-1	TS-2361081	Lock Washer	M8	2
96	TS-1482011	Hex Cap Screw	M6-1.0 x 10	4
97	5512163	Limit Switch		1
98	5507671	Plate		2
99	TS-2360121	Flat Washer	M12	2
100	TS-1492051	Hex Cap Screw	M12-1.75 x 50	3

Index No	Part No	Description	Size	Qty
101	5512144	Switch Mounting Plate		1
102	5512151	Cylinder Cover		1
103	5512159	Switch Stop Plate		1
103-1	TS-2361061	Lock Washer	M6	2
103-2	TS-1503041	Socket Head Cap Screw	M6-1.0 x12	2
104	TS-1550071	Flat Washer	M10	1
105	HBS1220MSA-105	Handle		1
107	5512127	Floating Vise Jaw		1
108	TS-1492031	Hex Cap Screw	M12-1.75 x 35	1
109	5512130	Locking Bolt		1
110	HBS1220MSA-110	Beveled Washer	M12	1
111	HBS1220MSA-111	Pivot Pin		1
112	HBS1220MSA-112	Fixed Vise Jaw		1
113	TS-1492041	Hex Cap Screw	M12-1.75 x 40	1
113-1	TS-2360121	Flat Washer	M12	3
114	TS-2361121	Lock Washer	M12	5
121	HBS1220MSA-121	Hydraulic Cylinder		1
122	TS-2361101	Lock Washer	M10	3
123	TS-1491041	Hex Cap Screw	M10-1.5 x 30	3
124	J-5512162	Hydraulic Mounting Plate		1
124-1	5512148	Retaining Pin		1
125	5512147	Cylinder Pin		1
128	F009884	Socket Head Button Screw	M5-0.8x8	4
136	HBS1220MSAH-136	Wire Terminal Box		1
137	HBS1220MSAH-137	Wire Terminal Box Cover		1
258	HBS1220MSA-258	Rivet		3
265	HBS1220MSA-265	Turning Slide, Left		1
265-1	HBS1220MSA-265-1	Angle Scale		1
265-2	TS-1505031	Socket Head Cap Screw	M10-1.5 x 25	1
267	HBS1220MSA-267	Rubber Ring		1
268	HBS1220MSA-268	Rubber Ring		1
271	5521936	Bushing	3mm	1
272	5521936	Bushing	3mm	1
273	J-5512189G	Cover Panel		1
273-1	TS-1490041	Hex Cap Screw	M8x25	2
	LM000322	ID Label, HBS-1220MSA (not shown)		1
	LM000323	ID Label, HBS-1220MSAH (not shown)		1
	LM000250	Warning Label (not shown)		1
	HBS1220MSA-TB	Toolbox *see sect. 6.1 for contents*		1

14.2.1 **HBS-1220MSA/MSAH Bow Assembly – Exploded View**



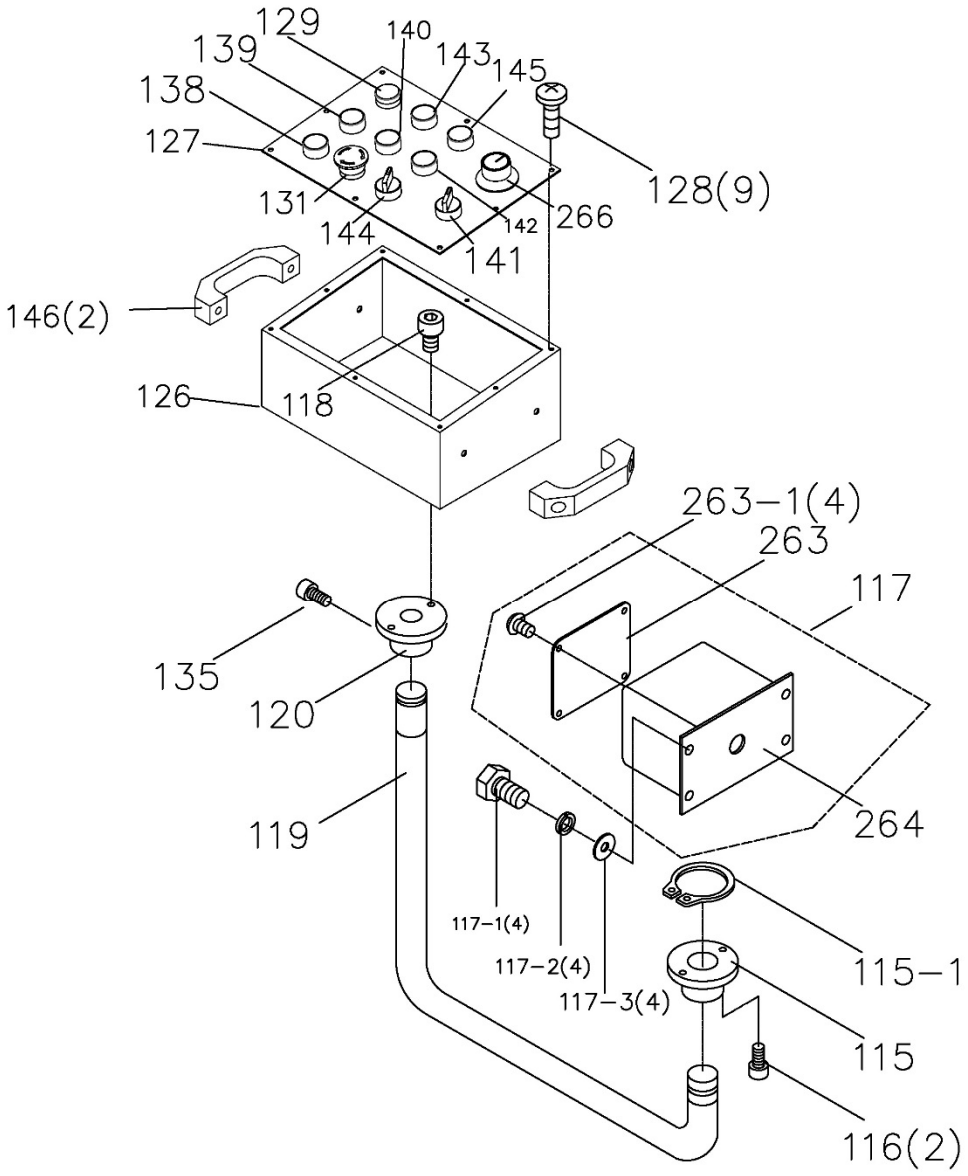
14.2.2 **HBS-1220MSA/MSAH Bow Assembly – Parts List**

Index No	Part No	Description	Size	Qty
146	BB-51103	Thrust Bearing	51103	1
147	HBS1220MSA-147	Hydraulic Tension Gauge		1
148	5512250	Special Washer		1
149	5512251	Special Spring Washer		18
150	J-5512252G	Slide Bracket		1
151	TS-2361101	Lock Washer	M10	3
152	TS-1491101	Hex Cap Screw	M10-1.5x60	3
153	5512255	Screw Assembly		3
154	TS-1523031	Socket Set Screw	M6-1.0x10	1
155	TS-154010	Hex Nut	M16-2.0	1
156	TS-1492011	Hex Cap Screw	M12-1.75 x25	1
157	TS-2360121	Flat Washer	M12	1
158	HBS1220MSA-158	Slide Block		1
159	J-5512260G	Gib		2
160	5512261	Blade Wheel Bracket Shaft		1
161	TS-1504041	Socket Head Cap Screw	M8-1.25x20	6
162	TS-2361081	Lock Washer	M8	6
163	HBS1220MSA-163	Tension Shaft		1
164	HBS1220MSA-164	Cover Plate		1
165	F009884	Socket Head Button Screw	M5-0.8x8	2
166	HBS1220MSA-166	Blade Tension Handle Assembly		1
167	HBS1220MSA-167	Bow Gap Cover		1
168	5512268	T-Fitting		1
169	5512269	Hose Clamp		5
170	HBS1220MSA-170	Gear Box Assembly		1
171	J-5512271	Motor	3HP 230/460V 3PH	1
172	5512272	Key, Dbl Rd Hd	8x8x40 mm	1
173	5512273	Key, Dbl Rd Hd	7x7x45 mm	1
174	J-5512274G	Support Bracket Seat		1
175	TS-2361081	Lock Washer	M8	3
176	5512275	Drive Belt	1922V338	1
177	TS-1490021	Hex Cap Screw	M8-1.25x16	3
178	J-5512277	Variable Speed Assembly		1
179	HBS1220MSA-179	Special Knob	3/8"	1
180	5512279	Special Flat Washer		1
181	J-5512280	Pulley Cover		1
182	J-5512281	Gear Box Pulley		1
183	5512282	Shaft		1
184	J-5512283	Variable Speed Plate		1
185	5512284	Plate		2
186	TS-1550061	Flat Washer	M8	3
189-1	TS-1504031	Socket Head Cap Screw	M8-1.25x16	1
189-2	TS-2361081	Lock Washer	M8	1
189-3	TS-1550061	Flat Washer	M8	1
190	J-5512285	Bow Assembly		1
191	TS-2361101	Lock Washer	M10	4
192	TS-149105	Hex Cap Screw	M10-1.5x35	4
193	5512288	Hose	30mm	1
194	TS-1492031	Hex Cap Screw	M12-1.75x35	4
195	TS-2361121	Lock Washer	M12	4
196	5512291	Flexible Nozzle		1
199	5512294	Rubber Stop		2
200	TS-0561051	Hex Nut	1/2"-13	1
201	5512296	Hose Clamp		2
202	J-5512297G	Blade Bracket (Left)		1
203	TS-2360121	Flat Washer	M12	4
204	TS-1492021	Hex Cap Screw	M12-1.75x30	4
205	TS-1482021	Hex Cap Screw	M6-1.0x12	2
206	TS-2361061	Lock Washer	M6	2
207	J-5512302G	Blade Bracket (Right)		1

Index No	Part No	Description	Size	Qty
208	TS-1550061	Flat Washer	M8	11
209	TS-2361081	Lock Washer	M8	6
210	5512304	Wire Brush Seat		1
211	5512680	Wire Brush		1
212	TS-2361061	Lock Washer	M6	1
213	5512107	Blade	1" x 0.035" x 156" 4/6VT	1
	5512108	Blade	1" x 0.035" x 156" 6/10VT	1
214	TS-1505071	Socket Head Cap Screw	M10-1.5x45	4
215	TS-2361101	Lock Washer	M10	4
216	TS-1550071	Flat Washer	M10	4
217	TS-1550041	Flat Washer	M6	1
218	TS-1482011	Hex Cap Screw	M6-1.0x10	1
219	TS-1490021	Hex Cap Screw	M8-1.25x16	2
220	TS-1524021	Set Screw	M8-1.25x10	4
221	HBS1220MSA-221	Adjustable Mount Bracket (Right)		1
222	HBS1220MSA-222	Adjustable Mount Bracket (Left)		1
223	5512317	Lock Block		2
224	TS-1524031	Socket Set Screw	M8-1.25x12	8
225	HBS1220MSA-225	Special Knob	3/8"-16	2
226	TS-1550071	Flat Washer	M10	2
227	HBS1220MSA-227	Scale		1
228	F009884	Socket Head Button Screw	M5-0.8x8	4
229	TS-1505031	Socket Head Cap Screw	M10-1.5x25	2
230	J-5512324G	Slide Bracket		1
231	J-5512325	Idler Wheel		1
232	BB-6206ZZ	Ball Bearing	6206ZZ	3
233	5512327	Special Washer	M12-1.75x35	1
234	TS-1492011	Hex Cap Screw	M12-1.75x25	4
235	HBS1220MSA-235	Blade Guard		1
236	5512330	Guide Bracket (Left)		1
237	TS-1504061	Socket Head Cap Screw	M8-1.25x30	1
238	BB-6208ZZ	Ball Bearing	6208ZZ	4
239	TS-1503041	Socket Head Cap Screw	M6-1.0x16	4
240	5512684	Rear Blade Guide, Left		1
241	5512683	Front Blade Guide, Left		1
242	5512678	Eccentric Shaft Assembly		2
242A	TS-1504081	Socket Head Cap Screw	M8-1.25x40	4
242B	BB-6201ZZ	Ball Bearing	6201ZZ	8
242C	5517141	Eccentric Shaft Bushing		2
243	5512340	Shaft		2
244	5512341	Spring		2
245	5512342	Adjusting Knob		2
246	J-5512343	Drive Wheel		1
247	5512344	Special Washer	M12-1.75x50	1
248	F009532	Hex Cap Screw	M12-1.75x20	1
249	5512346	Guide Bracket (Right)		1
250	5517140	Center Shaft Bushing		2
251	5512686	Rear Blade Guide, Right		1
252	5512685	Front Blade Guide, Right		1
253	J-5512350G	Blade Wheel Cover		1
254	TS-1503031	Socket Head Cap Screw	M6-1.0x12	4
255	TS-1482021	Hex Cap Screw	M6-1.0x12	2
256	TS-2361061	Lock Washer	M6	2
257	TS-1550041	Flat Washer	M6	2
258	HBS1220MSA-258	Handle		2
259	HBS1220MSA-259	Wire Brush Guard		1
260	F000297	Phillips Pan HD Mach Screw	1/4"-20x3/8"	6
261	5517143	Center Shaft Assembly		2
274	HBS1220MSA-274	Hose Clamp		1
275	HBS1220MSA-275	Hose		1
276	HBS1220MSA-276	Copper Tube		2
277	TS-1490081	Hex Cap Screw	M8-1.25x45	4

Index No	Part No	Description	Size	Qty
278	TS-1540061	Hex Nut	M8-1.25	4
279	HBS1220MSA-279	Bracket		1
280	TS-0680041	Flat Washer	3/8"	1
281	HBS1220MSA-281	Special Washer		1
282	F014010	Key, Dbl Rd Hd	12x8x30 mm	1
283	LM000320	Motor Label, HBS-1220MSA		1
284	JET-203	JET Logo	203x84mm	1
286	HBS1220MSA-286	Block		4
286-1	TS-1490031	Hex Cap Screw	M8-1.25x20	4
287	5521936	Bushing	3mm	1
288	TS-0561051	Hex Nut	1/2"-13	1
289	HBS1220MSA-289	Rubber Stop Holder		1
290	HBS1220MSA-290	Rubber Clamp	ACC-3.5	2
291	TS-2361121	Lock Washer	M12	4
292	HBS1220MSA-292	Rubber Clamp	ACC-2.5	2
293	HBS1220MSA-293	Special Knob	3/8"	4
294	TS-1525031	Socket Set Screw	M10-1.5x16	4
295	HBS1220MSA-295	Bracket		1
296	HBS1220MSA-296	Blade Break Sensor		1
297	WB25-808	Socket Head Button Screw	M4-0.7x7	2
298	HBS1220MSA-298	Wire Clamp		1
299	LM000321	Speed Chart, HBS-1220MSA		1

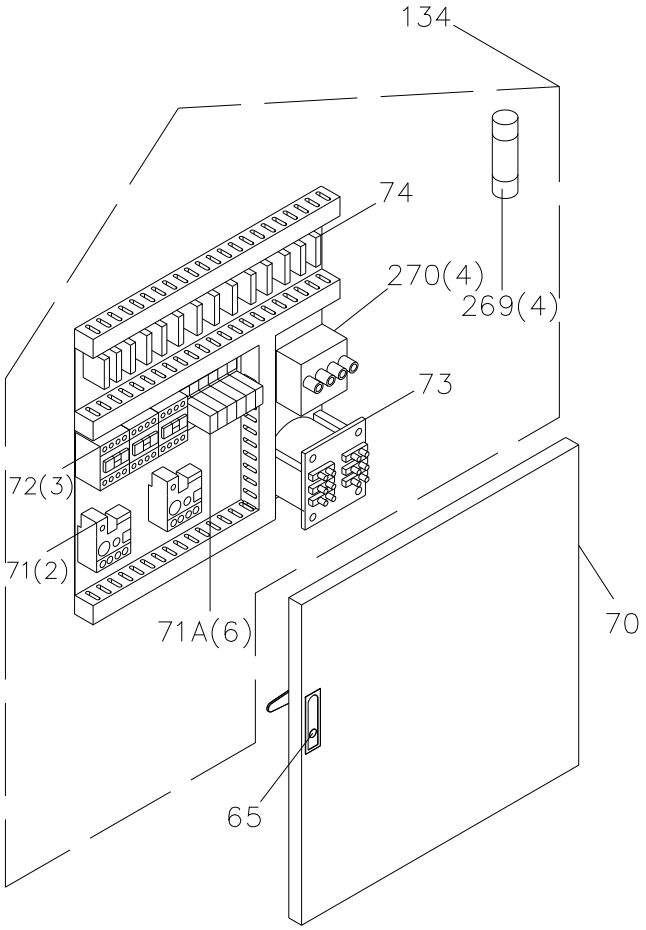
14.3.1 **HBS-1220MSA/MSAH Control Box Assembly – Exploded View**



14.3.2 **HBS-1220MSA/MSAH Control Box Assembly – Parts List**

Index No	Part No	Description	Size	Qty
115	HBS1220MSA-115	Swivel Bushing		1
115-1	F006089	C-Retaining Ring, Ext	S-48	1
116	TS-0207031	Socket Head Cap Screw	1/4"-20x5/8"	2
117	HBS1220MSA-117	Stationary Box Assembly		1
117-1	TS-1490021	Hex Cap Screw	M8-1.25 x 16	4
117-2	TS-2361081	Lock Washer	M8	4
117-3	TS-1550061	Flat Washer	M8	4
118	TS-0207091	Socket Head Cap Screw	1/4"-20 x 3/4"	2
119	HBS1220MSA-119	Control Column		1
120	HBS1220MSA-120	Swivel Block		1
126	HBS1220MSA-126	Control Box		1
127	HBS1220MSA-127	Control Panel		1
	HBS1220MSAH-127	Control Panel (Hydr Vise)	for Hydraulic vise	1
128	F009884	Socket Head Button Screw	M5-0.8x8	9
129	5512681	Power Indicator Light		1
131	5512682	Emergency Stop Switch		1
135	HBS1220MSAH-135	Adjusting Screw	1/4”x5/8”	1
138	5512237	Stop Switch		1
139	5512238	Start Switch		1
140	5512216	Push Button (Saw Head Down)		1
141	HBS1220MSAH-141	Manual/Auto Switch		1
142	HBS1220MSAH-142	Hydraulic Vise Open Switch		1
143	5512215	Push Button (Saw Head Up)		1
144	5512235	Coolant Switch		1
145	HBS1220MSAH-145	Hydraulic Vise Close Switch		1
146	HBS1220MSA-146	Handle		2
263	HBS1220MSA-263	Box Cover		1
263-1	F009884	Socket Head Button Screw	M5-0.8x8	4
264	HBS1220MSA-264	Connection Box		1
266	HBS1220MSA-266	Hydraulic Cylinder Dial		1

14.4.1 **HBS-1220MSA/MSAH Electrical Box Assembly – Exploded View**

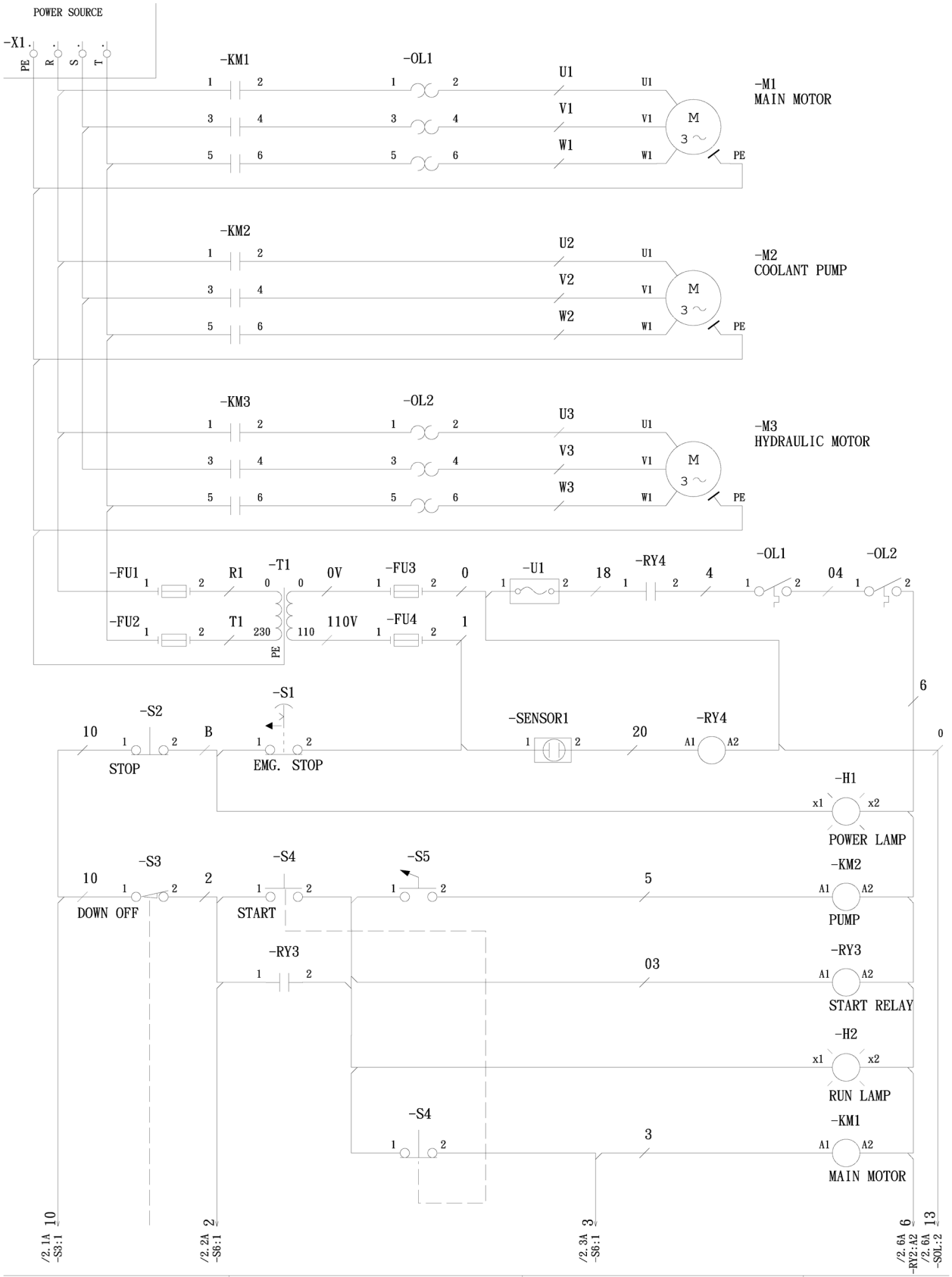


14.4.2 **HBS-1220MSA/MSAH Electrical Box Assembly – Parts List**

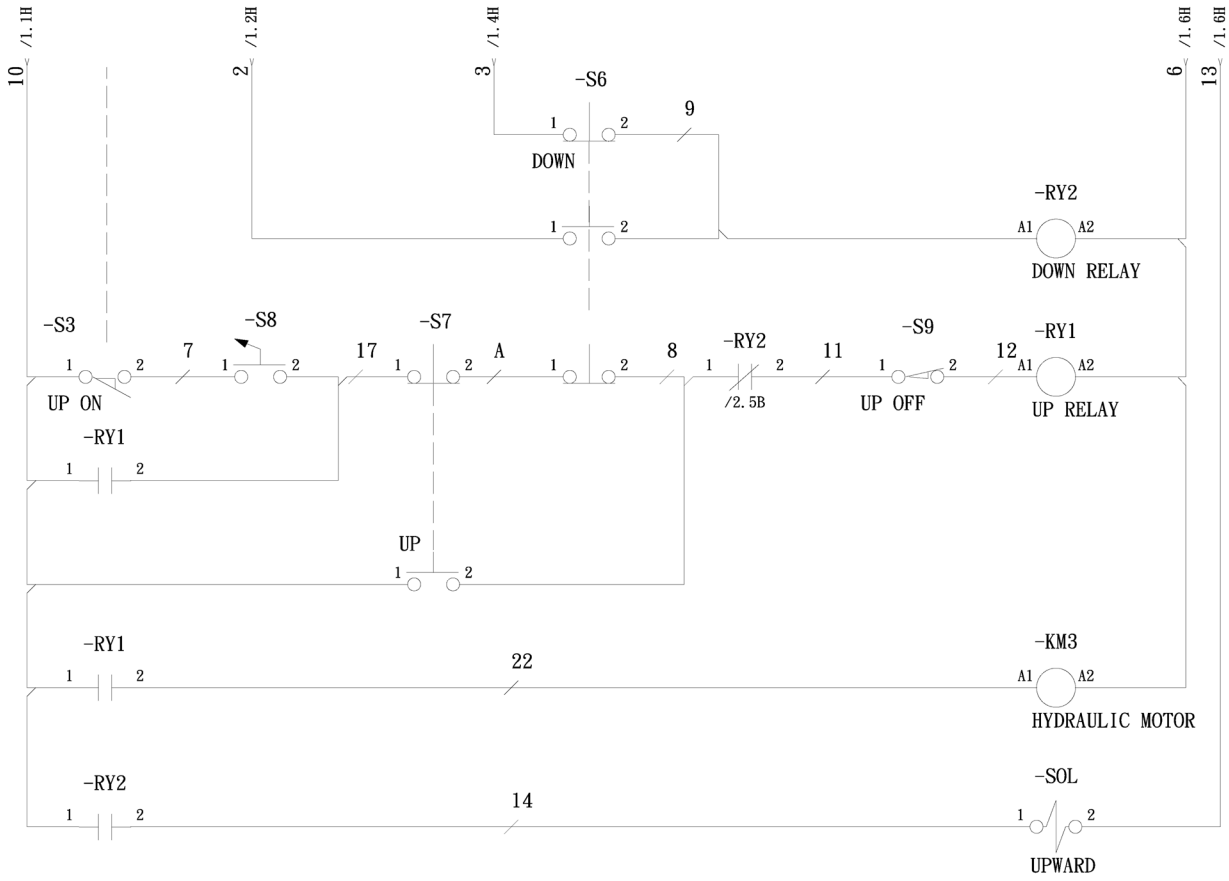
Index No	Part No	Description	Size	Qty
65	HBS1220MSA-65	Keyed Door Latch		1
70	HBS1220MSA-70	Electric Box Door Cover		1
71	HBS1220MSA-OMM230	Overload for Main Motor	7.2-10A (230V)	1
	HBS1220MSA-OMM460	Overload for Main Motor	3.5-4.8A (460V)	1
	HBS1220MSA-OOP230	Overload for Oil Pump	1.4-2A (230V)	1
	HBS1220MSA-OOP460	Overload for Oil Pump	0.75-1 A (460V)	1
71A	RU4S-C-A110	Relay	2pcs MSA, 4pcs MSAH	2/4
	RJ2S-CL-A110	Relay		2
72	HBS1220MSA-72	Motor Contactor	CU-11	3
73	HBS1220MSA-73	Transformer	150VA 230/460/110V	1
74	262-301	Power Circuit Terminal Block	Left Side	1
	261-301	Power Circuit Terminal Block	Right Side	1
134	HBS1220MSA-134	Electric Panel Complete		1
	HBS1220MSAH-134	Electric Panel Complete		1
269	HBS1220MSA-FU2A	Fuse	2A (230V input)	2
	HBS1220MSA-FU1.5A	Fuse	1.5A (230V output)	2
	HBS1220MSA-FU1A	Fuse	1A (460V input)	2
	HBS1220MSA-FU1.5A	Fuse	1.5A (460V output)	2
270	HBS1220MSA-270	Fuse Bracket		4

15.0 **Electrical Connections**

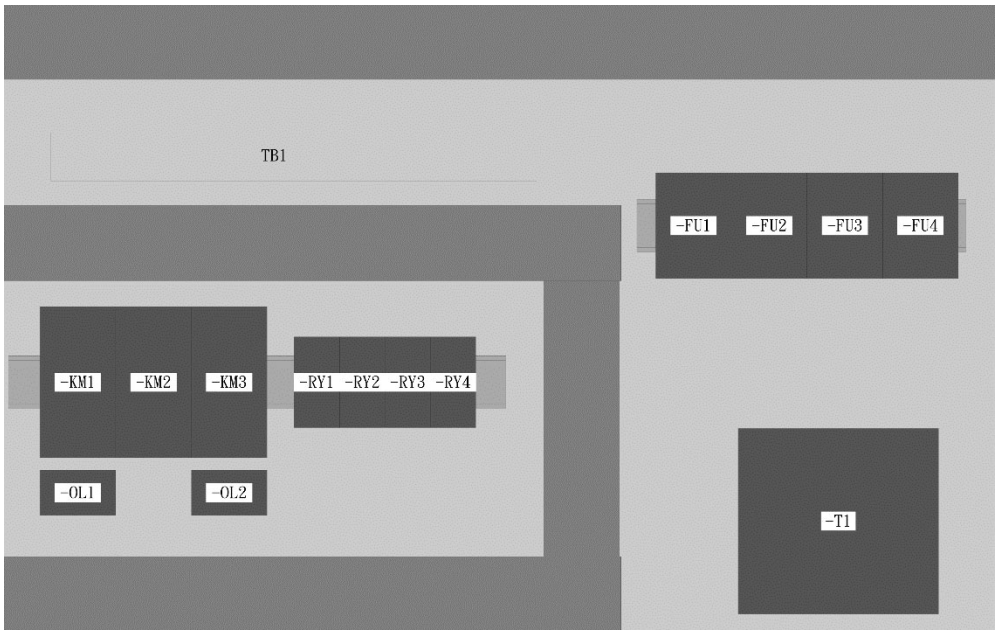
15.1.1 **HBS-1220MSA wiring diagram**



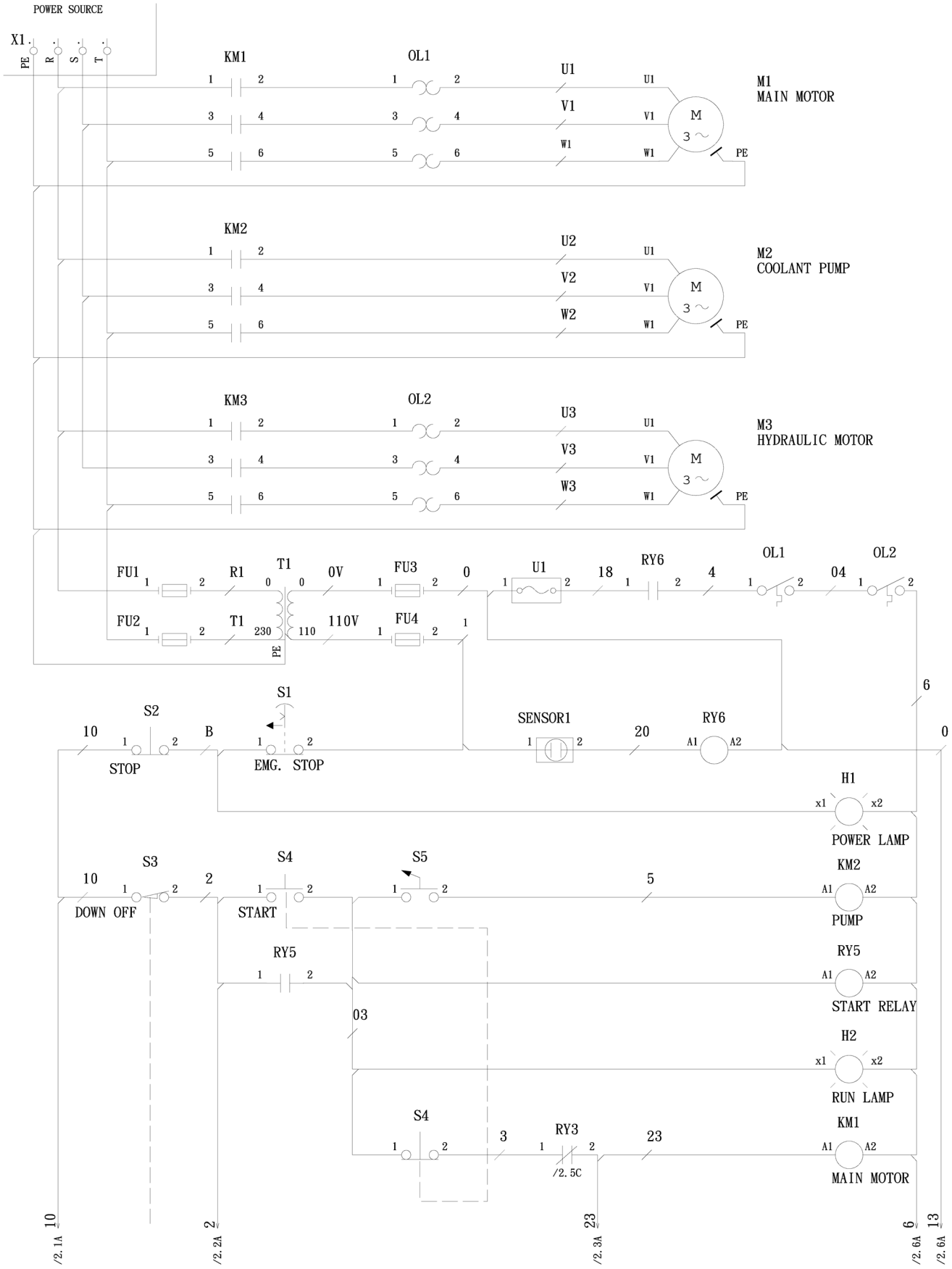
15.1.2 **HBS-1220MSA wiring diagram (cont.)**



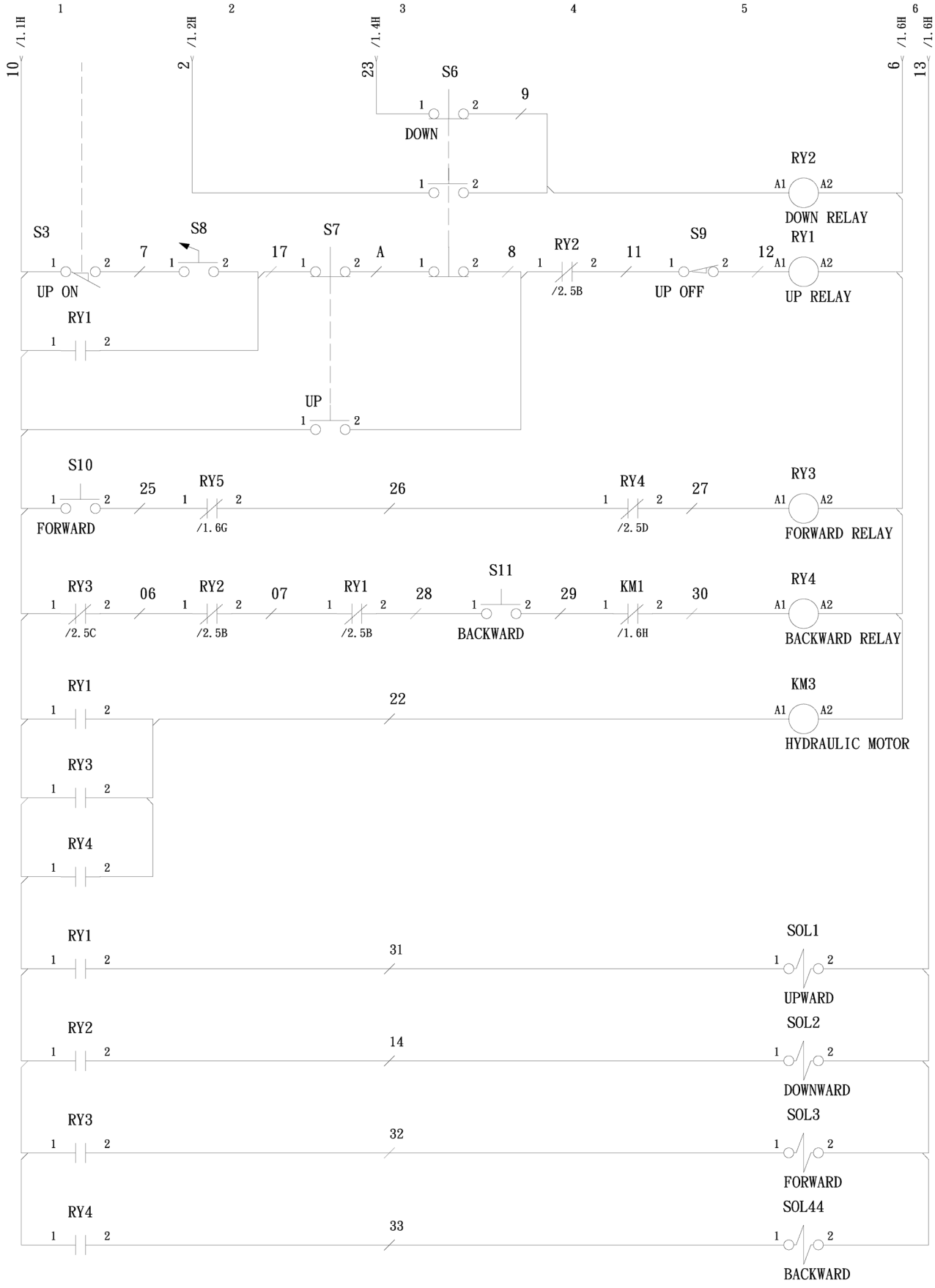
15.1.3 **HBS-1220MSA electrical panel diagram**



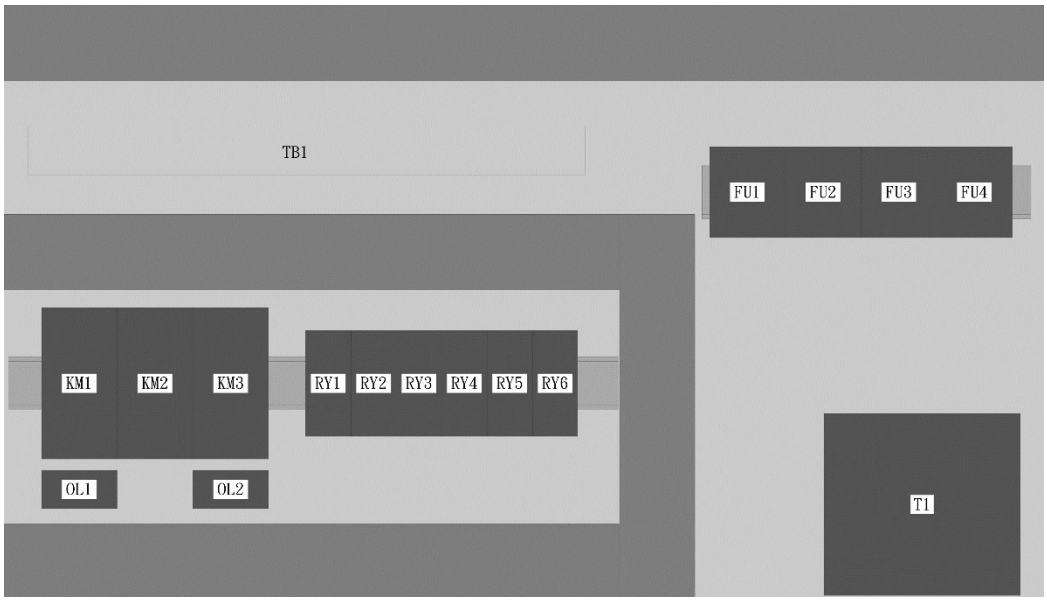
15.2.1 **HBS-1220MSAH wiring diagram**



15.2.2 **HBS-1220MSAH wiring diagram (cont.)**

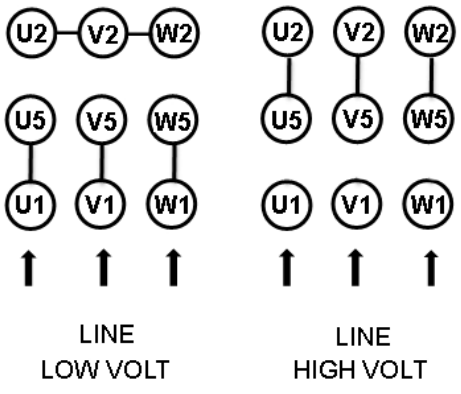


15.2.3 **HBS-1220MSAH electrical panel diagram**

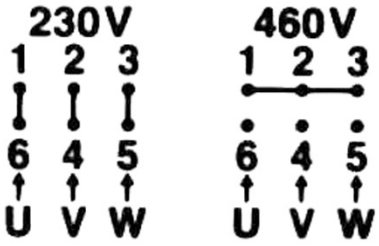


15.3.1 **HBS-1220MSA/MSAH voltage conversion diagrams**

Main motor and hydraulic motor



Coolant pump



16.0 **Warranty and service**

JET warrants every product it sells against manufacturers' defects. If one of our tools needs service or repair, please contact Technical Service by calling 1-800-274-6846, 8AM to 5PM CST, Monday through Friday.

Warranty Period
The general warranty lasts for the time period specified in the literature included with your product or on the official JET branded website.

- JET products carry a limited warranty which varies in duration based upon the product. (See chart below)
- Accessories carry a limited warranty of one year from the date of receipt.
- Consumable items are defined as expendable parts or accessories expected to become inoperable within a reasonable amount of use and are covered by a 90 day limited warranty against manufacturer's defects.

Who is Covered
This warranty covers only the initial purchaser of the product from the date of delivery.

What is Covered
This warranty covers any defects in workmanship or materials subject to the limitations stated below. This warranty does not cover failures due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair, alterations or lack of maintenance. JET woodworking machinery is designed to be used with Wood. Use of these machines in the processing of metal, plastics, or other materials outside recommended guidelines may void the warranty. The exceptions are acrylics and other natural items that are made specifically for wood turning.

Warranty Limitations
Woodworking products with a Five Year Warranty that are used for commercial or industrial purposes default to a Two Year Warranty. Please contact Technical Service at 1-800-274-6846 for further clarification.

How to Get Technical Support
Please contact Technical Service by calling 1-800-274-6846. **Please note that you will be asked to provide proof of initial purchase when calling.** If a product requires further inspection, the Technical Service representative will explain and assist with any additional action needed. JET has Authorized Service Centers located throughout the United States. For the name of an Authorized Service Center in your area call 1-800-274-6846 or use the Service Center Locator on the JET website.

More Information
JET is constantly adding new products. For complete, up-to-date product information, check with your local distributor or visit the JET website.

How State Law Applies
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Product Listing with Warranty Period

90 Days – Parts; Consumable items
1 Year – Motors; Machine Accessories
2 Year – Metalworking Machinery; Electric Hoists, Electric Hoist Accessories; Woodworking Machinery used for industrial or commercial purposes
5 Year – Woodworking Machinery
Limited Lifetime – JET Parallel clamps; VOLT Series Electric Hoists; Manual Hoists; Manual Hoist Accessories; Shop Tools; Warehouse & Dock products; Hand Tools; Air Tools

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