



Operating Instructions and Parts Manual Semi-Automatic Bandsaw

Model HBS-1321W



WMH TOOL GROUP

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To take advantage of this warranty, the product or part must be returned for examination, postage prepaid, to an Authorized Service Center designated by our office. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection discloses a defect, we will either repair or replace the product at our discretion, or refund the purchase price if we cannot readily and quickly provide a repair or replacement. We will return the repaired product or replacement at WMH Tool Group's expense, but if it is determined there is no defect, or that the defect resulted from causes not within the scope of WMH Tool Group's warranty, then the user must bear the cost of storing and returning the product. This warranty gives you specific legal rights; you may also have other rights, which vary from state to state.

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WARNING

- **Read and understand the entire instruction manual before attempting assembly or operation.**
- **All JET bandsaws are 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 bandsaw, do not use until proper training and knowledge have been obtained.**
- Always wear approved safety glasses/face shields while using this machine.
- Make certain the machine is properly grounded.
- Before operating the machine, remove tie, rings, watches, other jewelry, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. Do NOT wear gloves.
- Keep the floor around the machine clean and free of scrap material, oil and grease.
- Keep machine 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.
- Do NOT over reach. Maintain a balanced stance at all times so that you do not fall or lean against blades or other moving parts.
- Make all machine adjustments or maintenance with the machine unplugged from the power source.
- Use the right tool. Don't force a tool or attachment to do a job which it was not designed for.
- Replace warning labels if they become obscured or removed.
- Make certain the motor switch is in the OFF position before connecting the machine to the power supply.
- Give your work undivided attention. Looking around, carrying on a conversation, and "horse-play" are careless acts that can result in serious injury.
- Keep visitors a safe distance from the work area.
- Use recommended accessories; improper accessories may be hazardous.
- Make a habit of checking to see that keys and adjusting wrenches are removed before turning on the machine.
- Always keep hands and fingers away from the blade when the machine is running.
- Never hand hold the material. Always use the vise and clamp it securely.
- Keep belt guard, blade guards, and wheel covers in place and in working order.
- Always provide adequate support for long and heavy material.
- Use a sharp blade and keep machine clean for best and safest performance.
- Failure to comply with all of these warnings may cause serious injury.

Specifications:

Model:	HBS-1321W
Stock Number.....	414471
Capacity:	
Round at 90° (in)	13
Round at 45° (in)	13
Rectangle at 90° (in).....	13 x 16-1/2
.....	7 x 21
Rectangle at 45° (in).....	13 x 15-1/2
Throat Depth (in).....	13
Blade Size (in).....	1-1/4" x .042 x 161-1/2
Blade Wheel Diameter (in)	18
Blade Speeds (SFPM)	66-264
Floor Space Required (in).....	84 x 32-1/2
Bed Height (in).....	32
Motor	3 HP, 3 Ph
.....	230/460V... Prewired 230V
Coolant Motor.....	1/6 HP
Net Weight (approx.).....	1,276

Table of Contents

Warranty.....	2
Warnings	3
Specifications	4
Table of Contents	4
Uncrating and Cleanup	5
Installation	5
Assembly.....	5-6
Electrical Connections	6
Controls.....	6-7
Prior To Operation	7
Adjusting Vise Square to Blade.....	8
Adjusting Vise for Miter Cuts.....	8
Positioning Vise	8
Changing Blade Speeds	9
Semi Automatic Arm	9
Automatic Shut Off.....	9
Adjusting Feed Rate	9
Changing Blades	10
Guide Roller Adjustment.....	11
Blade Guide Adjustment	11
Blade Tracking Adjustment	12
Lubrication & Gearbox	12-13
Hydraulic Pump	13
Coolant Pump.....	13
Replacing Variable Speed Belt.....	13
Bed and Base Assembly Breakdown & Parts List.....	14-17
Arm Assembly Breakdown & Parts List	18-22
Gearbox Assembly Breakdown & Parts List	22
Wiring Diagram and Symbols.....	23-24

The specifications in this manual are given as general information and are not binding. WMH Tool Group reserves the right to effect, at any time and without prior notice, changes or alterations to parts, fittings, and accessory equipment deemed necessary for any reason whatsoever.

Uncrating and Cleanup

1. Read and understand the entire manual before attempting setup or operation.
2. Finish uncrating the saw and inspect for damage. If any damage has occurred, contact your local distributor.
3. Remove all bolts attaching machine to shipping base.
4. Leave packing material between vice clamps and saw head intact until bandsaw has been lifted to its final position.
5. Clean all rust protected surfaces with kerosene or diesel oil to remove protective coating. Do not use gasoline, paint thinner, mineral spirits, etc. These may damage painted surfaces.
6. Lubricate all slideways with a light film of Mobil DTE® Oil Heavy Medium.

Installation

For best performance, the bandsaw should be located on a solid and level foundation. Allow room for servicing and for moving large stock around the bandsaw when deciding a location for the machine.

1. Using lifting straps of adequate lifting capacity, that are isolated from the bandsaw's finished surfaces, lift machine and place in desired location. See Figure 1 for strap placement.
2. Install four leveling bolts with lock nuts on both sides of the base.
3. Place a level on the bed surface and check side to side and front to back.
4. Adjust leveling screws until machine is level in both directions and tighten locking nuts.

Assembly

1. Insert stop rod (A, Fig. 2) into the base below the vise. Place stop bracket (B, Fig. 2) onto stop rod and tighten lock knob (C, Fig. 2). Attach the connecting plate (D, Fig. 2) to stop bracket with hex cap bolt and washer (E, Fig. 2), and tighten. Attach the work stop (F, Fig. 2) to the connecting plate with lock handle (G, Fig. 2), and tighten.

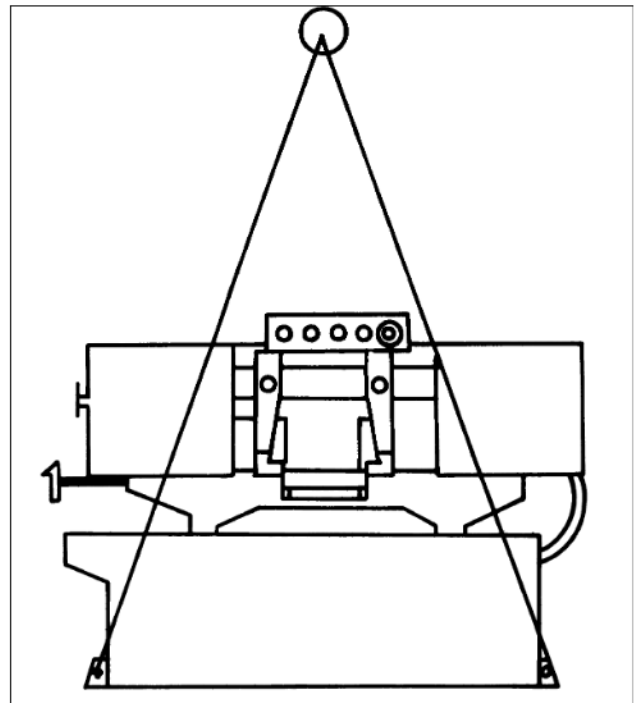


Fig. 1

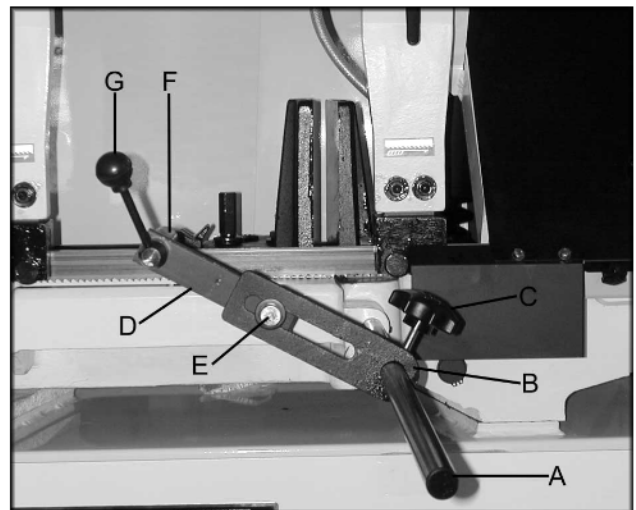


Fig. 2

- Slide the tensioning handle (A, Fig.3) onto the shaft and tighten the hex socket set screw.

Electrical Connections

WARNING

All electrical connections must be done by a qualified electrician! Failure to comply may result in serious injury!

WARNING

Disconnect machine from the power source before changing any voltage components! Failure to comply may cause serious injury!

The HBS-1321W bandsaw is rated at 230/460V, 3Ph. and is prewired 230 volt from the factory. Confirm power source available at the saw's location is the same as the saw is wired. To switch the HBS-1321W from 230V to 460V, the following items will have to be changed:

Bandsaw must always be properly grounded.

- Main Motor:** Follow diagram inside junction box cover.
- Coolant Pump:** Follow diagram inside junction box cover.
- Control Transformer:** Open electrical panel on rear of base and switch **only** the one 230V primary wire on transformer to the 460V position.
- Hydraulic Pump:** Remove access panel and follow diagram inside junction box cover.

Controls (figure 4)

- Power Indicator Light:** Lit whenever machine has power.
- Start Button:** Depress to start bandsaw. Will not work if emergency button is depressed.
- Stop Button:** Depress to stop bandsaw.
- Emergency Stop Button:** Depress to immediately stop all machine functions.
- Arm Up Button:** Depress to raise arm.

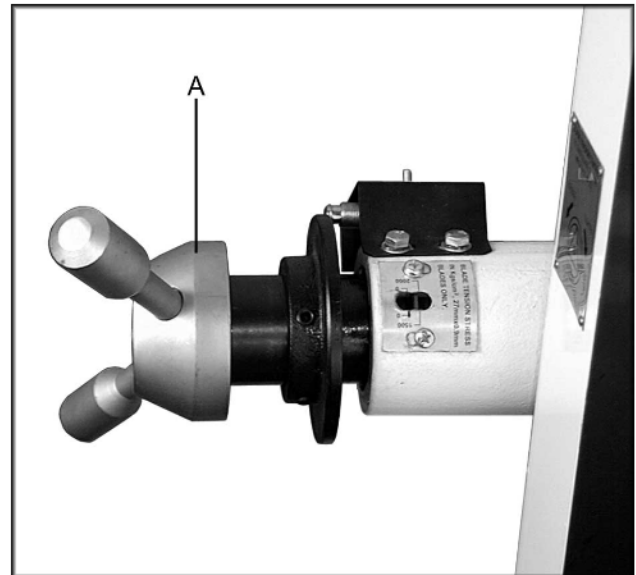


Fig. 3

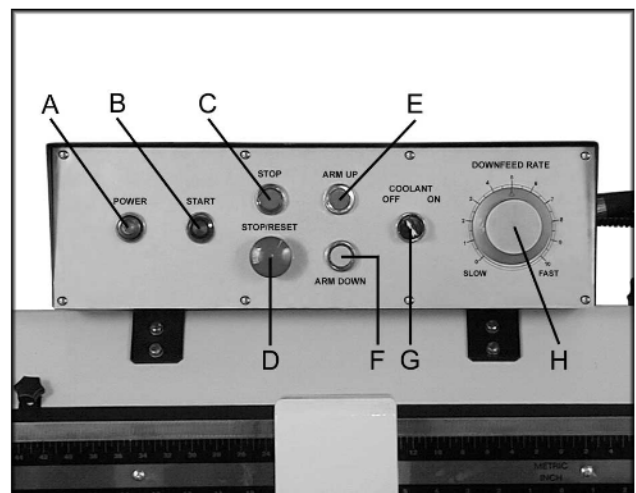


Fig. 4

- F. **Arm Down Button:** Depress to lower arm.
- G. **Coolant Switch:** Turn arrow to ON starting flow of coolant. Turn arrow to OFF stopping flow of coolant. Blade must be circulating for coolant pump to work.
- H. **Downfeed Rate Knob:** Turn clockwise to increase down feed rate. Turn counter-clockwise to decrease down feed rate. See adjusting feed rate page 9.

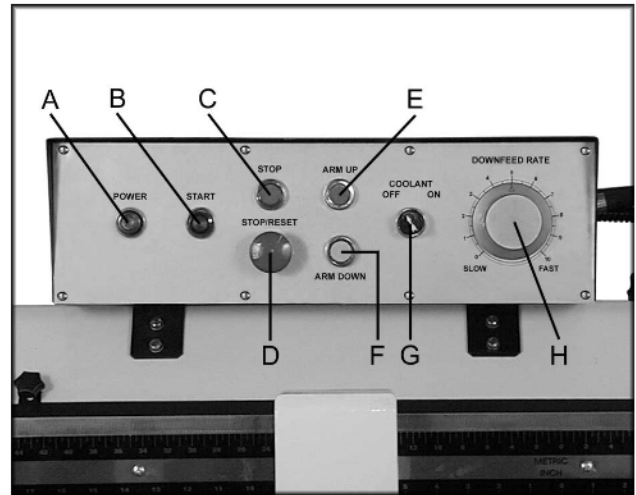


Fig. 4

Prior to Operation

1. All JET bandsaws are 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 bandsaw, do not use until proper training and knowledge have been obtained.
2. Check blade tooth direction matches diagram on blade guides.
3. Check to see that blade is properly seated on wheels after applying correct tension (approximately 25,000 lbs.).
4. Check blade guides for proper adjustments. See guide adjustments, page 11.
5. Position sliding blade guide arms as close to workpiece as possible.
6. Select proper speed and feed rate for material being cut. See speed selection chart found in the enclosed "Guide to Bandsawing" booklet supplied with this saw.
7. Material to be cut must be securely held in the vise. See vise adjustment page 8.
8. Check to see that coolant level is adequate and turn on coolant pump if material to be cut requires it. See coolant pump page 13.
9. Do not start cut on a sharp edge.

⚠ WARNING

Disconnect machine from the power source before adjusting or changing vise position! Failure to comply may cause serious injury!

**Adjusting Vise Square to the Blade
Position A**

1. Place a machinist's square on the bed against the blade and the vise. The square should lie along the entire length of the vise and blade without a gap.
2. If adjustment is necessary, loosen bolts (A, Fig. 5) holding the vise and adjust vise so square lines up properly. Tighten bolts.
3. You may want to perform a test cut. Cut off the end of the stock. Make another cut so that you have an accurate section to measure. Measure thickness with calipers.

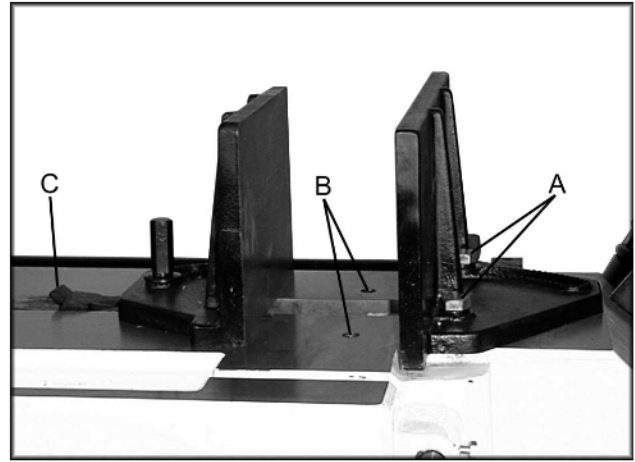


Fig. 5

**Adjusting Vise for Miter Cuts
Position B**

1. Move the vise into the second set of threaded holes (B, Fig. 5) by removing hex cap bolts (A, Fig. 5).
2. When angle has been set tighten bolts.
3. Adjust other jaw.
4. There is an angle label on the backside of the bed. This is for reference only. Check angles with a machinist's protractor.

For your own safety: only use position B for miter cuts. Vise square to the blade, in position B would expose more of the blade, right of the vise, than is necessary for the cut.

Positioning Vise

To position the moveable vise:

1. Pull up on the rack block (C, Fig. 5).
2. Move vise to desired location by sliding along bed.
3. Tighten vise by turning handwheel, found at the left end of the bed, clockwise.
4. Loosen vise by turning handwheel counter-clockwise so you can pull up on the rack block.

Changing Blade Speeds

Adjust the variable blade speed only while the machine is running. The dial (A, Fig. 6) sticking out of the belt cover (right side) controls the variable speeds between 66 FPM to 264 FPM.

Semi-Automatic Arm

Preset the height, which the arm stops when it raises automatically. The height the arm raises depends upon the piece you want to cut. The limit switch is lowered or raised by loosening a locking handle (A, Fig. 7). Tighten the locking handle when the limit switch has been properly adjusted.

Automatic Shut-Off

The blade will stop after the material has been cut, and the arm reaches its lowest position. The arm will automatically rise to the preset height.

Adjusting Feed Rate

Rate of downfeed is adjusted by turning the downfeed knob on the control panel. Rate of feed is important to bandsaw performance; excessive pressure may break the blade or stall the saw. Insufficient pressure rapidly dulls the blade.

Material chips or shavings are the best indicator of proper speed and downfeed. The ideal chip is thin, tightly curled, and warm to the touch. Chips that range from golden brown to black indicate excessive force. Blue chips indicate extreme heat from too high a band speed, which will shorten blade life. Thin or powdered chips indicate insufficient downfeed rate.

A detailed explanation on feed rate can be found in the enclosed "Guide to Band Sawing" published by American Saw and Manufacturing Company. Reprinted by permission.

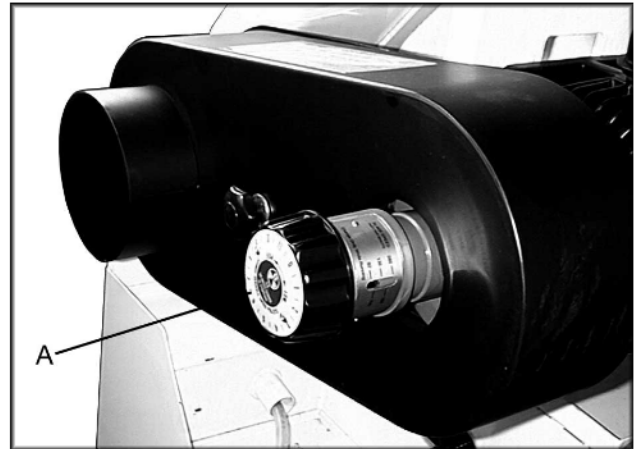


Fig. 6

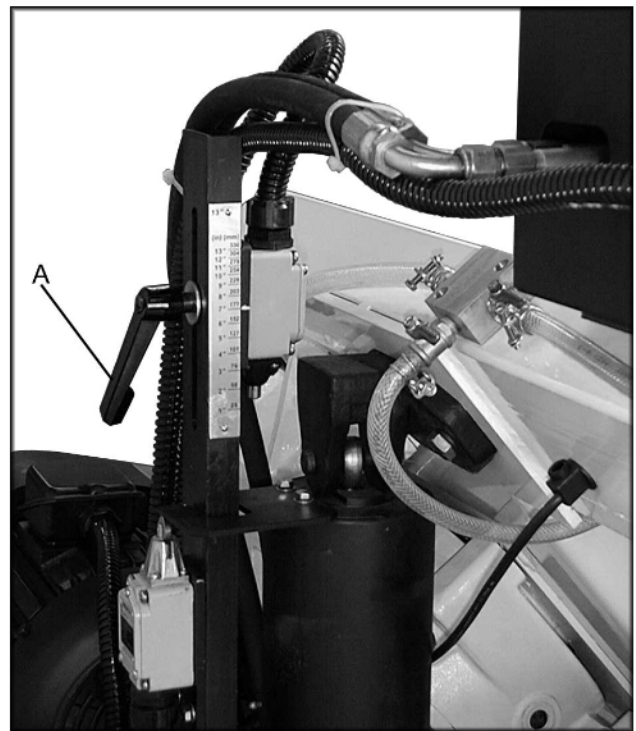


Fig. 7

Changing Blades

 **WARNING**

Disconnect machine from the power source before making any adjustments or repairs! Failure to comply may result in serious injury!

1. Raise the saw arm approximately 6".
2. **Disconnect machine from power source.**
3. Open both wheel covers and clean chips out of both wheel housings. Loosen lock knobs and remove upper and lower blade guards.
4. Release blade tension by turning blade tensioning handwheel (A, Fig. 8) counter-clockwise until blade is free.
5. Loosen lock handle and slide left blade guide arm (B, Fig. 8) to the right as far as possible.
6. Remove old blade from both wheels and out of each blade guide. **Caution:** Even dull blades are sharp to the skin! Use extra caution handling bandsaw blades!
7. Install a new blade making sure teeth are pointed downward in the proper cutting direction.
8. Position blade on wheels and tighten just enough to hold blade on wheels. Make sure back of blade rests lightly against the wheel flange of both wheels. Twist blade slightly to allow it to slip into guides.
9. Tension blade to approximately 25,000 lbs. Blade tension is indicated on the tension wheel shaft housing (left side).
10. Install all guards, close covers and fasten securely. Connect machine to power and run freely for approximately two minutes.
11. Turn power off and re-check blade tension and wire brush adjustment. If further adjustment is necessary, **disconnect saw from power source**, make adjustments, and re-connect to power.

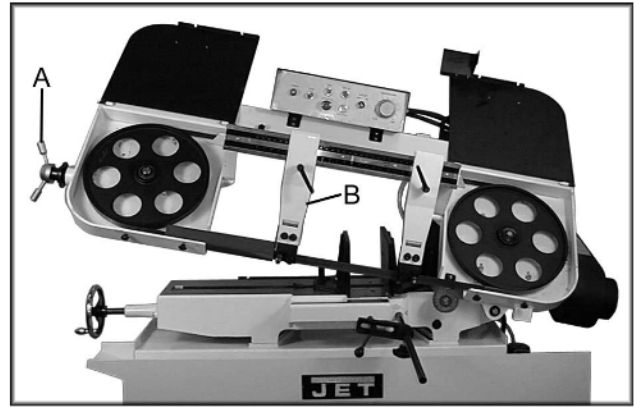


Fig. 8

Guide Roller Adjustment

The bearings come pre-adjusted from the factory. If adjustment is needed follow the below steps:

1. **Disconnect machine from the power source.**
2. Loosen two hex socket cap screws (A, Fig. 9).
3. Move guide seat (B, Fig. 9) up or down until an approximate clearance of .003" between blade and bearing is obtained, (C, Fig. 9).
4. Tighten two hex socket cap screws (A, Fig. 9).
5. Adjust the eccentric bearings (A, Fig. 10) by loosening hex socket cap screw (B, Fig. 10) about one full turn.
6. With a 19mm wrench turn hex nut (C, Fig. 10) until the ball bearings are approximately .003". **Note:** Do not pinch the blade.
7. Tighten the hex socket cap screw (B, Fig. 10) while holding the hex nut (C, Fig. 10) in place.
8. Repeat for other blade guide assembly.
9. Connect machine to power source.

Blade Guide Adjustment

The blade guides come pre-adjusted from the factory. If adjustment is needed follow the below steps:

1. **Disconnect machine from the power source.**
2. Adjust spring loaded blade guide (A, Fig. 11) by loosening or tightening the guide adjustment screw (B, Fig. 11).
3. The blade guide should place a light pressure on the blade.
4. Connect machine to the power source.

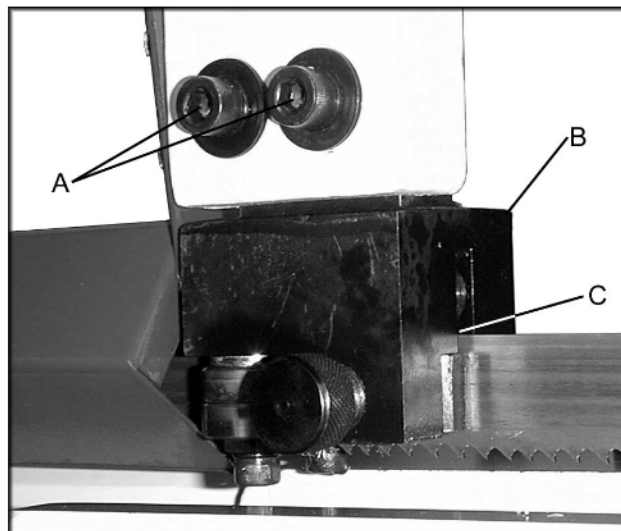


Fig. 9

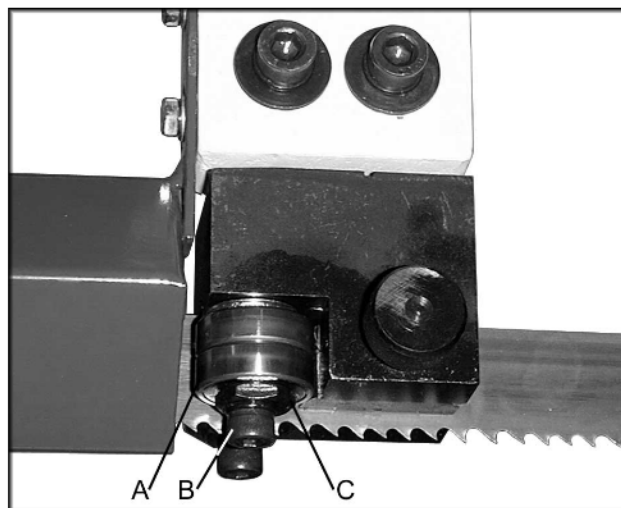


Fig. 10

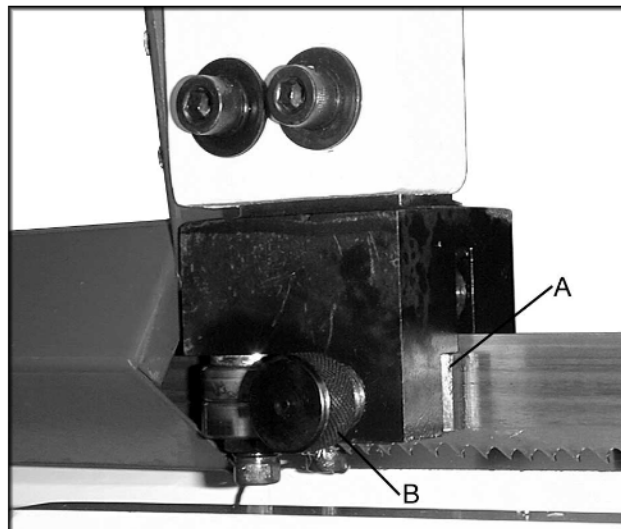


Fig. 11

Blade Tracking Adjustment

Since tracking can only be adjusted while machine is running, it is suggested that this adjustment be accomplished by qualified personnel that are familiar with this type of adjustment and the dangers associated with it.

Blade tracking has been set at the factory and should require no adjustment. If a tracking problem occurs, adjust the machine as follows:



WARNING

Tracking adjustment is done with the wheel covers open to observe the blade. Use extreme caution so as not to come into contact with the blade!

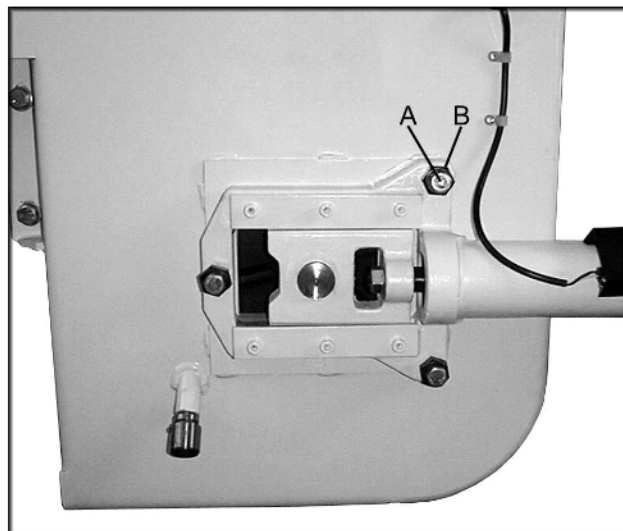


Fig. 12

1. Raise saw arm to its highest position.
2. Locate tracking adjustment plate on the backside of the idle wheel.
3. Loosen the three bolts (A, Fig. 12) located on the top of the tracking nuts.
4. Tracking adjustment is accomplished by either loosening or tightening three adjusting nuts (B, Fig. 12).
5. Tracking is set properly when the back of the blade lightly touches the wheel flange.
Note: over-tracking (allowing blade back to rub hard against wheel flange) will damage the blade wheels and blade.
6. Tighten locking bolts (A) once proper tracking is completed.

Lubrication and Gearbox

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

The gearbox lubricant should be changed after the first 3 months of operation. Use Mobil SHC 634, or equivalent. Change lubricant from then on every year.

To check level of gear box lubricant, place arm in down position and allow a few minutes to pass so that oil drains down. Check level in sight glass on side of gear casing. Correct level is the dot in the middle of sight glass.

To change gear box lubricant:

1. **Disconnect machine from the power source.**
2. Remove drain plug and allow lubricant to drain completely. The drain plug is located on lower front of gear case under right wheel cover. Remove drain plug with a hex wrench.
3. Reinstall drain plug.
4. Remove filler cap and fill gearbox with Mobil SHC 634 until level reaches dot in middle of sight glass.
5. Reinstall filler cap.
6. Use Mobil DTE® Oil Heavy Medium to lubricate all other moving parts as needed.

Hydraulic Pump

If you need to add hydraulic fluid to the tank remove cap (A, Fig. 13). Add Mobil DTE® 24 until the black ball floats to the full position.

Coolant Pump

The coolant tank should be filled with 6 gallons of a cutting coolant. Fill by pouring coolant into the chip tray. Add coolant in the same manner when coolant is low. To drain coolant remove hex cap screw (A, Fig. 14). Follow all coolant manufacturer's instructions for safety, mixing disposal, etc.

The spray nozzle (B, Fig. 14) enables the user to wash chips out of the way. There are three ball valves that control the coolant distribution to the spray nozzle and each blade guide.

Replacing the Variable Speed Belt

Disconnect the machine from the power source. Take the belt cover off by removing the knob and washer. Loosen tension on the belt by turning the variable speed dial (A, Fig. 15) to the lowest setting. This will allow you to remove the belt (B, Fig. 15). When installing the new belt turn the pulley by hand while increasing variable speed dial setting. After running the machine additional adjustment of the variable speed dial may be needed.

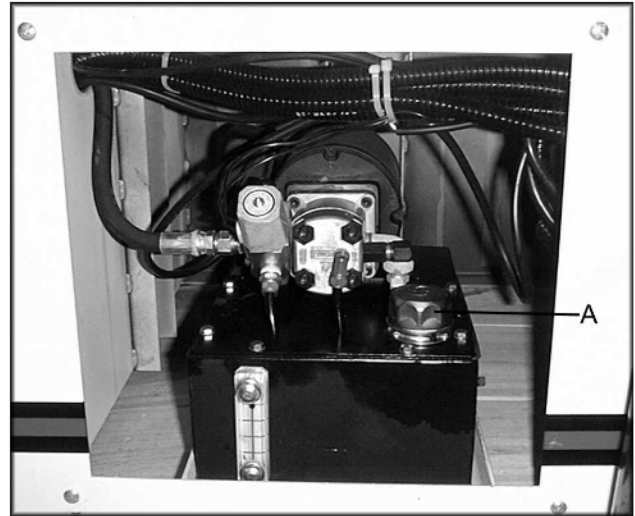


Fig. 13

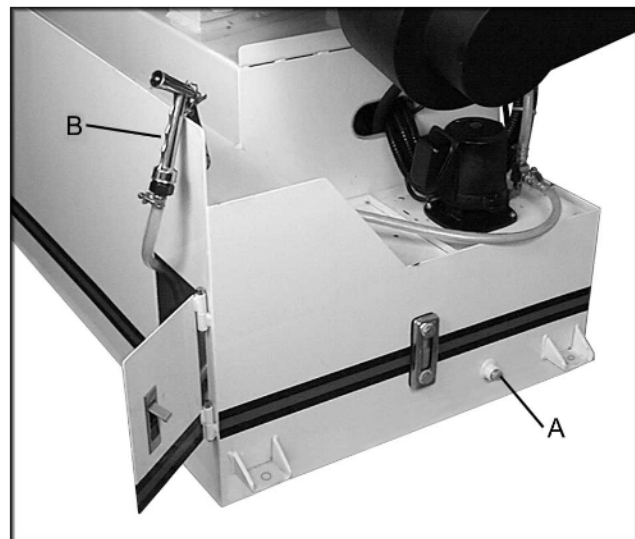


Fig. 14

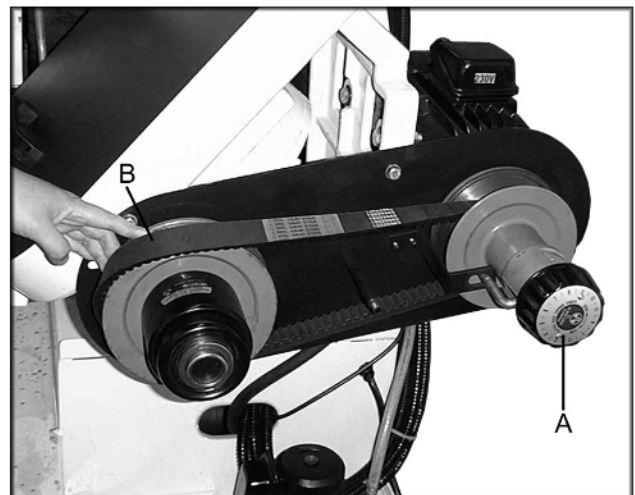
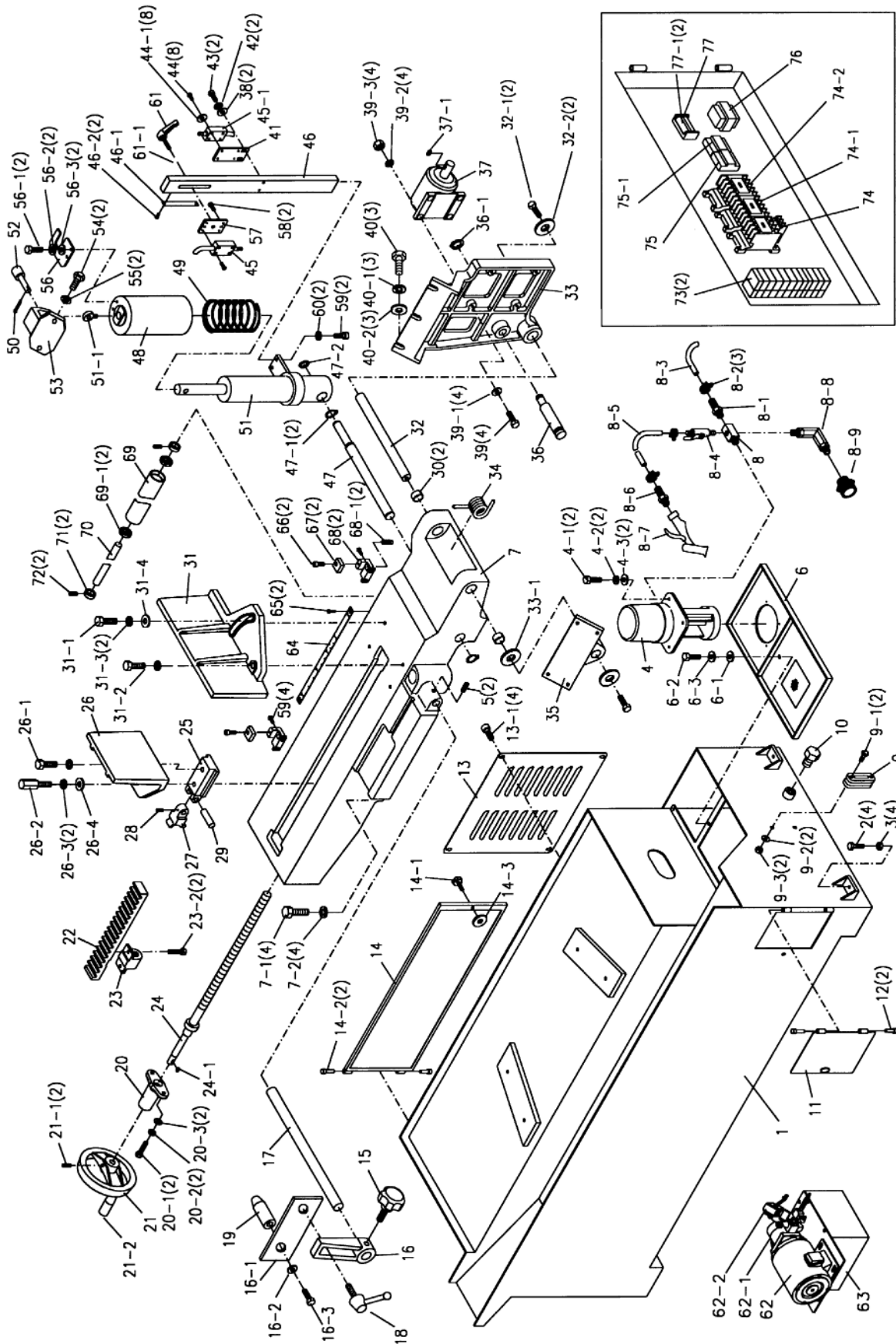


Fig. 15

Bed and Base Assembly



Parts List for the JET HBS-1321W Bandsaw

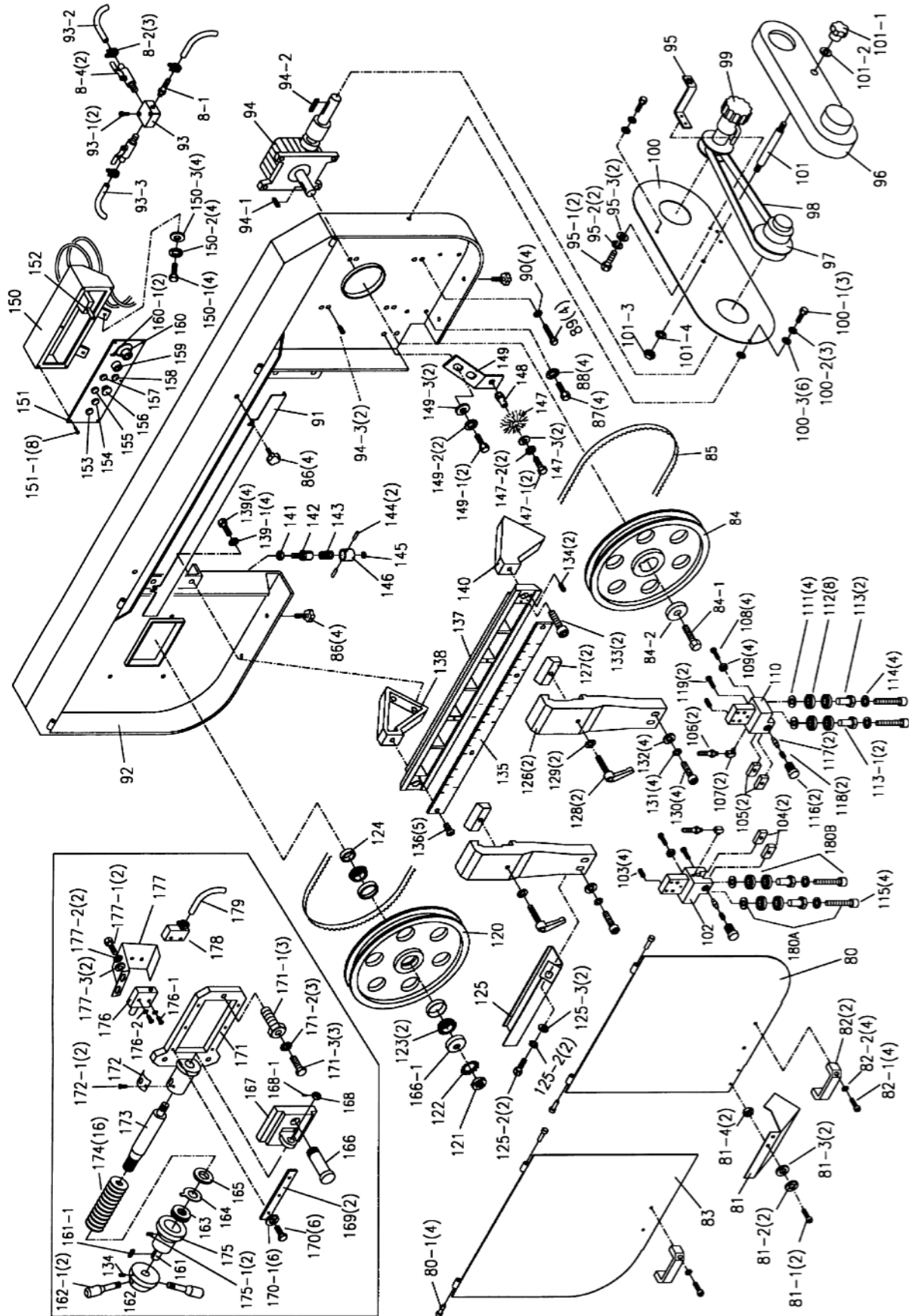
Bed and Base Assembly

Index No.	Part No.	Description	Size	Qty.
1	1321W-01	Base		1
2	TS-1492061	Hex Cap Bolt	M12x65	4
3	TS-1540081	Hex Nut	M12	4
4	1321W-04	Coolant Pump	1/6HP	1
4-1	1321W-04-1	Cross Point Screw	M6x16	2
4-2	1321W-04-2	Spring Washer	M6	2
4-3	1321W-04-3	Flat Washer	M6	2
5	TS-1524041	Set Screw	M8x16	2
6	1321W-06	Coolant Tank Cover		1
6-1	TS-1550041	Washer	M6	1
6-2	TS-1503031	Hex Socket Cap Screw	M6x12	1
6-3	TS-1551041	Spring Washer	M6	1
7	1321W-07	Bed		1
7-1	1321W-07-1	Hex Cap Bolt	M12x50	4
7-2	1321W-07-2	Spring Washer	M12	4
8	1321W-08	Connector		1
8-1	1321W-08-1	Hose Fitting		2
8-2	1321W-08-2	Hose Clamp		6
8-3	1321W-08-3	Hose	3/8"x1200	1
8-4	1321W-08-4	On/Off Valve		3
8-5	1321W-08-5	Hose	3/8"x2800	1
8-6	1321W-08-6	Hose Fitting		1
8-7	1321W-08-7	Coolant Nozzle		1
8-8	1321W-08-8	Connector		1
8-9	1321W-08-9	Fitting		1
9	1321W-09	Coolant Gauge		1
9-1	TS-1491041	Pan Head Screw	M10x30	2
9-2	TS-1550071	Washer	M10	2
9-3	TS-1540071	Hex Nut	M10	2
10	1321W-10	Drain Plug		1
11	1321W-11	Front Door w/Latch		1
12	1321W-12	Hinge Pin		2
13	1321W-13	Panel Cover		1
13-1	1321W-13-1	Round Cross Cap Screw	M6x8	4
14	1321W-14	Electrical Panel Plate		1
14-1	1321W-14-1	Knob		1
14-2	1321W-14-2	Hinge Pin		2
14-3	1321W-14-3	Hex Nut	M6	1
15	1321W-15	Lock Knob		1
16	1321W-16	Stop Bracket		1
16-1	1321W-16-1	Connecting Plate		1
16-2	1321W-16-2	Lock Washer		1
16-3	1321W-16-3	Hex Cap Bolt		1
17	1321W-17	Stop Rod		1
18	1321W-18	Lock Handle		1
19	1321W-19	Work Stop		1
20	1321W-20	Lead Screw Seat		1
20-1	TS-1504061	Hex Socket Cap Screw	M8x30	2
20-2	TS-1551081	Spring Washer	M8	2
20-3	TS-1550061	Washer	M8	2

21	1321W-21	Handle Wheel Assembly		1
21-1	TS-0270031	Set Screw	5/16"x3/8"	2
21-2	1321W-21-2	Handle		1
22	1321W-22	Rack		1
23	1321W-23	Lead Screw Seat		1
23-2	TS-1504041	Hex Socket Cap Screw	M8x20	2
24	1321W-24	Lead Screw		1
24-1	1321W-24-1	Key		1
25	1321W-25	Slide Bracket		1
26	1321W-26	Vise Jaw - Left		1
26-1	TS-1492041	Hex Cap Bolt	M12x40	1
26-2	1321W-26-2	Locking Bolt	M12x45	1
26-3	TS-1551081	Spring Washer	M12	2
26-4	TS-1550061	Washer	M12x35x5W	1
27	1321W-27	Rack Block		1
28	TS-1523021	Set Screw	M6x8	1
29	1321W-29	Pin		1
30	1321W-30	Needle Bearing	CB3020	2
31	1321W-31	Vise Jaw - Right		1
31-1	1321W-31-1	Hex Cap Bolt	M16x50	1
31-2	1321W-31-2	Hex Cap Bolt	M16x40	1
31-3	1321W-31-3	Spring Washer	M16	2
31-4	1321W-31-4	Washer	M16x35x5W	1
32	1321W-32	Pivot Shaft		1
32-1	TS-1492001	Hex Cap Bolt	M12x20	2
32-2	TS-1550081	Washer	M12	2
33	1321W-33	Pivot Bracket		1
33-1	1321W-33-1	Spacer		1
34	1321W-34	Spring		1
35	1321W-35	Support Bracket Seat		1
36	1321W-36	Pivot Support Shaft		1
36-1	1321W-36-1	C-Clip	S22	1
37	1321W-37	Motor	3HP, 3Ph	1
37-1	1321W-37-1	Key	8x7x50	1
38	TS-1550041	Flat Washer	M6	2
39	1321W-39	Hex Cap Bolt	M10x55	4
39-1	TS-1550071	Flat Washer	M10	4
39-2	TS-1541071	Spring Washer	M10	4
39-3	TS-1540071	Hex Nut	M10	4
40	TS-1492051	Hex Cap Bolt	M12x50	3
40-1	TS-1551081	Spring Washer	M12	3
40-2	TS-1550081	Washer	M12	3
41	1321W-41	Switch Mounting Plate		1
42	TS-1551041	Spring Washer	M6	2
43	TS-1482021	Hex Cap Bolt	M6x12	2
44	1321W-44	Cross Point Screw	M5x35	8
44-1	1321W-44-1	Spring Washer	M5	8
45	1321W-45	Limit Switch	5101	1
45-1	1321W-45-1	Roller Limit Switch	5102	1
46	1321W-46	Adjusting Bracket		1
46-1	1321W-46-1	Scale Plate		1
46-2	1321W-46-2	Rivet		2
47	1321W-47	Cylinder Support Rod		1
47-1	1321W-47-1	C-Clip	S32	2
47-2	1321W-47-2	C-Clip	S28	1
48	1321W-48	Cylinder Cover		1
49	1321W-49	Spring		1

50	1321W-50	Retaining Pin		1
51	1321W-51	Cylinder Assembly		1
51-1	1321W-51-1	Holder		1
52	1321W-52	Cylinder Pin		1
53	1321W-53	Top Mounting Plate		1
54	TS-1492031	Hex Cap Bolt	M12x35	2
55	TS-1551081	Spring Washer	M12	2
56	1321W-56	Plate		1
56-1	TS-1482021	Hex Cap Bolt	M6x12	2
56-2	TS-1551041	Spring Washer	M6	2
56-3	TS-1550041	Flat Washer	M6	2
57	1321W-57	Switch Mounting Plate		1
58	TS-1503011	Hex Socket Cap Screw	M6x8	2
59	TS-1504051	Hex Socket Cap Screw	M8x25	6
60	TS-1551081	Spring Washer	M8	2
61	1321W-61	Handle		1
61-1	TS-1550071	Washer	M10	1
62	1321W-62	Hydraulic Pump Motor		1
62-1	1321W-62-1	Pump		1
62-2	1321W-62-2	Solenoid Valve		1
62-3	1321W-62-3	Hydraulic Fill Cap		1
63	1321W-HPCA	Hydraulic Pump Complete Assembly		1
64	1321W-64	Scale		1
65	1321W-65	Rivet		2
66	TS-1503031	Hex Socket Cap Screw	M6x12	2
67	1321W-67	Plate		2
68	1321W-68	Roller Seat		2
68-1	TS-1525021	Set Screw	M10x12	2
69	1321W-69	Support Roller		2
69-1	BB6004ZZ	Ball Bearing	6004ZZ	2
70	1321W-70	Rod		1
71	1321W-71	Knob		2
72	TS-1523021	Set Screw	M6x8	2
73	1321W-73	Terminal Strip		2
74	1321W-74	Magnetic Switch (w/Overload)		1
74-1	1321W-74-1	Magnetic Switch		1
74-2	1321W-74-2	Magnetic Switch		1
75	1321W-75	Relay		1
75-1	1321W-75-1	Relay		1
76	1321W-76	Transformer		1
77	1321W-77	Fuse Case		1
77-1	1321W-77-1	Fuse (3A)		2

Arm Assembly



Arm Assembly

Index No.	Part No.	Description	Size	Qty.
8-1	1321W-08-1	Hose Fitting		2
8-2	1321W-08-2	Hose Clamp		6
8-4	1321W-08-4	On/Off Valve		3
80	1321W-80	Blade Wheel Cover - R		1
80-1	1321W-80-1	Hinge Pin		4
81	1321W-81	Brush Cover		1
81-1	TS-1482021	Hex Cap Bolt	M6x12	2
81-2	TS-1551041	Spring Washer	M6	2
81-3	TS-1550041	Flat Washer	M6	2
81-4	TS-1540041	Nut	M6	2
82	1321W-82	Handle		2
82-1	1321W-82-1	Cross Point Screw	M6x16	4
82-2	1321W-82-2	Washer	M6	4
83	1321W-83	Blade Wheel Cover - L		1
84	1321W-84	Drive Wheel		1
84-1	1321W-84-1	Hex Cap Bolt	M12x20	1
84-2	1321W-84-2	Washer	M12	1
85	1321W-85	Saw Blade	1-1/4" x .042" x 161-1/2"	1
86	1321W-86	Knob		8
87	TS-1491041	Hex Cap Bolt	M10x30	4
88	TS-1551071	Spring Washer	M10	4
89	TS-1492031	Hex Cap Bolt	M12x35	4
90	TS-1551081	Spring Washer	M12	4
91	1321W-91	Blade Guard		1
92	1321W-92	Blade Wheel Box Assembly		1
93	1321W-93	Connector		1
93-1	1321W-93-1	Hex Socket Cap Screw	M6x20	2
93-2	1321W-93-2	Hose		1
93-3	1321W-93-3	Hose		1
94	1321W-94	Gear Box Assembly		1
94-1	1321W-94-1	Key	12x8x32	1
94-2	1321W-94-2	Key	7x7x40	1
94-3	TS-1525041	Set Screw	M10x12	2
95	1321W-95	Plate		1
95-1	TS-1482021	Hex Cap Bolt	M6x12	2
95-2	TS-1551041	Spring Washer	M6	2
95-3	TS-1550041	Washer	M6	2
96	1321W-96	Pulley Cover		1
97	1321W-97	Input Pulley		1
98	1321W-98	Belt	1922V443	1
99	1321W-99	Output Pulley Assembly		1
100	1321W-100	Cover Plate		1
100-1	TS-1490021	Hex Cap Bolt	M8x16	4
100-2	TS-1551081	Spring Washer	M8	3
100-3	TS-1550061	Washer	M8	6
101	1321W-101	Shaft		1
101-1	1321W-101-1	Knob		1
101-2	1321W-101-2	Washer	5/16"	1
101-3	1321W-101-3	Nut	5/16"	1
101-4	1321W-101-4	Spring Washer	5/16"	1
102	1321W-102	Guide Bracket - L		1

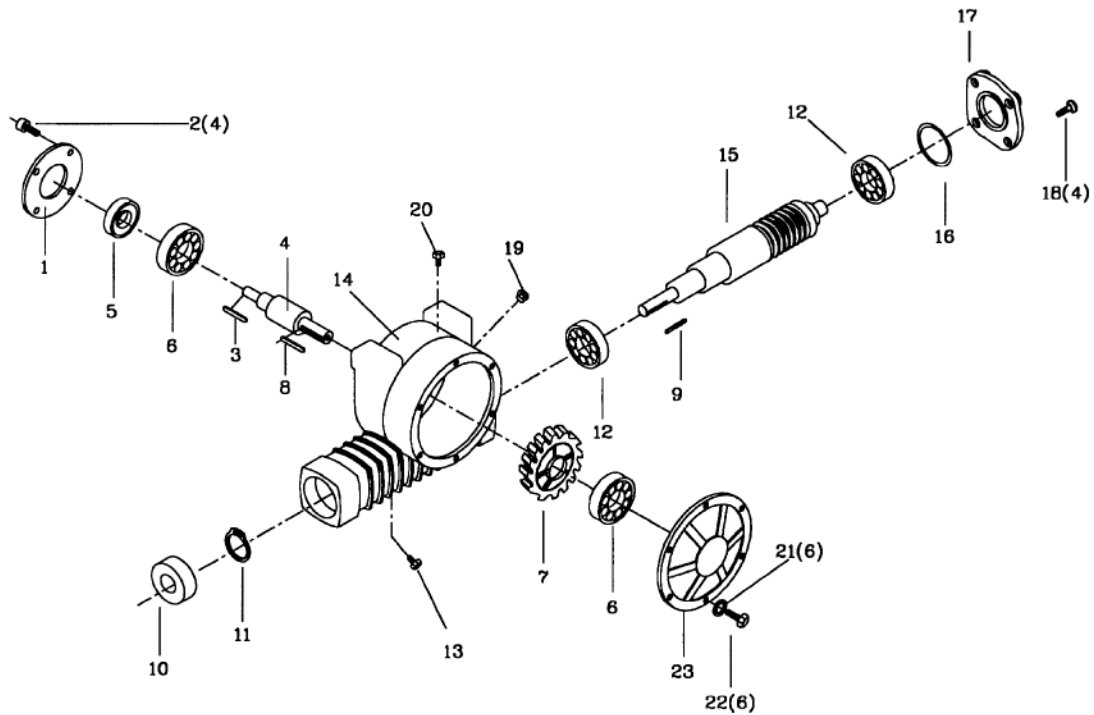
103	TS-1524041	Set Screw	M8x16	4
104	1321W-104	Blade Guide Assembly-L		2
105	1321W-105	Blade Guide Assembly-R		2
106	1321W-106	Connector		2
107	1321W-107	Cu Connector		2
108	TS-1490051	Hex Socket Cap Screw	M8x30	4
109	BB608Z	Ball Bearing	608Z	4
110	1321W-110	Guide Bracket - R		1
111	TS-1550061	Flat Washer	M8	4
112	BB6201RS	Ball Bearing	6201RS	8
113	1321W-113	Sleeve		2
113-1	1321W-113-1	Eccentric Sleeve		2
114	TS-1551081	Spring Washer	M8	4
115	TS-1490081	Hex Socket Cap Screw	M8x45	4
116	1321W-116	Adjusting Knob		2
117	1321W-117	Small Shaft		2
118	1321W-118	Spring		2
119	1321W-119	Hex Socket Cap Screw	M16x12	2
120	1321W-120	Idle Blade Wheel		1
121	1321W-121	Jam Nut		1
122	1321W-122	Star Washer		1
123	1321W-123	Taper Roller Bearing	30206	2
124	1321W-124	Spacer		1
125	1321W-125	Blade Guard		1
125-1	TS-1482021	Hex Cap Bolt	M6x12	2
125-2	TS-1551041	Spring Washer	M6	2
125-3	TS-1550041	Washer	M6	2
126	1321W-126	Adjusting Bracket Mount		2
127	1321W-127	Lock Block		2
128	1321W-128	Handle		2
129	TS-1550071	Washer	M10	2
130	TS-1505051	Hex Socket Cap Screw	M10x40	4
131	TS-1551071	Spring Washer	M10	4
132	TS-1550071	Washer	M10	4
133	TS-1550081	Hex Socket Cap Screw	M12x25	2
134	TS-1524031	Set Screw	M8x10	5
135	1321W-135	Scale Plate		1
136	1321W-136	Cross Point Screw		4
137	1321W-137	Slide Bracket		1
138	1321W-138	Blade Bracket - L		1
139	TS-1492021	Hex Cap Bolt	M12x30	4
139-1	TS-1551081	Spring Washer	M12	4
140	1321W-140	Blade Bracket - R		1
141	1321W-141	Hex Nut	M12	1
142	1321W-142	Stop Support		1
143	1321W-143	Spring		1
144	1321W-144	Pin		2
145	1321W-145	Rubber Pad		1
146	1321W-146	Stop Block		1
147	1321W-147	Brass Wire Brush		1
147-1	TS-1482021	Hex Cap Bolt	M6x12	2
147-2	TS-1551041	Spring Washer	M6	2
147-3	TS-1550041	Washer	M6	2
148	1321W-148	Bushing		1
149	1321W-149	Brush Bracket		1
149-1	TS-1482021	Hex Cap Bolt	M6x12	2

149-2	TS-1551041	Spring Washer	M6	2
149-3	TS-1550041	Washer	M6	2
150	1321W-150	Control Box		1
150-1	TS-1482021	Hex Cap Bolt	M6x12	4
150-2	TS-1551041	Spring Washer	M6	4
150-3	TS-1550041	Washer	M6	4
151	1321W-151	Control Panel		1
151-1	1321W-151-1	Cross Point Screw	M5x10	8
152	1321W-152	Downfeed Valve Assembly		1
153	1321W-153	Power Indicator Light		1
154	1321W-154	Start Button		1
155	1321W-155	Stop Button		1
156	1321W-156	Emergency Switch		1
157	1321W-157	Arm Up Switch		1
158	1321W-158	Arm Down Switch		1
159	1321W-159	On/Off Coolant Switch		1
160	1321W-160	Downfeed Control Knob		1
160-1	TS-1523061	Set Screw	M6x20	2
161	1321W-161	Extension Bar		1
161-1	1321W-161-1	Key		1
162	1321W-162	Handle Base		1
162-1	1321W-162-1	Handle		2
163	1321W-163	Thrust Bearing	51106	1
164	1321W-164	Indicator Washer		1
165	1321W-165	Spacer		1
166	1321W-166	Blade Wheel Bracket Shaft		1
166-1	1321W-166-1	Cover		1
167	1321W-167	Slide Bracket		1
168	1321W-168	Adjusting Nut		1
168-1	TS-1523021	Set Screw	M6x8	1
169	1321W-169	Slide Plate		2
170	TS-1504041	Hex Socket Cap Screw	M8x20	6
170-1	TS-1551061	Spring Washer	M8	6
171	1321W-171	Extension Bracket		1
171-1	1321W-171-1	Sleeve	M20x35	3
171-2	TS-1551081	Spring Washer	M12	3
171-3	1321W-171-3	Hex Cap Bolt	M12x65	3
172	1321W-172	Blade Extension Scale		1
172-1	1321W-172-1	Cross Point Screw	M5x10	2
173	1321W-173	Spring Support Shaft		1
174	1321W-174	Belleville Spring	W=2.5mm	16
175	1321W-175	Stop Flange		1
175-1	1321W-175-1	Set Screw	M8x20	2
176	1321W-176	Limit Switch	1307	1
176-1	1321W-176-1	Cross Point Screw	5/32"x1"	2
176-2	TS-1550021	Washer	M4	2
176-3	TS-1540021	Nut (not shown)	M4	2
177	1321W-177	Cover		1
177-1	TS-1482021	Hex Cap Bolt	M6x12	2
177-2	TS-1551041	Spring Washer	M6	2
177-3	TS-1550041	Washer	M6	2
178	1321W-178	Relief Bushing		2
178-1	1321W-178-1	Cover		1
179	1321W-179	Electrical Wire	0.5/2Cx430cm	1
180A	1321W-180A	Eccentric Sleeve Assembly (#111,112,113-1,114,115)		2
180B	1321W-180B	Sleeve Assembly (#111,112,113,114,115)		2

.....	1321W-181B1	.....	Laser Guide with Bracket (not shown)	.....	1
.....	1321W-181B2	.....	Transformer with Power Cord (not shown)	.....	1
.....	1321W-181B3	.....	Bracket for Laser Guide (not shown)	.....	1

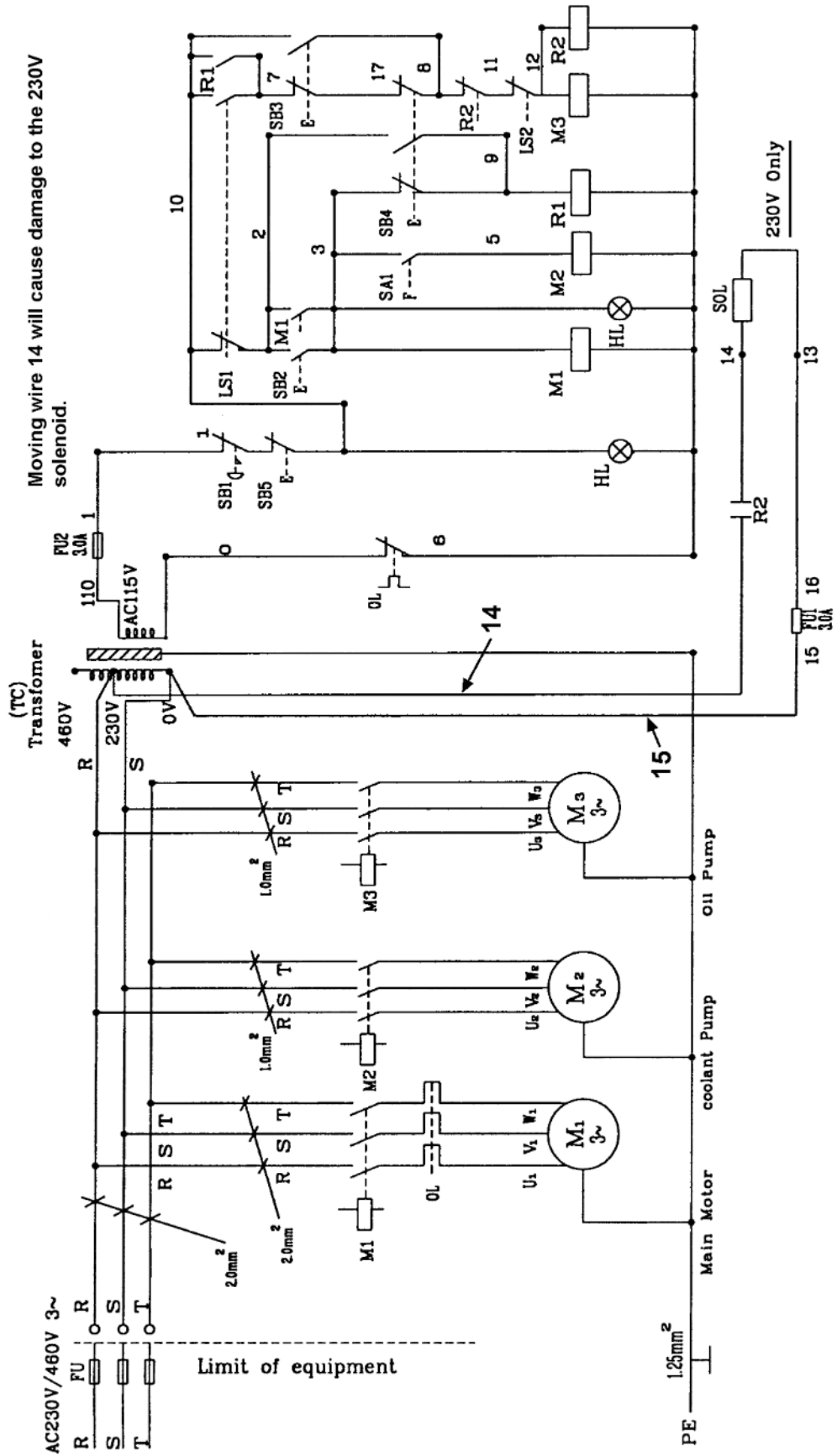
Gear Reduce Box Assembly

Index No.	Part No.	Description	Size	Qty.
1	1321W-94-01	Output Shaft Cover		1
2	TS-1482031	Hex Socket Cap Screw	M6x16	4
3	1321W-94-03	Key	12x8x35	1
4	1321W-94-04	Output Shaft		1
5	1321W-94-05	Oil Seal	TC50X70X10	1
6	1321W-94-06	Taper Roller Bearing	30210	2
7	1321W-94-07	Worm		1
8	1321W-94-08	Key	16x10x70	1
9	1321W-94-09	Key	7x7x50	1
10	1321W-94-10	Oil Seal	SC30x62x7	1
11	1321W-94-11	C-Clip	R62	1
12	1321W-94-12	Taper Roller Bearing	30206	2
13	1321W-94-13	Drain Plug	1/4"PT	1
14	1321W-94-14	Gear Box		1
15	1321W-94-15	Worm Shaft		1
16	1321W-94-16	Gasket		1
17	1321W-94-17	Input Shaft Cover		1
18	TS-1504041	Hex Socket Cap Screw	M8x20	4
19	1321W-94-19	Clear Oil Glass	25	1
20	1321W-94-20	Fill Oil Plug	3/8"PT	1
21	TS-1551071	Spring Washer	M10	6
22	TS-1491041	Hex Cap Bolt	M10x30	6
23	1321W-94-23	Worm Shaft Cover		1



Wiring Diagram

NOTE: When converting to 460V operation, wires 14 and 15 should remain in their original location. Do NOT move wire 14 to the 460V transformer trap.



Wiring Diagram Symbol Glossary

Symbol	Description	Part Number.
LS1	Cut off Limit Switch	1321W-45
LS2	Roller Limit Switch	1321W-45-1
SB1	Emergency Switch	1321W-156
SB2	Start Switch	1321W-154
SB3	Arm Down Switch	1321W-158
SB4	Arm Up Switch	1321W-157
SB5	Stop Switch	1321W-155
HL	Power Indicator Light	1321W-153
TC	Control Transformer	1321W-76
FU1	3A Fuse	1321W-77-1
FU2	3A Fuse	1321W-77
M1	Magnetic Switch (w/OL)	1321W-74
M2	Magnetic Switch	1321W-74-1
M3	Magnetic Switch	1321W-74-2
R1	Arm Up Relay	1321W-75
R2	Arm Down Relay	1321W-75-1
SA1	Coolant Pump On / Off Switch	1321W-159
SOL	SOL Valve	1321W-152