



Operating Instructions and Parts Manual Variable Speed Mill-Drill Machines

Models: JMD-45VSPF, JMD-45VSPFT



JMD-45VSPFT (tapping model) shown

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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 the warning labels if they become obscured or removed.
4. This mill-drill machine is designed and intended for use by properly trained and experienced personnel only. The manual is not, nor was it intended to be, a training manual. If you are not familiar with the proper and safe operation of a mill-drill, do not use until proper training and knowledge have been obtained.
5. Do not use this mill-drill 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 protective eye wear when operating machinery. Eye wear shall be impact resistant, protective safety glasses with side shields which comply 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. (Everyday eyeglasses only have impact resistant lenses; they are NOT safety glasses.)
7. Before operating this machine, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Do not wear loose clothing. Confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do not wear gloves.
8. Wear ear protectors (plugs or muffs) if sound exceeds safe levels.
9. Make certain the switch is in the OFF position before connecting the machine to the power supply.
10. Make certain the machine is properly grounded.
11. Make all machine adjustments or maintenance with the machine unplugged from the power source.
12. 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.
13. 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.
14. 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.
15. Provide for adequate space surrounding work area and non-glare, overhead lighting.
16. Keep the floor around the machine clean and free of scrap material, oil and grease.
17. Keep visitors a safe distance from the work area. Keep children away.
18. Make your workshop child proof with padlocks, master switches or by removing starter keys.
19. Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in serious injury.
20. 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.
21. 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.
22. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
23. Use recommended accessories; improper accessories may be hazardous.
24. Maintain tools with care. Keep cutters sharp and clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
25. Turn off the machine before cleaning. Use a brush to remove chips or debris — do not use bare hands. Do not use compressed air for cleaning.
26. Do not stand on the machine. Serious injury could occur if the machine tips over.

27. Never leave the machine running unattended. Turn the power off and do not leave the machine until it comes to a complete stop.
28. Remove loose items and unnecessary work pieces from the area before starting the machine.
29. Do not perform any setup work while machine is operating.
30. Do not place hands near cutter while machine is operating.
31. Don't use in dangerous environment. Don't use power tools in damp or wet location, or expose them to rain. Keep work area well lighted.
32. All work shall be secured using either clamps or a vise to the drill press table. It is unsafe to use your hands to hold any workpiece being drilled.
33. Use proper extension cord. Make sure your extension cord is in good condition. When using an extension cord, use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Sect. 6.3, Table 2 shows correct size to use depending upon cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

⚠ WARNING: This product can expose you to chemicals including lead which is known to the State of California to cause cancer and birth defects or other reproductive harm, and ethylbenzene which is known to the State of California to cause cancer. 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>.

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



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



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

1.1 Switch lock-out

To prevent unauthorized use or accidental starting of the Mill-Drill, install a padlock (not provided) into the on/off switch at rear of control box. Push tab into switch until holes align and insert padlock through holes. See Figure 1-1. Store key in a secure place.

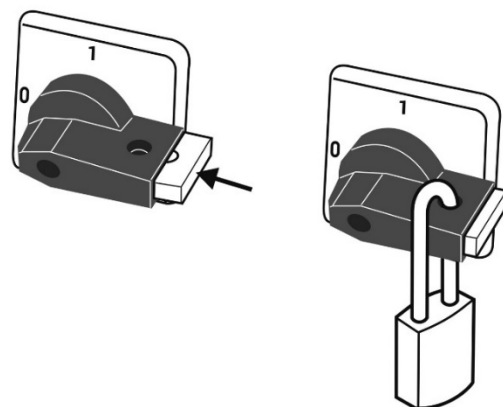


Figure 1-1

2.0 Table of contents

Section	Page
1.0 IMPORTANT SAFETY INSTRUCTIONS	2
1.1 Switch lock-out	3
2.0 Table of contents	4
3.0 About this manual	5
4.0 Specifications	6
4.1 Mounting hole centers	7
5.0 Setup and assembly	8
5.1 Shipping contents	8
5.2 Tools required for assembly	8
5.3 Unpacking and cleanup	8
5.4 Location	8
5.5 Assembly	8
5.6 Lubrication	9
6.0 Electrical connections	9
6.1 GROUNDING INSTRUCTIONS	9
6.2 Voltage conversion	10
6.3 Extension cords	10
7.0 Adjustments	10
7.1 Removing and installing arbors	10
7.2 Head adjustments	11
7.3 Table adjustments	11
7.4 Gib adjustments	11
7.5 Spindle return	11
8.0 Operation	12
8.1 Operating controls	12
8.2 Powerfeed operation	13
8.3 Manual coarse feed	13
8.4 Manual fine feed	13
8.5 Tapping procedure (45VSPFT only)	13
8.6 Basic milling procedure	13
9.0 User-maintenance	14
9.1 General maintenance	14
9.2 Additional servicing	14
9.3 Lubrication	15
10.0 Troubleshooting JMD-45VS series Mill-Drills	16
11.0 Optional accessory	17
12.0 Replacement Parts	17
12.1.1 JMD-45VSPF, -45VSPFT Table and Base Assembly – Exploded View	18
12.1.2 JMD-45VSPF, -45VSPFT Table and Base Assembly – Parts List	19
12.2.1 JMD-45VSPF, -45VSPFT Column Assembly – Exploded View	21
12.2.2 JMD-45VSPF, -45VSPFT Column Assembly – Parts List	22
12.3.1 JMD-45VSPF, -45VSPFT Gear Head Assembly – Exploded View	23
12.3.2 JMD-45VSPF, -45VSPFT Gear Head Assembly – Parts List	24
12.4.1 JMD-45VSPFT Tapping Assembly – Exploded View	27
12.4.2 JMD-45VSPFT Tapping Assembly – Parts List	27
12.5.1 JMD-45VSPF, -45VSPFT Gears Assembly – Exploded View	28
12.5.2 JMD-45VSPF, -45VSPFT Gears Assembly – Exploded View	29
12.6.1 JMD-45VSPF Electric Box Assembly – Exploded View	30
12.6.2 JMD-45VSPF Electric Box Assembly – Parts List	31
12.7.1 JMD-45VSPFT Electric Box Assembly – Exploded View	32
12.7.2 JMD-45VSPFT Electric Box Assembly – Parts List	33
13.0 Electrical Connections, JMD-45VSPF series	34
13.1 Wiring Diagram for JMD-45VSPF	34
13.2 Wiring Diagram for JMD-45VSPFT	35
14.0 Warranty and service	36


3.0 About this manual

This manual is provided by JET, covering the safe operation and maintenance procedures for the JET JMD-45VS series variable speed Mill-Drills. 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 as set forth in this document.

This manual is not intended to be a training guide for milling/drilling operations, or tool and workpiece selection. Consult a machinery handbook or shop supervisor for information on proper speed and feed rates for specific materials, or type of cutter or drill suitable for a particular operation. Whatever accepted methods or materials are used, always make personal safety a priority.

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!**

Register your product using the mail-in card provided, or register online:
<http://www.jettools.com/us/en/service-and-support/warranty/registration/>

4.0 Specifications

Table 1

Model number	JMD-45VSPF		JMD-45VSPFT	
Stock number	351050		351051	
Motor and Electricals				
Motor type	Totally-enclosed, fan-cooled, induction			
Horsepower	1.5 HP (1.1 kW)			
Motor Phase	3			
Motor Voltage	230V			
Input Voltage	single phase, 115V or 230V (prewired for 115V)			
Cycle	60 Hz			
Listed FLA (full load amps)	11/5.5 A			
Starting amps	26 A			
Running amps (no load)	1.2 A			
Motor speed	1720 RPM			
Motor cord	SJT 4/C 14AWG 300V, 6 ft.			
Power cord	SJT 3x3.31mm ² 12AWG 300V, 6 ft.			
Power plug	Not included			
LED work lamp	12V, 6W; separate 115V power cord SJT 3x18AWG, 6 ft.			
Recommended circuit size ¹	15A			
Sound emission without load ²	70dB			
Capacities				
Spindle taper	R8			
Spindle rotation	Forward/Reverse			
Drilling capacity	Mild steel	1-1/4 in. (32mm)		
	Cast iron	1-1/2 in. (38mm)		
Tapping capacity	Mild steel	n/a	13/16 in. (20mm)	
	Cast iron	n/a	13/16 in. (20mm)	
Face mill capacity	Ø 4 in. (100mm)			
End mill capacity	Ø 3/4 in. (20mm)			
Swing	19-11/16 in. (500mm)			
Max. distance spindle to table	18-1/8 in. (460mm)			
Spindle travel	4-1/4 in. (107mm)			
Number of spindle speeds	Variable			
Range of spindle speeds	50-350 and 350-2500 RPM			
Number of power feeds	3			
Range of power feeds	0.005, 0.007, 0.010 in. (0.12/0.18/0.2mm)			
Head swivel	90 deg. left, 30 deg. right			
Max. table longitudinal travel	20-1/2 in. (520mm)			
Max. table cross travel	8-1/4 in. (210mm)			
Main materials				
Column	Cast iron			
Table	Cast iron, ground surface			
Head	Cast iron			
Dimensions				
Quill diameter	3 in. (75mm)			
Table working surface (LxW)	32-1/4 x 9-1/2 in. (820 x 240mm)			
Number of T-slots	4			
T-slot size (WxD)	5/8 x 1 in. (16 x 26mm)			
Base dimensions	26-11/16 x 15-15/16 in. (653 x 405mm)			
Overall assembled (LxWxH)	29 x 36 x 50 in. (736 x 914 x 1270 mm)			
Shipping dimensions (LxWxH)	36 x 30 x 52 (915 x 763 x 1320 mm)			

	JMD-45VSPF	JMD-45VSPFT
Weights		
Net weight	761 lb (345 kg)	767 lb (348 kg)
Shipping weight	827 lb (375 kg)	833 lb (378 kg)

¹ subject to local and national electrical codes.

² 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, D = depth

n/a = not applicable

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.

4.1 Mounting hole centers

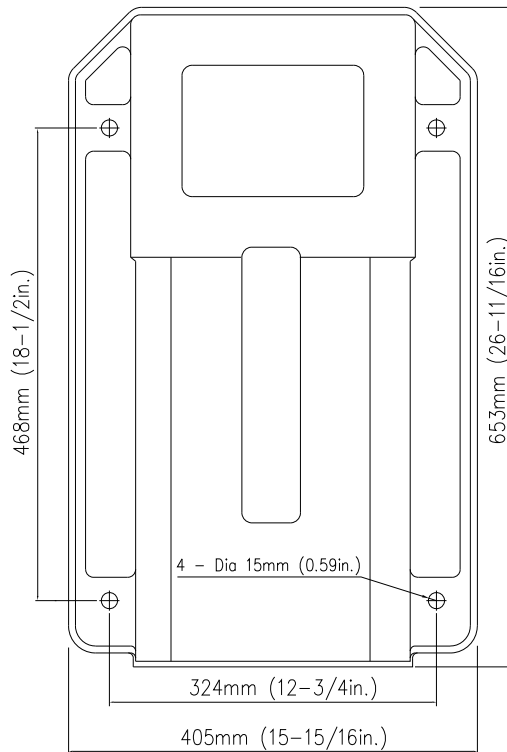


Figure 4-1: mounting holes for JMD-45VS series

⚠WARNING Read and understand all assembly and setup instructions before attempting assembly. Failure to comply may cause serious injury.

5.0 Setup and assembly

5.1 Shipping contents

See Figure 5-1

- 1 Mill-Drill (not shown)
- 2 Drill arbor (*pre-installed*)
- 1 Draw bar R8-7/16 in. (*pre-installed*)
- 3 Handwheels – A
- 1 Face mill cutter assembly 3in. (74mm) – B
- 1 Face mill cutter arbor – C
- 4 Small handles – D
- 1 Crank handle – E
- 1 Drill chuck with key 13mm/JT6 – G
- 1 Socket wrench – H
- 1 Box wrench 17/19mm – H1
- 3 Hex wrenches, 3/4/5mm – J
- 1 Hardware package (see sect. 12.1.2):
 - 2 Bolts – K
 - 2 Flat washers – L
 - 2 Hex nuts – M
- 1 Socket hd cap screw 3/8x1 – N
- 1 Flat washer 3/8 – O
- 1 Angle vise 3-inch – P
- 1 Plum wrench – Q
- 1 Operating instructions and parts list
- 1 Product registration card

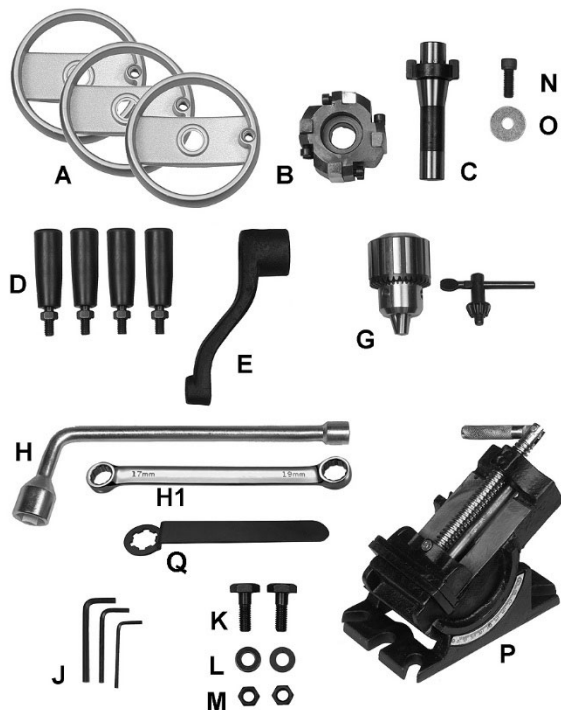


Figure 5-1: contents (not to scale)

5.2 Tools required for assembly

Cross-point (Phillips) screwdriver
14mm open-end (or adjustable) wrench
3mm and 5mm hex wrenches (provided)

5.3 Unpacking and cleanup

1. Inspect contents for shipping damage. Report damage, if any, to your distributor. Do not discard shipping materials until Mill-Drill is installed and running properly.
2. Compare contents of shipping carton with the contents list in this manual. Report shortages, if any, to your distributor. Note: Check machine first in case some parts are pre-installed.
3. Remove rust protectant from exposed surfaces with a clean rag and cleaner/degreaser or kerosene. Avoid getting solvents on rubber or plastic parts.
4. Apply a light coat of oil to exposed metal surfaces to inhibit rust.

5.4 Location

⚠WARNING Machine is heavy; use appropriate lifting device and exercise caution when moving to final location. Failure to comply may cause serious injury.

1. The location for the mill-drill should be dry, with good overhead lighting and room enough for maximum table travel, loading and offloading of stock, and general maintenance.
2. Before bolting mill-drill to a bench or stand, the unit must be level: Place a level on table in both directions. If table is not level, shim under the low corner(s) until level. Tighten fastening bolts. (See Figure 4-1 for mounting hole spacing.)
3. Check for level again. Adjust as necessary until mill-drill is level after fastening hardware has been tightened.

NOTE: An optional stand is available from JET, see sect. 11.0.

5.5 Assembly

See Figure 5-1 to identify parts.

1. Slide crank (E) onto shaft of column (see Figure 7-2) and tighten set screw. Make sure set screw seats on flat part of shaft.
2. Thread small handle (D) into crank and tighten nut.
3. Slide handwheels (A) onto shafts at front and both ends of table. If needed, tap with rubber mallet to seat handwheels onto shafts. Tighten set screws.
4. Thread a small handle (D) onto each handwheel and tighten nut.

- Loosen lock handles (R, Figure 7-2) and raise head by turning crank (E) clockwise to remove shipping block from table.

5.6 Lubrication

The Mill-Drill must be checked for proper lubrication before operating. See *sect. 9.3*.

6.0 Electrical connections

⚠WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded to help prevent electrical shock and possible fatal injury.

The Mill-Drill will operate on single phase, 115 or 230-volt incoming power. It is prewired for 115-volt. This machine uses an inverter to provide infinitely variable spindle speeds within the specified ranges. The inverter controls the speed of the motor by varying the frequency of the voltage supplied to the motor.

The Mill-Drill is not provided with a power plug; it is recommended that the machine be “hardwired” directly to a service panel (make sure a disconnect is available to the operator). The user also has the option of attaching an appropriate electrical plug.

Before connecting to power source, be sure switch is in *off* position.

It is recommended that the Mill-Drill be connected to a dedicated 15 amp circuit with circuit breaker or fuse. **NOTE: Local codes take precedence over recommendations.**

6.1 GROUNDING INSTRUCTIONS

This machine must be grounded. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor. If a plug is installed, it must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

⚠WARNING Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly

grounded. Failure to comply may cause serious or fatal injury.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.

Repair or replace damaged or worn cord immediately.

If hardwired:

Permanently connected tools: This tool should be connected to a grounded metal permanent wiring system; or to a system having an equipment-grounding conductor.

If used with a plug:

Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150 volts:

This tool may be used on a circuit that has an outlet that looks like the one illustrated in **A**, Figure 6-1. The tool is to be used with a grounding plug that looks like the plug illustrated in **A**. Make sure the tool is connected to an outlet having the same configuration as the plug. An adapter, shown in **B** and **C**, may be used to connect the plug to a 2-pole receptacle as shown in **B** if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box. **Note: In Canada, the use of a temporary adaptor is not permitted by the Canadian Electrical Code, C22.1.**

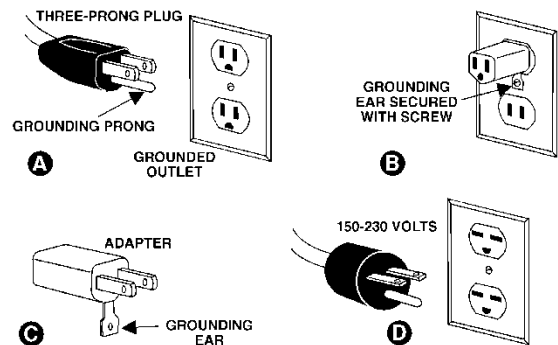


Figure 6-1

Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating between 150 - 250 volts, inclusive:

This tool may be used on a circuit that has an outlet that looks like the one illustrated in **D**, Figure 6-1. The tool is to be used with a grounding plug that looks like the plug illustrated in **D**. Make sure the tool is connected to an outlet having the same configuration as the plug. No adapter is available or should be used with this tool.

If the tool must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel; and after reconnection, the tool should comply with all local codes and ordinances.

6.2 Voltage conversion

To convert machine to 230 volt input operation:

1. See Figure 6-2. Remove control box panel and change wire connections for the PC Board (A); Digital Readout (B); and Transformer (C).

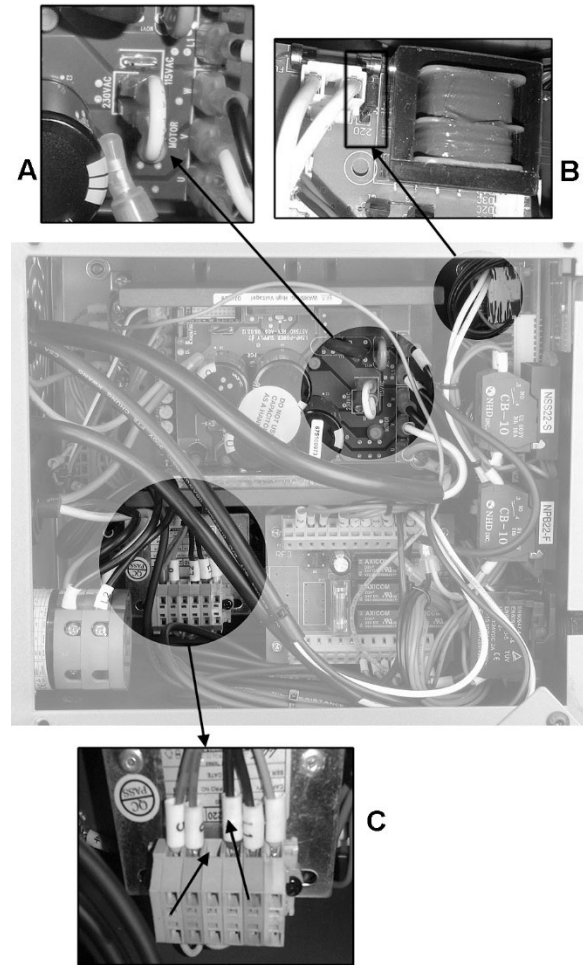


Figure 6-2: Voltage conversion

2. Hardwire the machine to the service panel in accordance with the new voltage, or replace plug on end of motor cord with an appropriate plug for 230-volt operation.
3. Install control box panel.

6.3 Extension cords

The use of extension cords is discouraged; try to position equipment within reach of the power source. If an extension cord becomes necessary, be sure it is heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

Table 2 shows recommended size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Ampere Rating		Volts	Total length of cord in feet			
More Than	Not More Than		25 50	50 100	100 200	150 300
			AWG			
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	

Table 2: Extension Cord Recommendations

7.0 Adjustments

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

7.1 Removing and installing arbors

1. Disconnect machine from power source.
2. Remove spindle cap to expose drawbar (Figure 7-1)
3. Place speed lever (see D, Figure 8-1) to low speed range (black).
4. Loosen drawbar with provided socket wrench counterclockwise 2 or 3 full turns.

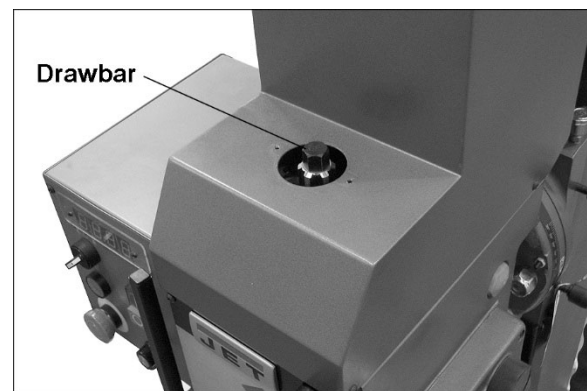


Figure 7-1

5. Tap drawbar head with rubber mallet to dislodge arbor.

⚠CAUTION Do not loosen drawbar more than 3 or 4 turns before hitting with rubber mallet, or damage to drawbar threads may occur.

6. Grasp arbor with one hand while loosening drawbar with the other. Continue to loosen drawbar until arbor can be withdrawn from spindle. Wipe out spindle with clean, dry rag.
7. Wipe new arbor with clean, dry rag and push arbor into spindle. Thread drawbar into arbor from above. Tighten drawbar with wrench. Do not overtighten.

7.2 Head adjustments

See Figure 7-2.

7.2.1 Head elevation

Loosen two handles (R). Turn crank handle (E) clockwise to raise head on column, counterclockwise to lower. Always tighten handles securely before milling or drilling operations.

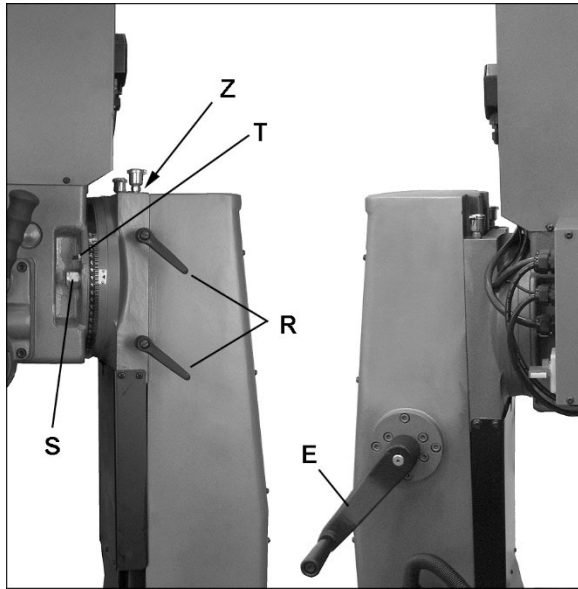


Figure 7-2: head adjustments

7.2.2 Head swivel

1. To swivel head up to 90° left or 30° right, loosen lock nut (S) on each side, and remove locating pin (T).
2. Swivel head to desired angle on scale. Retighten *both* lock nuts (S).
3. When returning head to vertical position (0-deg.), re-insert locating pin (T) and securely tighten both lock nuts (S).

7.3 Table adjustments

See Figure 7-3.

For X-axis longitudinal feed, loosen table locks (L₁) and use side handwheel (L₂). The cross feed table locks (C₁) should be kept tight.

For Y-axis cross feed, loosen table locks (C₁) and use front handwheel (C₂). The longitudinal feed table locks (L₁) should be kept tight.

The scales can be adjusted by loosening screw (T₁) and rotating scale to align with indicator.

The stops (T₂) can be adjusted to any point along the longitudinal axis. Retighten screws after positioning.

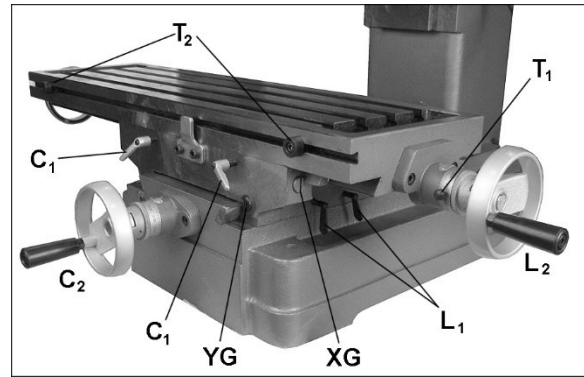


Figure 7-3: table and gib adjustments

7.4 Gib adjustments

7.4.1 Table gibs

See Figure 7-3.

Gibs have been properly adjusted by the manufacturer. After a period of time, however, movement of the table over the ways will cause normal wear and some “play” between components. To adjust gibs to eliminate this play, proceed as follows.

1. The X-axis gib adjustment screw (XG, Figure 7-3) is found on right side of saddle beneath table. The Y-axis gib adjustment screw (YG, Figure 7-3) is found to the right on the table face.
2. Turn each screw slightly clockwise to tighten. Turn table handwheels to check tension; slight drag should be felt during movement.
3. Re-adjust as required.

7.4.2 Column gib

A Z-axis gib adjustment screw is located atop the square column near oil cup (see Z, Figure 7-2). Follow same principle as described under *sect. 7.4.1*. Slight drag should be felt when turning crank handle.

7.5 Spindle return

The spindle return is pre-set by the manufacturer and should not require adjustment. If spring tension becomes a future issue due to wear, proceed as follows.

See Figure 7-4.

1. Loosen knob (A) just enough to rotate spring cap (B) past pin (C) and settle it on the next notch. **DO NOT** remove spring cap or allow it to rotate freely in your hand, or spring may unwind.
2. Rotate spring cap *clockwise* to decrease spring tension; *counterclockwise* to increase.

3. Tighten knob (A).

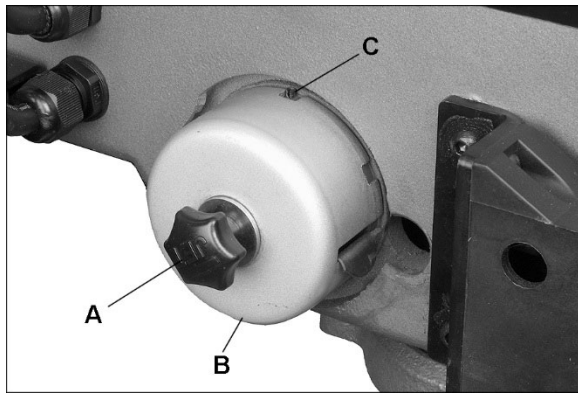


Figure 7-4: spindle return spring adjustment

8.0 Operation

8.1 Operating controls

Refer to Figures 8-1 and 8-2.

Depth stop and scale.

All models: Turn scale ring (A₁) until desired depth on scale aligns with indicator. Tighten lock handle (A₂).

JMD-45VSPFT only: Use above procedure for general drilling and powerfeed operation. For tapping procedures use front depth stop system – turn knurled knob (A₃) until pointer (A₄) reaches desired mark on scale.

Downfeed handle (B). Counterclockwise movement advances quill toward table. When released, return spring retracts quill. CAUTION: Handle will spring back if released, and will rotate during retraction.

Spindle lock handle (C). Turn clockwise to lock spindle in position, counterclockwise to release.

Speed Lever (D). Select speed according to chart on control plate. A similar chart is shown as Table 3. While moving speed lever, turn spindle by hand to ensure proper gear engagement.

CAUTION Spindle rotation must be stopped before changing speed range. Failure to comply may damage gear mechanism.



RPM	Lever position
50-350	 black
350-2500	 red

Table 3: speed selection

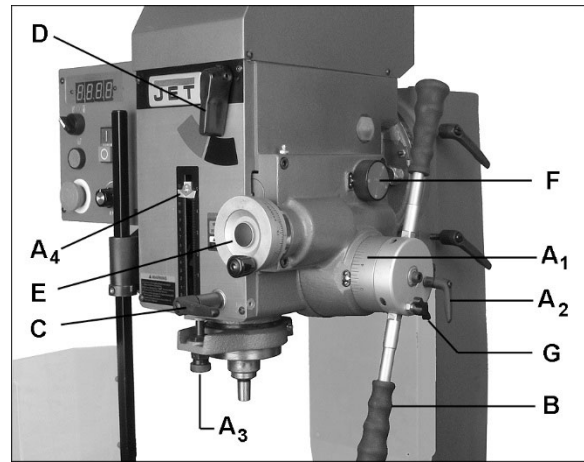


Figure 8-1: operating controls (tapping model 45VSPFT shown)

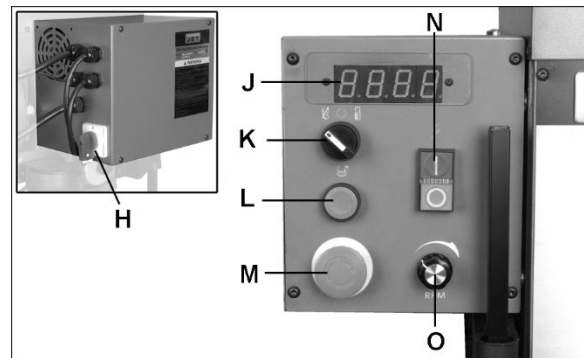


Figure 8-2: control box (model 45VSPFT shown; controls arranged differently on non-tapping model)

Fine feed handwheel (E). To engage, turn downfeed dial (F) to “0”, loosen knob (G), and push feed handle (B) away from head.

Downfeed dial (F). Select among three feed rates. Must be set to “0” when using fine feed handwheel.

Powerfeed disengagement knob (G). Tighten to prevent powerfeed engagement and fine feed engagement. Loosen to allow downfeed handles (B) to be pushed outward into powerfeed and fine feed position.

On/off switch (H). Activates electrical power to machine; digital readout (J) will illuminate. Switch can be locked out to prevent unauthorized operation; see sect. 1.1.

Digital readout (J). Shows spindle RPM (revolutions per minute).

Selector switch (K).

45VSPF only: Selects spindle rotation direction. Center is neutral position – no rotation.

45VSPFT only: Selects drill or tap mode. Center is neutral position – no rotation.

Reverse spindle (L). *JMD-45VSPFT only.* If tapping is interrupted, press button to reverse tap from workpiece.

Emergency stop (M). Push to stop all machine functions. To restart, rotate E-stop button clockwise until it disengages. Note: It is recommended that start/stop button (N) be used for normal spindle stoppage to prevent unnecessary wear on E-stop.

Spindle start/stop (N). Activates spindle rotation.

Spindle speed (O). Sets spindle rotation speed within the pre-selected range.

8.2 Powerfeed operation

CAUTION Turn machine OFF before selecting speed and initial powerfeed settings. Failure to comply may damage gear mechanism.

See Figures 8-1 and 8-2.

1. Turn off machine – spindle stopped.
2. Disengage spindle lock (C).
3. Select appropriate spindle speed range (D).
4. Select downfeed rate (F).
5. Loosen handle (A₂) and rotate collar (A₁) counterclockwise to desired depth on scale.
OR... lower spindle to desired depth and set collar (A₁) to zero on scale.
6. Tighten handle (A₂) to secure setting.
7. Loosen powerfeed disengagement knob (G).
8. Turn on spindle and adjust speed dial (O) to desired RPM.
9. Pull downfeed handle (B) away from head to activate power downfeed.
10. Once downfeed has reached pre-set depth, the trip will release and spindle will retract.
11. To stop feed before cycle has ended, push handle (B) toward head.

NOTE: Set downfeed dial (F) to “0” when not using powerfeed.

8.3 Manual coarse feed

See Figures 8-1 and 8-2:

1. Turn off machine – spindle stopped.
2. Disengage spindle lock (C).
3. Set feed rate to “0” on dial (F).
4. Select spindle speed range (D).
5. Set drill depth (A₁/A₂).
6. Tighten powerfeed disengagement knob (G) to prevent auto downfeed engagement.
7. Turn on spindle and adjust speed dial (O) to desired RPM.
8. Engage workpiece using downfeed handle (B). Feed will stop at preset depth.

8.4 Manual fine feed

See Figures 8-1 and 8-2:

1. Turn off machine – spindle stopped.
2. Disengage spindle lock (C).
3. Set feed rate to “0” on dial (F).
4. Select spindle speed range (D).
5. Set drill depth (A₁/A₂).
6. Turn on spindle and adjust speed dial (O) to desired RPM.
7. Pull handle (B) into powerfeed position.
8. Turn fine feed handwheel (E) to accomplish operation. Fine feed scale is 0.001 inch graduations. If depth reaches pre-set stop, fine feed will disengage and spindle will retract. CAUTION: Downfeed handle (B) will rotate during retraction.

NOTE: To disengage fine feed at any time during operation, push handle (B) toward head.

8.5 Tapping procedure (45VSPFT only)

Use one of the above methods to first bore the pilot hole. **IMPORTANT:** Appropriate tap feed/speed is determined by multiple factors, such as workpiece material, drill size and type of tap. Consult a machinist’s handbook or the tap manufacturer for specific recommendations.

1. Turn off machine – spindle stopped. Insert tap into chuck.
2. Disengage spindle lock (C).
3. Select tapping mode (K) and set feed rate (F) to 0.001.
4. Select low speed range (D).
5. Set depth scale (A₃/A₄) to desired stop. Make sure scale ring system (A₁/A₂) has been set to zero to prevent interference with downfeed.
6. Turn on spindle and adjust speed dial (O) to low RPM.
7. Pull handles (B) into powerfeed position. When tap reaches selected depth, spindle will reverse and retract tap from hole.

8.6 Basic milling procedure

The Mill-Drill is provided with a face mill cutter with tungsten carbide inserts. Install cutter onto mill arbor, and secure with socket cap screw and washer (N and O, Figure 5-1). Install arbor into spindle using procedure in sect. 7.1.

For best results, all milling operations should be performed with cutter raised as close to head assembly as possible.

1. Turn off machine – spindle stopped.
2. Adjust depth stop to highest position.
3. Engage fine feed handwheel, and turn it to set milling height.
4. Tighten spindle lock (C, Figure 8-1) at desired height.

⚠WARNING Lock spindle in position before attempting milling operations.

5. Select speed range (D).
6. Turn on spindle and adjust speed dial (O) to desired RPM.
7. Perform cutting procedure by moving table(s) as needed according to *sect. 7.3*.

9.0 User-maintenance

⚠WARNING Always disconnect power to machine before performing maintenance. Failure to do this may result in serious personal injury.

9.1 General maintenance

1. After each use, wipe down machine with a clean rag and apply a light coat of oil to exposed metal surfaces.
2. Periodically check for backlash, or “play”, in table and head movements. If handles or handwheels are turned an appreciable amount before they seem to engage, or there is a looseness in table or head movements, make adjustments using gib screws. See *sect. 7.4*.
3. Keep table and ways clean and free of debris. Use a brush to clear shavings, not bare hands.
4. Make sure machine remains properly lubricated. See *sect. 9.3*.

9.2 Additional servicing

Any additional servicing should be performed by authorized service personnel.

9.3 Lubrication

Note: Spindle bearings are sealed and do not require further lubrication.

Location (see Figure 13-1)	Recommended lubricant (an equivalent may be used)	Frequency
Ball oiler, handwheels (L ₁)	Mobil DTE® Oil Heavy Medium	Once daily
Ball oiler, front of table (L ₂)	Mobil DTE® Oil Heavy Medium	Once daily
Ball oiler for powerfeed (L ₃)	Mobil DTE® Oil Heavy Medium	Once daily
Table ways (L ₄)	Mobil DTE® Oil Heavy Medium	Once daily (move table along both axes to distribute oil)
Oil cups for column ways (L ₅)	Mobil DTE® Oil Heavy Medium	Once daily
Oil fill hole for gearbox (L ₆)	Mobil DTE® Oil Heavy Medium	Periodically check sight glass (L ₆₆); top off to half-way mark. Completely drain and refill once a year (drain plug beneath head)
Cross & Longitudinal leadscrews (L ₇) (move table forward and remove way cover to access cross leadscrew)	Mobilith® AW2	As needed (especially if table travel is not smooth)
Gear and rack (L ₈) (remove upper back panel)	Mobilith® AW2	As needed (especially if head is difficult to raise)
Return spring (L ₉) (loosen cover – do NOT remove – and apply with squirt can or brush)	SAE 20	Once annually

Table 4

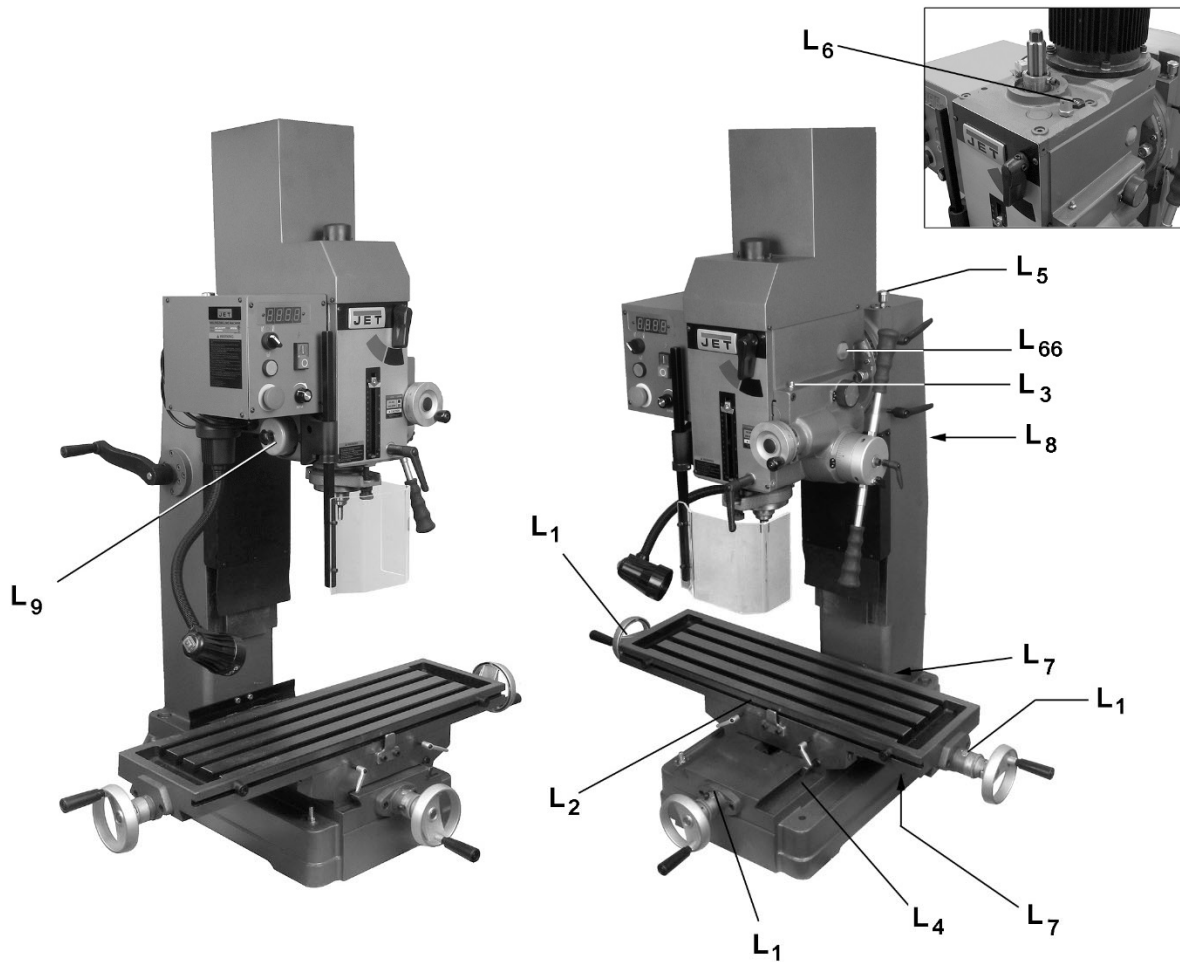


Figure 9-1: lubrication areas

10.0 Troubleshooting JMD-45VS series Mill-Drills

Table 5

Symptom	Possible Cause	Correction*
Motor will not start.	Low voltage.	Check power line for proper voltage.
	Open circuit in motor or loose connection.	Inspect all lead connections on motor for loose or open connections.
	Switch failure.	Inspect switch, replace if needed.
	Motor fault.	Repair or replace motor.
Motor will not start: fuses blow or circuit breakers trip.	Short circuit in line cord or plug.	Inspect cord or plug for damaged insulation and shorted wires.
	Short circuit in motor or loose connections.	Inspect all connections on motor for loose or shorted terminals or worn insulation.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses or circuit breakers.
	Drawing higher amperage than plug can supply.	Install proper plug, or hardwire machine to service panel.
	Incorrect power supply.	Confirm that incoming power matches characteristics of machine.
Motor overheats.	Motor overloaded.	Decrease feed pressure to reduce load on motor.
	Air circulation through motor is restricted.	Clean motor fan with compressed air to restore normal air circulation.
	Prolonged operation at higher speeds.	Allow machine to cool.
	Motor fault.	Repair or replace motor.
Motor stalls, or doesn't build to normal operating speed.	Motor overloaded.	Reduce feed rate.
	Dull drill bit or mill cutter.	Keep tools sharp.
	Short circuit in motor or loose connections.	Inspect connections on motor for loose or shorted terminals or worn insulation.
	Low voltage.	Correct the low voltage conditions.
	Incorrect fuses or circuit breakers in power line.	Install correct fuses or circuit breakers.
	Motor fault.	Repair or replace motor.
Spindle turns, but with loss of power.	Applying too much downfeed pressure.	Slow downfeed.
	Low voltage.	Correct the low voltage conditions.
	Motor fault.	Repair or replace motor.
Spindle/bearing runs hot.	Prolonged operation at higher speeds.	Allow machine to cool.
	Insufficient spindle lubrication.	Make sure machine is properly lubricated.
Poor cut performance.	Dull bit or cutting tool.	Sharpen or replace.
	Drill chuck loose	Secure chuck in spindle.
	Workpiece not secured to table.	Tighten down workpiece. Use proper vise or jig for irregularly shaped pieces.
	Arbor not secured in spindle.	Adjust tightness with drawbar.
	Spindle runout or loosening due to bearing misadjustment or failure.	Inspect spindle elements, such as bearings and lock nuts; adjust or replace.

Symptom	Possible Cause	Correction*
Fine feed not smooth, or won't engage properly.	Fine feed handwheel loose.	Tighten set screw.
	Improper worm gear engagement.	Replace worm gear elements as needed.
Excessive vibration or noise.	Loose motor fan.	Inspect and tighten.
	Spindle improperly lubricated.	Maintain proper machine lubrication.
	Gear not properly meshed.	Manually rotate spindle while selecting gear/speed range to ensure proper mesh.
	Spindle runout or loosening due to bearing misadjustment or failure.	Inspect spindle elements, such as bearings and lock nuts; adjust or replace.
	Motor imbalance.	Repair or replace motor.
Drill or cutter overheats or burns workpiece.	Dull cutting tool.	Sharpen or replace.
	Insufficient feed rate.	Increase feed rate. Consult machinery handbook for proper speeds and feed rates for specific materials.
	Excessive spindle speed.	Reduce speed. Consult machinery handbook for proper speeds and feed rates for specific materials.
	Tool rotation incorrect.	Reverse rotation.
	Chips not clearing.	Adjust speed or feed rate to allow proper clearing.
	Failure to use cutting lubricant.	Use proper lubricant for material being cut.
Drill bit wanders.	No drill spot.	Center punch or center drill workpiece.
	Improper geometry of cutting edges.	Regrind drill bit or replace.
	Spindle or quill loose, or play in bearings.	Inspect and adjust.
Excessive wobble/runout in drill.	Improper chucking of bit.	Properly reinsert drill bit in chuck.
	Drill bent.	Replace.
	Play in spindle bearings.	Inspect and adjust.

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

11.0 Optional accessory

An optional enclosed stand (p/n 350045) is available for your JET Mill-Drill Machine. Contact your dealer or visit our website for more information.



Figure 9-1: optional stand

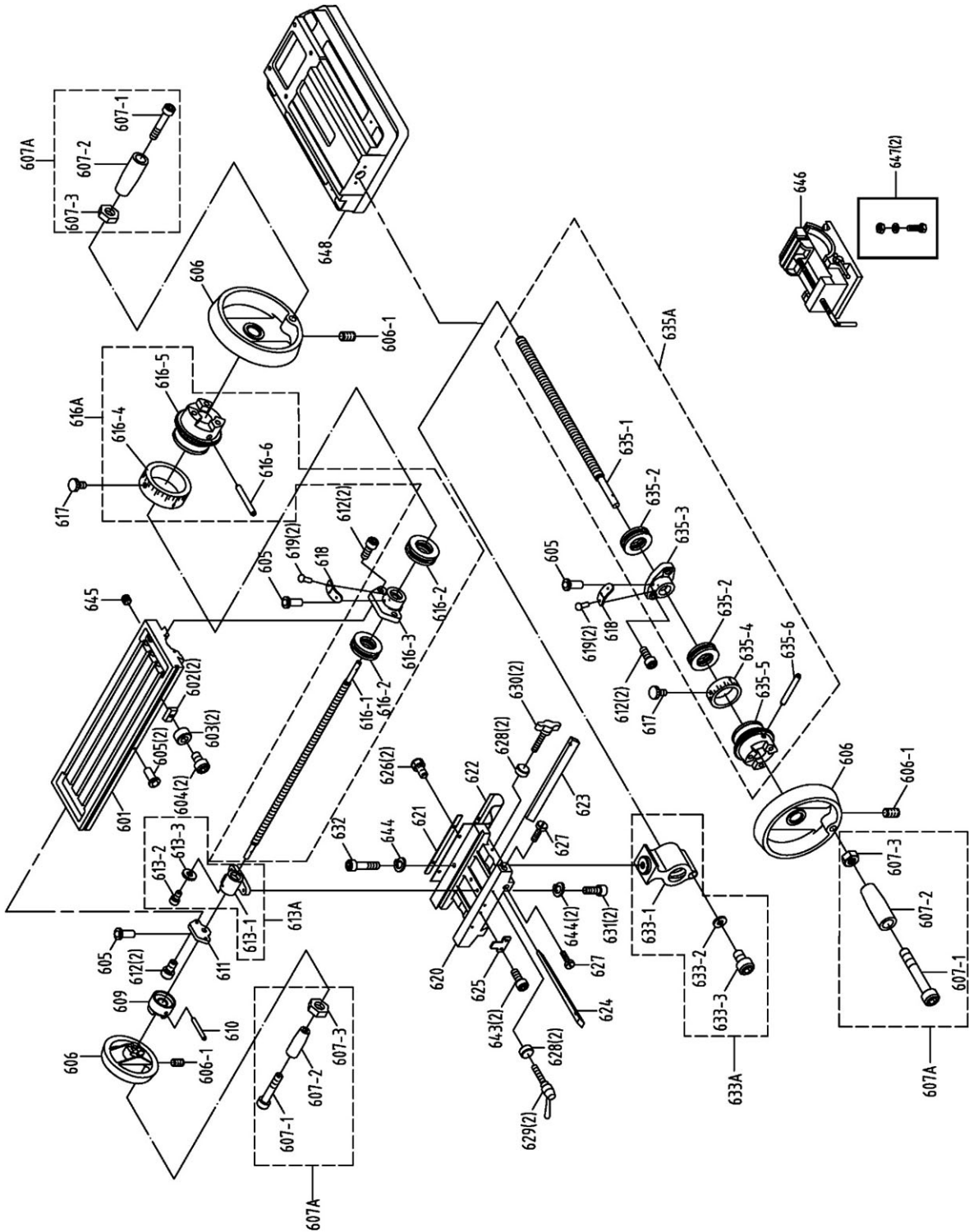
12.0 Replacement Parts

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.

12.1.1 JMD-45VSPF, -45VSPFT Table and Base Assembly – Exploded View



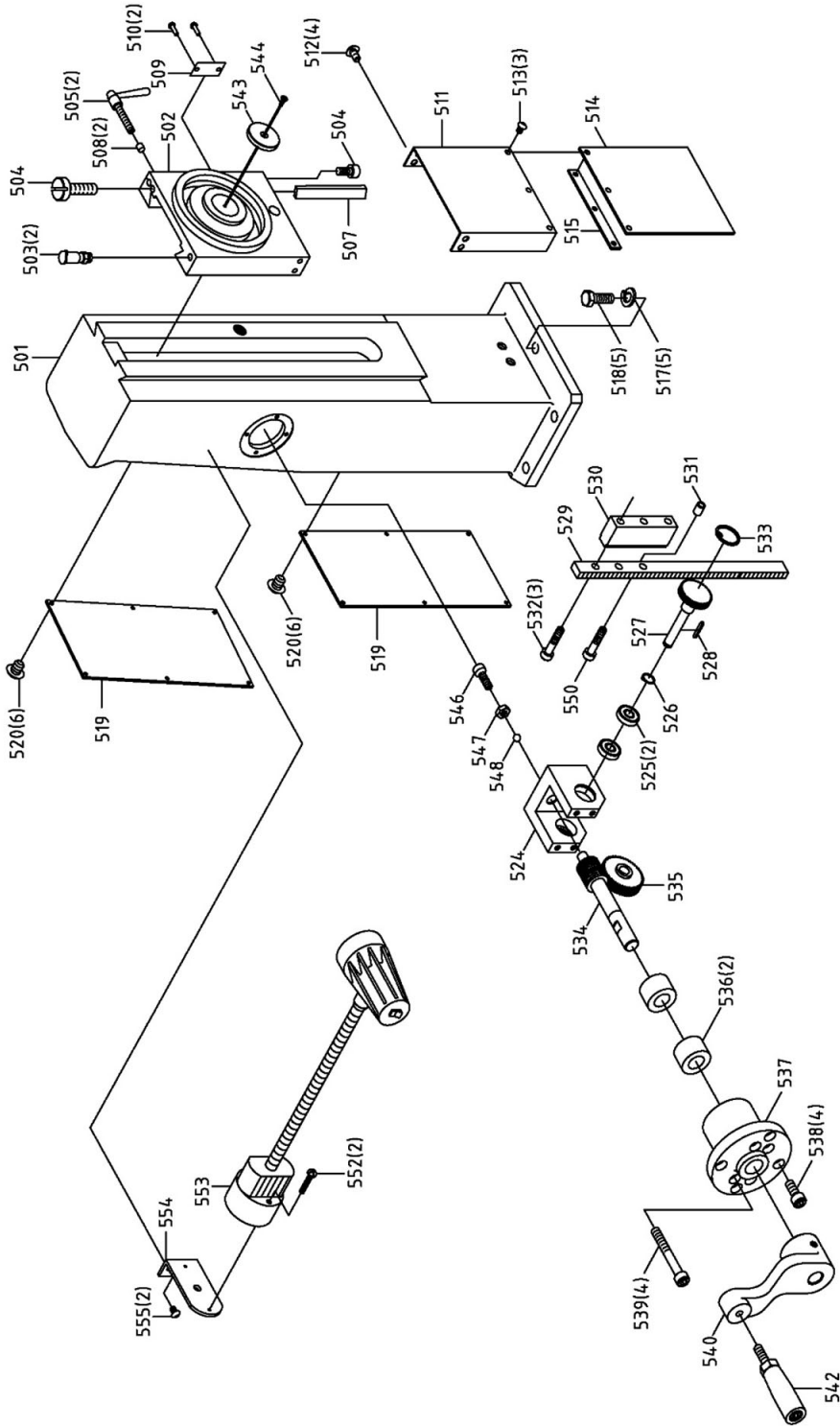
12.1.2 JMD-45VSPF, -45VSPFT Table and Base Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
601	JMD18-228G	Table	31L	1
602	JMD18-229	Fixed T-Block		2
603	JMD18-230	Stop Ring		2
604	TS-0207021	Hex Socket Head Cap Screw	1/4"-20x1/2"	2
605	JMD18-368	Ball Oiler	1/4"	5
606	JMD18-201	Table Handwheel		3
606-1	TS-0267041	Set Screw	1/4"-20x3/8"	3
607A	JMD18-201A	Handle Assembly (#607-1 thru 607-3)		3
607-1	JMD18-201-1	Hex Socket Head Cap Screw (RE: JMD18-201-2)	3/8"-16x16	3
607-2	JMD18-201-2	Handle		3
607-3	TS-0561031	Hex Nut	3/8"-16	3
609	JMD18-220	Table Clutch		1
610	JMD18-366	Spring Pin	5x38L mm	1
611	JMD18-222	Left Flange		1
612	TS-0208061	Hex Socket Head Cap Screw	5/16"-18x1"	6
613A	JMD18-223A	Table Nut Set (#613-1 thru 616-3)		1
613-1	JMD18-223	Table Nut	TM23.7-10	1
613-2	TS-1502041	Hex Socket Head Cap Screw	M5-0.8x16	1
613-3	TS-1550031	Flat Washer	M5	1
616A	JMD18-224A	Table Screw Assembly (#616-1 thru 616-6)		1
616-1	JMD18-224	Table Lead Screw		1
616-2	BB-51103	Thrust Bearing	51103	2
616-3	JMD18-226	Right Flange		1
616-4	JMD18-202-1	Graduated Dial		1
616-5	JMD18-202	Dial Clutch		1
616-6	JMD18-366	Spring Pin	5x38L mm	1
617	JMD18N-617	Link Screw		2
618	JMD18-121	Indicator Plate		2
619	JMD18-204-2	Rivet	2mm	4
620	JMD18-216G	Center Base	31L	1
621	JMD18-219	Anti-Dust Plate		1
622	JMD18-217	Anti-Dust Plate Assembly		1
623	JMD18-227	Gib Strip	31L	1
624	JMD18-207	Gib Strip	31L	1
625	JMD18-214	Fixed Block		1
626	TS-0051011	Hex Cap Screw	5/16"-18x1/2"	4
627	JMD18-212	Gib Strip Bolt		2
628	JMD18N-628	Bushing		4
629	JMD18-213-1	Locking Handle		2
630	JMD18-213	Leaf Screw		2
631	TS-0208061	Hex Socket Head Cap Screw	5/16"-18x1"	2
632	TS-0051101	Hex Socket Head Cap Screw	5/16"-18x2-1/4"	1
633A	JMD18-215A	ACME Nut Assembly (#633-1 thru 633-3)		1
635A	JMD18-205A	ACME Nut Assembly (#635-1 thru 635-6)		1
635-1	JMD45GH-635-1	Cross Lead Screw	TM23	1
635-2	BB-51103	Thrust Bearing	51103	2
635-3	JMD18-204	Square Flange		1
635-4	JMD18-202-1	Graduated Dial		1
635-5	JMD18-202	Dial Clutch		1
635-6	JMD18-366	Spring Pin	5x38 mm	1
643	TS-0208022	Hex Socket Head Cap Screw	5/16"-24x1/2"	2
644	JMD18N-644	Lock Washer	5/16"	3
645	JMD18N-645	Plug	PT1/4"x3/8"	1
646	365534	Angle Vise		1
647	365534-01	Hardware Package (2 Bolts, 2 Nuts, 2 Washers)		1
648	JMD45GH-648	Base		1
	JMD40GH-AP	Accessory Package (not shown) *		1

* Contents of JMD40GH-AP Accessory Package:

..... JMD18-020.....	Cutter Arbor	1
..... JMD18-022.....	Handle	4
..... JMD18-039.....	Handle Rod.....	3
..... JMD18-040.....	Knob	3
..... JMD18-050.....	Lock Handle.....	1
..... 561704	Drill Chuck w/Chuck Key	JT6, 1/2" (13mm) 1
..... JMD18-086.....	Face Mill Cutter Assembly.....	3" (74mm) 1
..... JMD18-086A.....	Cutter Insert (Installed)	4
..... JMD18-021.....	Chuck Arbor (Installed).....	1
..... 365534	Angle Vise	1
..... JMD18-058.....	Handle Crank.....	1
..... JMD18-201.....	Wheel	3
..... TS-152704	Hex Wrench	3mm..... 1
..... TS-152705	Hex Wrench	4mm..... 1
..... TS-152706	Hex Wrench	5mm..... 1
..... TS-0209051	Hex Socket Cap Screw.....	3/8"-16x1" 1
..... TS-0680041	Flat Washer	3/8" 1
..... 365534-01	Hardware Package (2 Bolts, 2 Nuts, 2 Washers).....	1
..... JMD40GH-PW	Plum Wrench	1

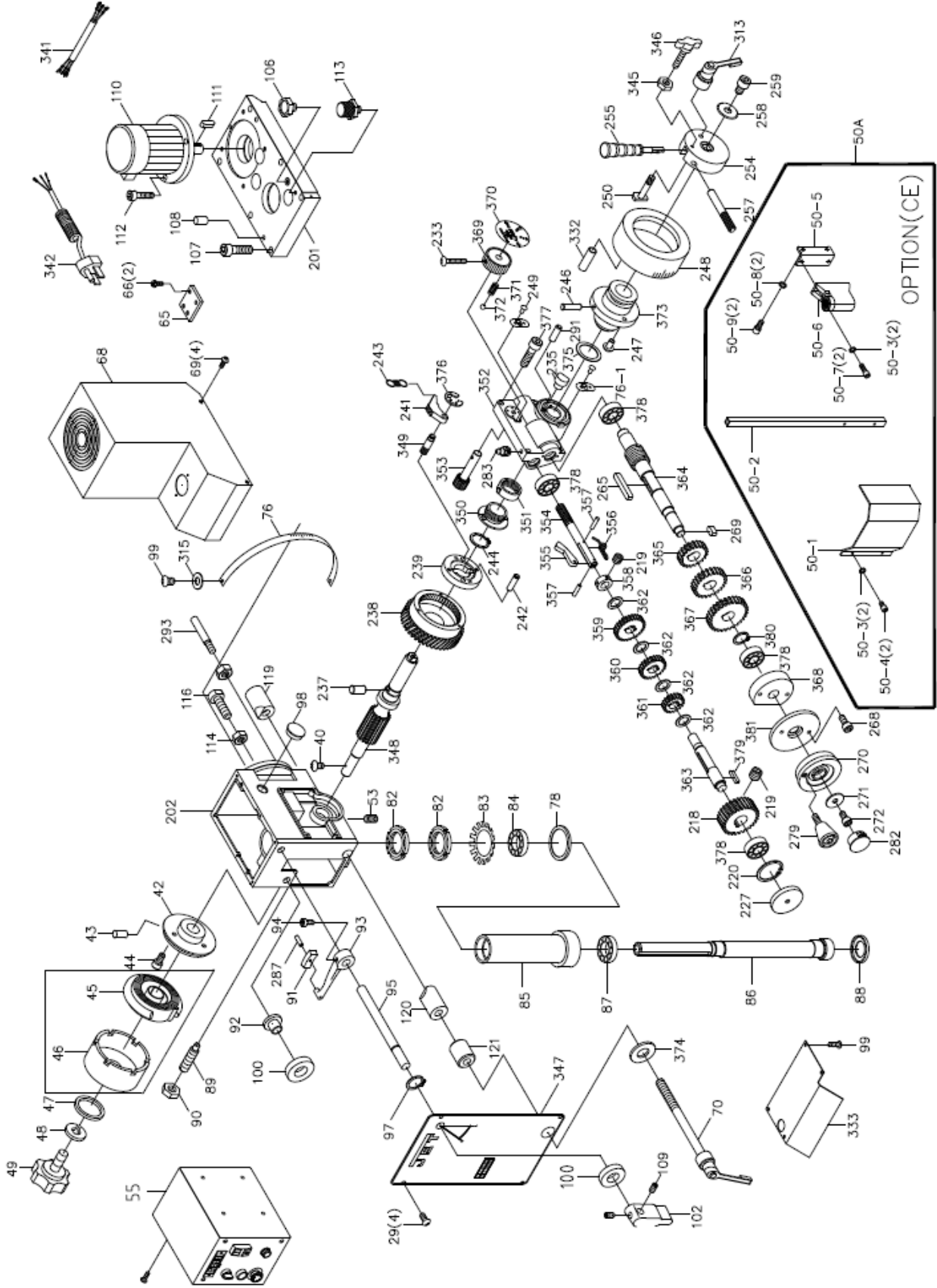
12.2.1 JMD-45VSPF, -45VSPFT Column Assembly – Exploded View



12.2.2 JMD-45VSPF, -45VSPFT Column Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
501A	JMD45GH-501A	Vertical Square Column Assembly (#501,502,507)		1
501	JMD45GH-501	Vertical Square Column		1
502	JMD45GH-502	Headstock Swivel Base		1
503	JMD45GH-503	Oil Cup	PT1/8"	2
504	JMD45GH-504	Adjustable Screw		2
505	JMD45GH-505	Handle		2
507	JMD45GH-507	Gib		1
508	JMD45GH-508	Bushing		2
509	JMD45GH-509	Index		1
510	JMD45GH-510	Rivet	ϕ2-5L	2
511	JMD45GH-511	Anti-Dust Plate		1
512	F001216	Phillips Pan Hd Machine Screw BO	M5x10L	4
513	F001175	Phillips Pan Hd Machine Screw BO	M4x8L	3
514	JMD45GH-514	Anti-Dust Plate		1
515	JMD45GH-515	Press Board		1
517	TS-0720131	Lock Washer	5/8"	5
518	TS-0071051	Hex Cap Screw	5/8"-11x2-1/2"L	5
519	JMD45GH-519	Steel Plate		2
520	F001216	Phillips Pan Hd Machine Screw BO	M5x10L	12
524	JMD45GH-524	Bracket		1
525	BB-6003ZZ	Ball Bearing	6003ZZ	2
526	F006045	C-Retainer Ring, External	S17	1
527	JMD45GH-527	Gear Shaft		1
528	JMD45GH-528	Key, Double Rd. Head	5x5x28L mm	1
529	JMD45GH-529	Rack		1
530	JMD45GH-530	Block		1
531	JMD45GH-531	Bushing		1
532	F005671	Hex Socket Head Cap Screw	M12x85L	4
533	F006033	C-Retainer Ring, Internal	R35	1
534	JMD45GH-534	Worm Shaft		1
535	JMD45GH-535	Worm Gear		1
536	JMD45GH-536	Bearing		2
537	JMD45GH-537	Support Flange		1
538	TS-1504051	Hex Socket Head Cap Screw	M8x25L	4
539	TS-1504121	Hex Socket Head Cap Screw	M8x60L	4
540	JMD40GH-59-1	Crank		1
542	JMD18-201A	Handle Assembly		1
543	JMD45GH-543	Swivel Base Flange		1
544	JMD45GH-544	Hex Socket Flat Head Screw		1
546	TS-1504041	Hex Socket Head Cap Screw	M8x20L	1
547	TS-1540061	Hex Nut	M8	1
548	SB-6MM	Steel Ball	Ø6mm	1
550	F005461	Hex Socket Head Cap Screw	M12-1.75x75	1
552	TS-2284352	Pan Head Screw	M4x35L	2
553	JMD40GH-124	Lamp Assembly	110V	1
554	GHD20-126	Lamp Base		1
555	TS-1503031	Hex Socket Cap Screw	M6x12L	2

12.3.1 JMD-45VSPF, -45VSPFT Gear Head Assembly – Exploded View



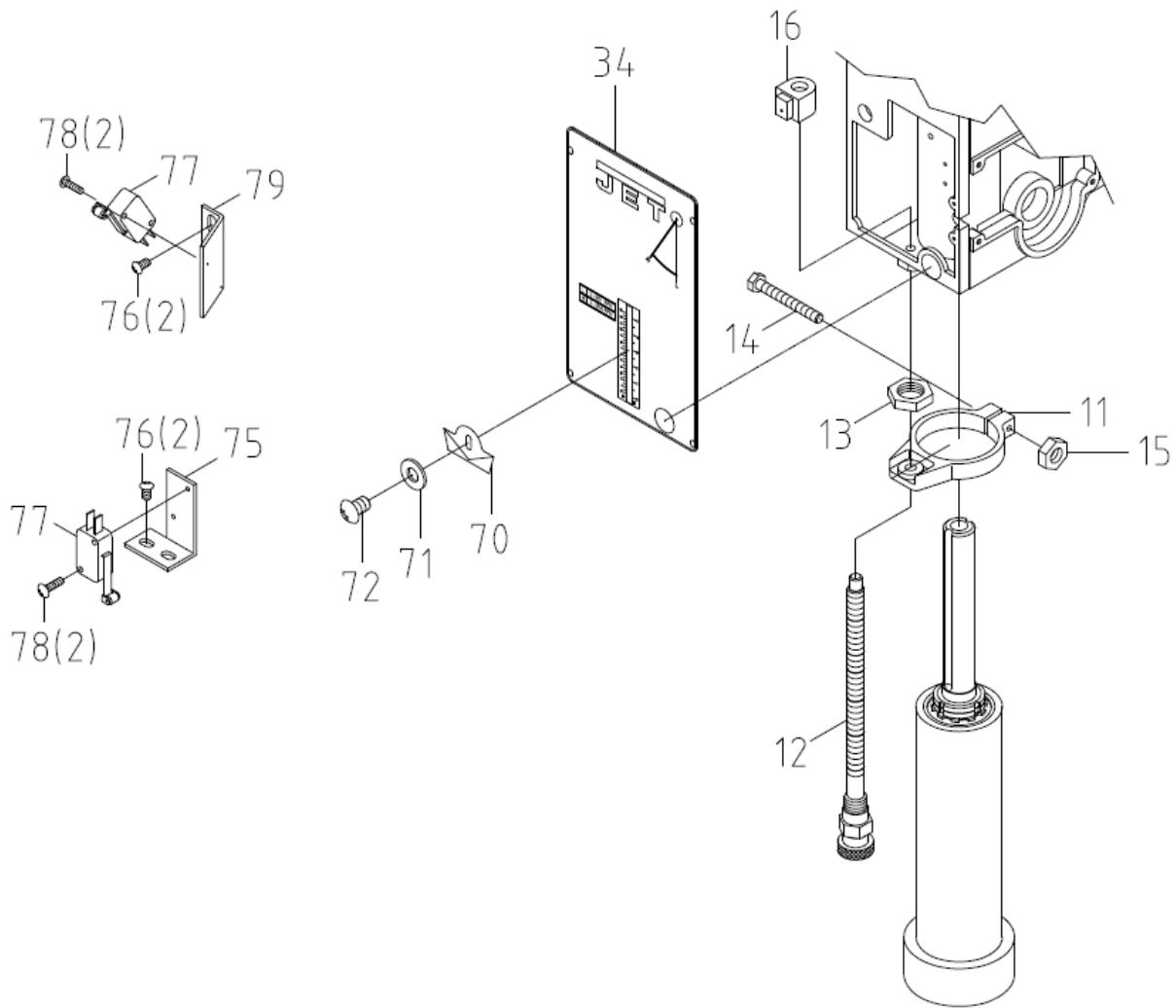
12.3.2 JMD-45VSPF, -45VSPFT Gear Head Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
29	TS-081C022	Phillips Pan Hd Machine Screw	3/16"-24UNCx3/8"L	4
40	GHD20PF-40	Screw	3/16" x 3/8"	1
42	61105	Spring Base		1
43	GHD20PF-43	Spring Pin	3 x 12 mm	2
44	GHD20PF-44	Screw	3/16" x 3/4"	3
45	61103S	Spring and Cover (includes #46)		1
46	61103	Spring Cover (RE:61103S)		1
47	TS-0680021	Flat Washer	1/4"	1
48	TS-0720071	Lock Washer	1/4"	1
49	6185	Lock Knob		1
50A	GHD20-50-A	Chuck Guard Assembly (#50-1 thru 50-9)		1
50-1	JMD18-125-1	Chuck Guard and Support Rod		1
50-2	JMD18-125-2	Support Rod (RE:JMD18-125-1)		1
50-3	TS-2361051	Lock Washer	M5	4
50-4	TS-1502021	Hex Socket Head Cap Screw	M5 x 10	2
50-5	GHD20-50-5	Chuck Guard Bracket		1
50-6	JMD18-125-5	Rotary Support Base		1
50-7	JMD18-125-6	Hex Socket Head Cap Screw	M5 x 15L	2
50-8	TS-1551041	Lock Washer	M6	2
50-9	6286490	Hex Socket Head Cap Screw	M6 x 15L	2
52	TS-0071141	Hex Cap Screw	5/8"-11 x 5-1/2"	2
53	GHD20-53	Oil Plug	1/4"PT	1
55	JMD45VSPF-55	Electric Box Complete (JMD-45VSPF)		1
	JMD45VSPFT-55	Electric Box Complete (JMD-45VSPFT)		1
65	JMD45VSPF-65	Sensor Bracket		1
66	TS-1531012	Phillips Pan Hd Machine Screw	M3X5L	2
68	JMD45VSPF-68	Top Cover		1
69	F009884	Socket Head Button Screw	M5X8L	4
70	2421003	Handle Rod Assembly		1
76	2401076	Scale		1
76-1	2450060	Pointer		3
78	6112	Rubber Gasket		1
82	6114	Lock Nut		1
83	GHD20PF-83	Star Washer, External Tooth	M30	1
84	BB-30206	Taper Roller Bearing	30206	1
85	6116-R8	Quill	R8	1
86	6117-R8	Spindle Shaft	R8	1
	6117N-R8	Spindle Shaft (s/n 1912xxxx and higher)	R8	1
87	BB-30207	Taper Roller Bearing	30207	1
88	6119	Bearing Cap		1
89	6127	Screw Key		1
90	TS-0561031	Hex Nut	3/8"-16	1
91	2401066	Gear Lever Bracket		1
92	JMD45VSPF-92	Plug		1
93	2401068	Gear Lever (Right)		1
94	TS-0207021	Hex Socket Head Cap Screw	1/4"-20 x 1/2"	1
95	2401070	Lever Shaft (Right)		1
96	2401071	Lever Shaft (Left)		1
97	GHD20PF-97	C-Ring, External	S12	1
98	GHD20PF-98	Oil Sight Glass		1
99	GHD20PF-99	Screw	3/16" x 3/8"	8
100	GHD20PF-100	Oil Seal	G12	2
102	2401075	Speed Lever		1
106	GHD20PF-106	Oil Plug		1
107	TS-0209081	Hex Socket Head Cap Screw	3/8"-16 x 3/4"	6
108	GHD20PF-108	Miter Pin		2
109	TS-0267021	Set Screw	1/4"-20 x 1/4"	2
110	JMD45VSPF-110	Motor	1.5HP 3PH 230V	1
111	GHD20PF-111	Double Rd. Hd. Key	6 x 6 x 30mm	1
112	TS-0209031	Hex Socket Head Cap Screw	3/8"-16 x 3/4"	6

Index No.	Part No.	Description	Size	Qty
113	GHD20-89	Brass Fitting		1
114	TS-0561071	Hex Nut	5/8"-11	3
116	F008242	Hex Cap Screw	5/8"-11 x 2-1/4"	3
119	6126-1	Collar (threaded)		1
120	6125-1	Collar Nut		1
121	6125-2	Collar		1
124	JMD40GH-124	Lamp Assembly	110V	1
125	TS-2284352	Phillips Pan Head Machine Screw	M4-0.7x35L	2
126	GHD20-126	Lamp Base		1
127	TS-1503031	Hex Socket Head Cap Screw	M6x12L	2
150	TS-0561071	Hex Nut	5/8"-11	2
151	TS-0680081	Flat Washer	5/8"	2
201	2450001G	Head Body Cover		1
202	2450002G	Head Body Casting		1
218	2450008	Worm Gear		1
219	TS-1523011	Set Screw	M6 x 6	4
220	F006033	C-Ring, Internal	R35	4
227	2450014	Cover		1
233	GHD20PF-233	Screw	M4 x 25	1
235	2450020	Release Block		1
236	2450021	Small Pinion Shaft		1
237	2450022A	Cylindrical Key	M8x12	2
238	2450023	Worm Gear		1
239	2450024	Clutch Key Base		1
241	2450026	Clutch Key		2
242	2450027	Spring Pin	Ø5x18L	2
243	2450028	Spring		2
244	GHD20PF-244	C-Ring, External	S25	1
246	2450030	Bushing Pin		1
247	2450031	Bushing Stop		1
248	2450032	Scale Base		1
249	GHD20PF-249	Rivet	Ø2x4L	8
250	2450033	Scale Base Set Screw		1
254	2450037	Handle Hub		1
255	2450038N	Handle Rod		2
257	2450039	Handle Rod Pin		2
258	2450040	Washer		1
259	TS-1504021	Hex Socket Head Cap Screw	M8-1.25 x 12	1
265	GHD20PF-265	Double Rd. Hd. Key	5 x 5 x 32mm	1
266	2450045	Cover		1
268	TS-1502031	Hex Socket Head Cap Screw	M5-0.8 x 12	2
269	GHD20PF-269	Key	4 x 4 x 10mm	1
270	24500470	Handwheel		1
271	GHD20PF-271	Washer		1
272	TS-1503031	Hex Socket Head Cap Screw	M6-1.0 x 12	1
279	JMD40GH-279	Handle Assembly	5/16"	1
282	GHD20PF-282	Plug	7/8"	1
283	GHD20PF-283	Oil Seal		1
287	GHD20PF-287	Spring Pin	4x16mm	1
291	2450051	Pin		1
293	HP309	Taper Pin	M6xØ7 (1:48)	1
313	2450063	Handle		1
315	TS-0680011	Flat Washer	3/16"	2
332	GHD20PF-332	Pin	Ø5x15L	1
333	2450069	Dust Plate		1
341	JMD45VSPF-341	Motor Cord	14AWGX4C	1
342	JMD45VSPF-342	Power Cord		1
345	TS-0640081	Hex Nut	5/16"-18	1
346	GHD20PF-346	Manual Feed Knob		1
347	JMD45VSPF-347	Name Plate for JMD-45VSPF		1
	JET-92	JET Logo (not shown)	92x38MM	1
348	2450086A	Pinion Shaft		1

Index No.	Part No.	Description	Size	Qty
349	2450097	Clutch Key Pin	Ø7x23L mm	2
350	2450096	Clutch Screw		1
351	2450095	Clutch Nut		1
352	2450068G	Gear Box		1
353	2450081A	Gear Shaft		1
354	2450082A	Speed Change Lever		1
355	2450083A	Stop		1
356	2450084A	Spring Leaf		1
357	GHD20PF-357	Pin	Ø3x10L mm	2
358	2450089A	Fixed Bushing		1
359	2450072A	Gear		1
360	2450071A	Gear		1
361	2450070A	Gear		1
362	2450074A	Washer		4
363	2450073A	Shaft		1
364	2450078A	Transmission Worm		1
365	2450075A	Gear		1
366	2450076A	Gear		1
367	2450077A	Gear		1
368	2450085A	Spacer Ring		1
369	2450079	Speed Lever		1
370	GHD20PF-370	Speed Scale		1
371	290089	Spring		1
372	SB-8MM	Steel Ball	8mm	1
373	2450087A	Clutch Bushing		1
374	GHD20-374	Flat Washer	1/2" x 7/8" x 2"	1
375	2450100	Washer		1
376	GHD20PF-376	E-Retainer Ring	E5	2
377	TS-0208071	Hex Socket Head Cap Screw	5/16"-18 x 1-1/4"L	4
378	CA6003ZZ	Ball Bearing		4
379	GHD20PF-379	Double Rd. Hd. Key	5 x 5 x 28L mm	1
380	GHD20PF-380	C-Ring		1
381	2450088A	Graduated Bottom Plate		1
	LM000292	ID/Warning Label, JMD-45VSPF (not shown)		1
	LM000293	ID/Warning Label, JMD-45VSPFT (not shown)		1

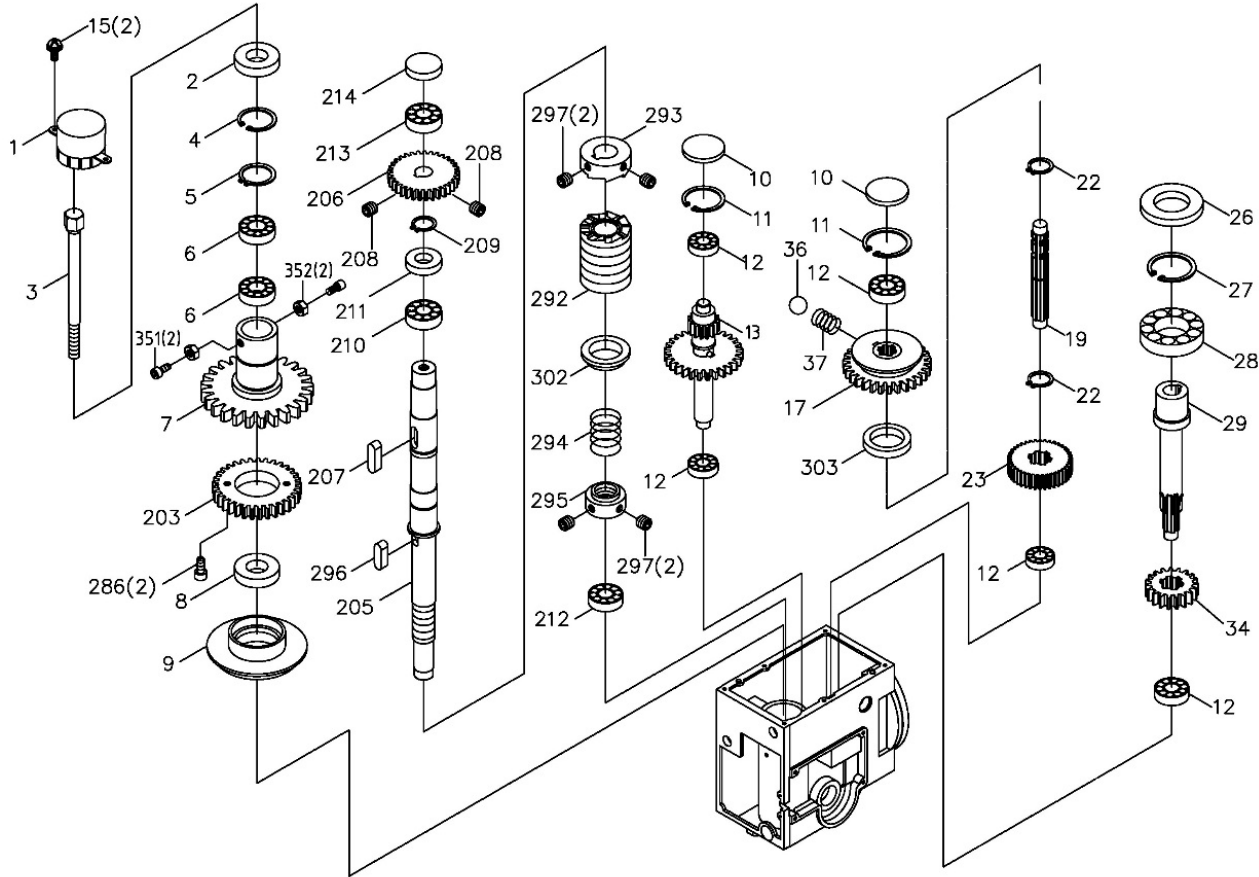
12.4.1 JMD-45VSPFT Tapping Assembly – Exploded View



12.4.2 JMD-45VSPFT Tapping Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
11	6513	Feed Base		1
12	JMD45VSPFT-12	Threaded Rod Assembly		1
13	6193	Nut		1
14	TS-0050091	Hex Cap Screw	1/4"-20 x 2"	1
15	TS-0561011	Hex Nut	1/4"-20	1
16	6192	Depth Stop Block		1
34	JMD45VSPFT-34	Name Plate for JMD-45VSPFT		1
	JET-92	JET Logo (not shown)	92x38MM	1
70	61102	Limit Plate		1
71	TS-0680021	Flat Washer	1/4"	1
72	F000197	Phillips Pan Hd Machine Screw	#8-32 x 1/4"	1
75	GHD20PFT-403-1	Limit Bracket		1
76	TS-081C042	Phillips Pan Hd Machine Screw	#10-24x5/8"	4
77	ET-1610	Limit Block		2
78	JSH275-43-1	Phillips Pan Hd Machine Screw	M3x15	4
79	GHD20PFT-407-1	Limit Support		1

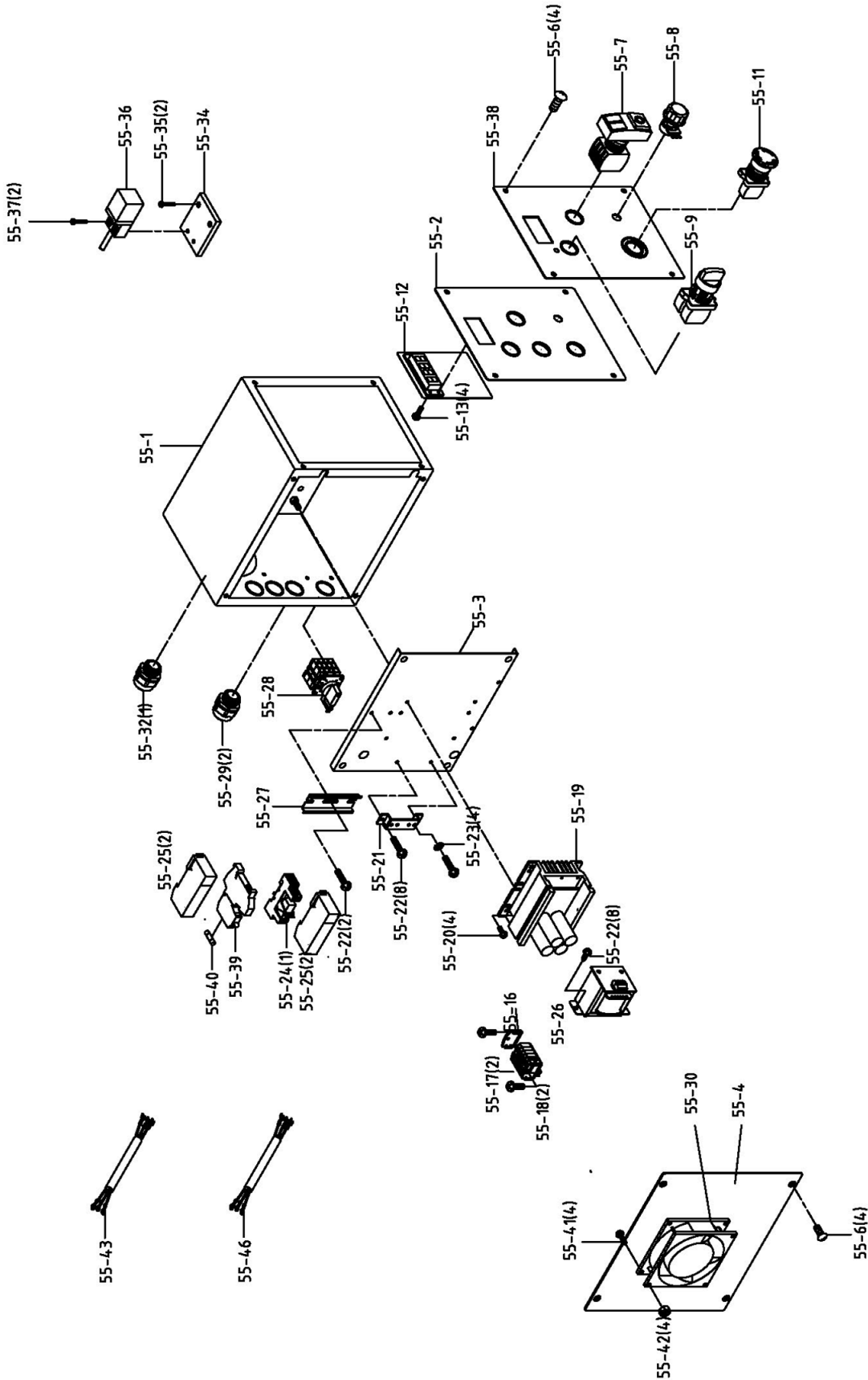
12.5.1 JMD-45VSPF, -45VSPFT Gears Assembly – Exploded View



12.5.2 JMD-45VSPF, -45VSPFT Gears Assembly – Exploded View

Index No.	Part No.	Description	Size	Qty
1	JMD45VSPF-100	Main Shaft Cover		1
2	GHD20-28	Oil Seal		1
3	JMD45GH-03	Draw Bar	7/16"	1
4	GHD20-4	Retainer Ring, Internal	R68	1
5	GHD20PF-5	Retainer Ring, External	S40	1
6	BB-6008ZZ	Ball Bearing	6008ZZ	2
7	2401006	Idle Gear	53T	1
	2401006N	Idle Gear (s/n 1912xxxx and higher)	53T / 2-Slot	1
8	GHD20-7	Oil Seal		1
9	2401008	Oil Seal Ring		1
10	GHD20-9	Dust Cover		2
11	GHD20-10	C-Ring		2
12	BB-6002ZZ	Ball Bearing	6002ZZ	5
13	2401020A	Gear Shaft Assembly	15/41T	1
15	TS-1532032	Phillips Pan Hd Machine Screw	M4-0.7x10L	2
17	2401029N	Idle Gear	42T/16T	1
19	2401031	Pinion Shaft		1
22	GHD20-33	C-Ring, Ext	S18	2
23	241004A	Idle Gear	31T	1
26	GHD20-50	Oil Seal		1
27	GHD20-42	C-Ring, Internal	R62	1
28	BB-6007ZZ	Ball Bearing	6007ZZ	1
29	2401043	Pinion Shaft		1
34	241003B	Idle Gear	28T	1
36/37	GHD20-30	Steel Ball w/ Spring	5/16"	1
203	2450003	Idle Gear	33T	1
205	2450004	Transmission Worm		1
206	2450005	Idle Gear	33T	1
207	GHD20PF-207	Double Rd. Hd. Key	5x5x16	1
208	TS-1523011	Set Screw	M6x6	2
209	GHD20PF-209	C-Ring, External	S17	2
210	BB-6003ZZ	Ball Bearing	6003ZZ	1
211	GHD20PF-211	Oil Seal		1
212	BB-6001ZZ	Ball Bearing	6001ZZ	1
213	BB-6202ZZ	Ball Bearing	6202ZZ	1
214	GHD20-214	Oil Seal Cover		1
286	TS-1502031	Hex Socket Head Cap Screw	M5x12	2
292	2450052	Worm Shaft		1
293	2450053	Clutch Block		1
294	2450054	Spring		1
295	2450055	Adjustable Bolt		1
296	GHD20PF-296	Key	5x5x10	1
297	GHD20PF-297	Set Screw	M5x5	4
302	2450057	Washer		1
303	2401192	Bushing		1
351	TS-1503011	Hex Socket Head Cap Screw	M6x8L	2
352	TS-1540041	Hex Nut	M6	2

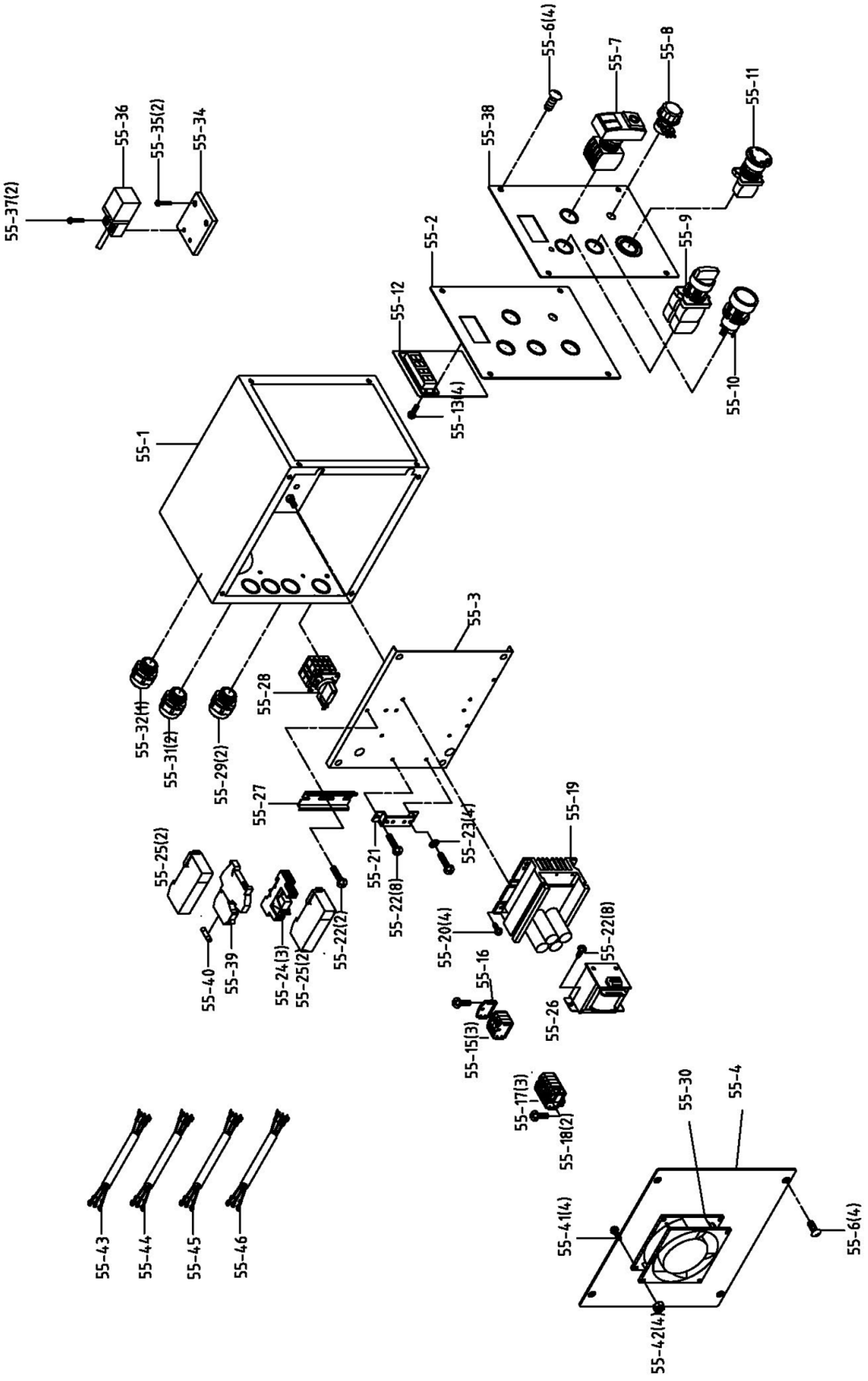
12.6.1 JMD-45VSPF Electric Box Assembly – Exploded View



12.6.2 JMD-45VSPF Electric Box Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
	JMD45VSPF-55	Electric Box Complete (JMD-45VSPF)		1
55-1	JMD45VSPF-55-1	Electric Box		1
55-2	JMD45VSPF-55-2	Front Cover		1
55-3	JMD45VSPF-55-3	Back Plate		1
55-4	JMD45VSPF-55-4	Side Cover		1
55-5	JMD45VSPF-55-5	DRO PC Board (not shown)		1
55-6	TS-2245102	Socket Hd Button Screw	M5X10L	8
55-7	JMD45VSPF-55-7	Double Switch w/ Light		1
55-8	JMD45VSPF-55-8	VR Switch		1
55-9	JMD45VSPF-55-9	Turn Switch	NSS-22S3	1
55-11	JMD45VSPF-55-11	Emergency Switch		1
55-12	JMD45VSPF-55-12	Digital Read Out		1
55-13	TS-2283102	Phillips Pan Head Machine Screw	M3x10L	4
55-16	JMD45VSPF-55-16	Side Plate		1
55-17	JMD45VSPF-55-17	Terminal		2
55-18	TS-2171012	Phillips Pan Head Machine Screw	M4x6	2
55-19	JMD45VSPF-55-19	Inverter	RFVF-26D	1
55-20	TS-1532032	Phillips Pan Head Machine Screw	M4x10L	4
55-21	JMD45VSPF-55-21	Copper Grounding Plate		1
55-22	TS-2284082	Phillips Pan Head Machine Screw	M4x8L	8
55-23	TS-0733031	Lock Washer, Ext Tooth	#10 (M5)	4
55-24	JMD45VSPF-55-24	Relay	24V	1
55-25	JMD45VSPF-55-25	Fixed Plate		2
55-26	JMD45VSPF-55-26	Transformer		1
55-27	JMD45VSPF-55-27	Switch bracket		1
55-28	JMD45VSPF-55-28	Main Power w/ Lock Key	48x48	1
55-29	SR-PG11	Strain Relief	PG11	2
55-30	JMD45VSPF-55-30	Fan	110V	1
55-32	SR-PG8	Strain Relief	PG8	1
55-34	JMD45VSPF-55-34	Bracket		1
55-35	TS-2283102	Phillips Pan Head Machine Screw	M3x10L	2
55-36	JMD45VSPF-55-36	Sensor		1
55-37	JSH275-43-1	Phillips Pan Head Machine Screw	M3x16L	2
55-38	JMD45VSPF-55-38	Control Panel for JMD-45VSPF		1
55-39	JMD45VSPF-55-39	Fuse Bracket		1
55-40	JMD45VSPF-55-40	Fuse	0.5A 2CM	1
55-41	2SS-3C-01701	Phillips Pan Head Machine Screw	M4x40L	4
55-42	TS-1540021	Hex Nut	M4	4
55-43	JMD45VSPF-55-43	Motor Cord		1
55-46	JMD45VSPF-55-46	Power Cord	SJT 14x3C	1

12.7.1 JMD-45VSPFT Electric Box Assembly – Exploded View

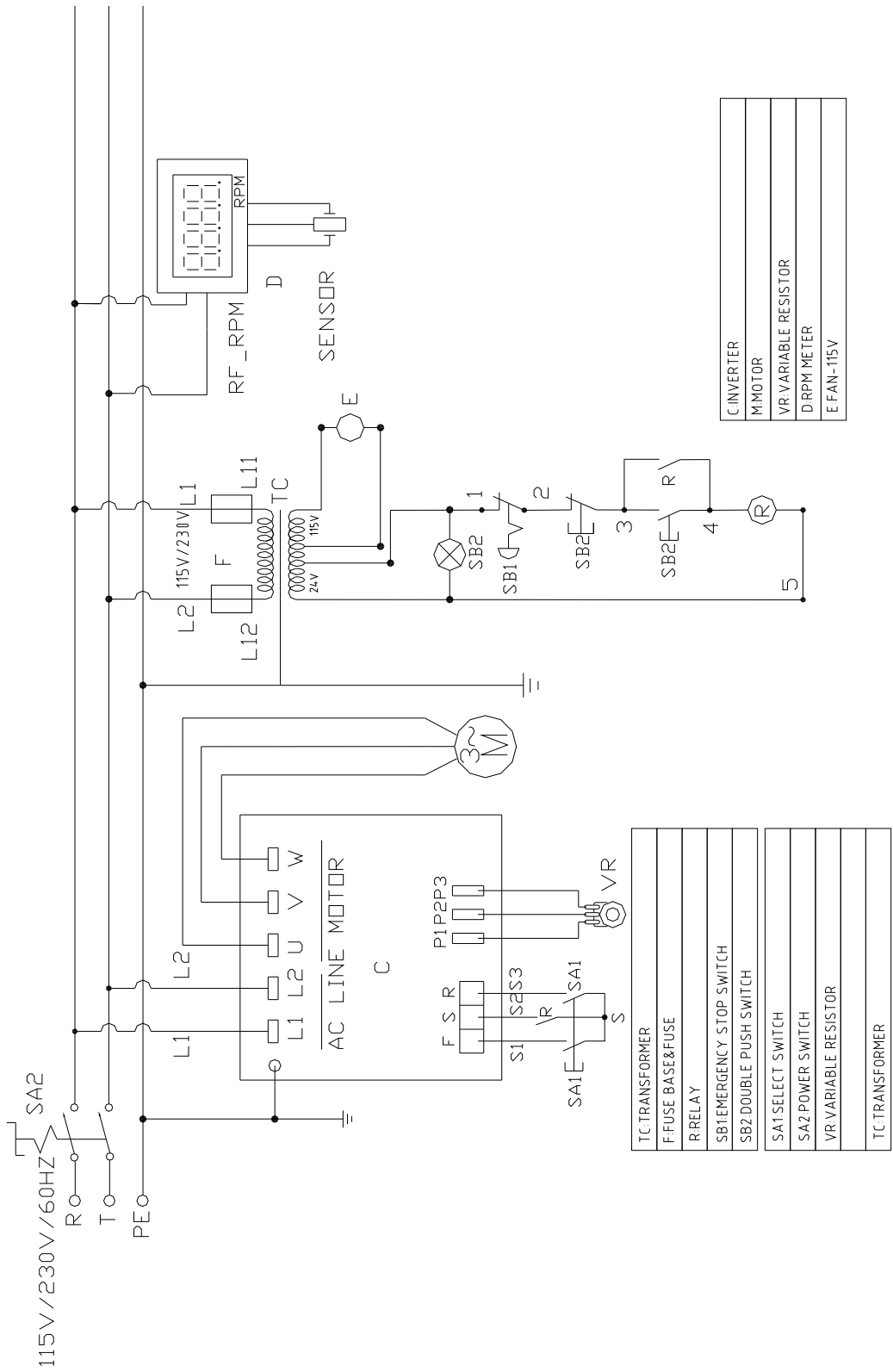


12.7.2 JMD-45VSPFT Electric Box Assembly – Parts List

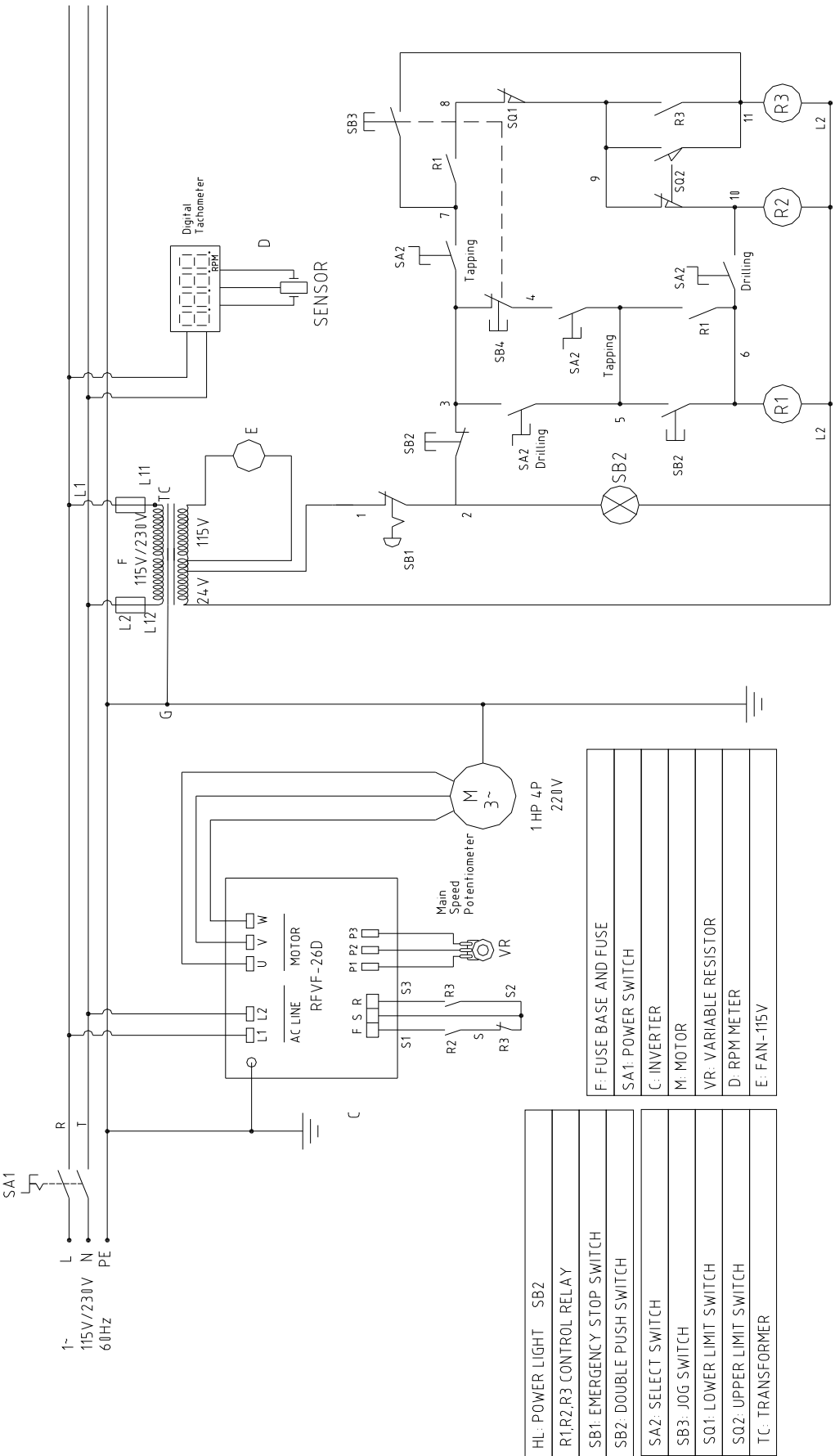
Index No.	Part No.	Description	Size	Qty
	JMD45VSPFT-55	Electric Box Complete (JMD-45VSPFT)		1
55-1	JMD45VSPF-55-1	Electric Box		1
55-2	JMD45VSPFT-55-2	Front Cover		1
55-3	JMD45VSPF-55-3	Back Plate		1
55-4	JMD45VSPF-55-4	Side Cover		1
55-5	JMD45VSPF-55-5	DRO PC Board (not shown)		1
55-6	TS-2245102	Socket Hd Button Screw	M5X10L	8
55-7	JMD45VSPF-55-7	Double Switch w/ Light		1
55-8	JMD45VSPF-55-8	VR Switch		1
55-9	JMD45VSPF-55-9	Turn Switch	NSS-22S3	1
55-10	JMD45VSPFT-55-10	Push Button		1
55-11	JMD45VSPF-55-11	Emergency Switch		1
55-12	JMD45VSPF-55-12	Digital Read Out		1
55-13	TS-2283102	Phillips Pan Head Machine Screw	M3x10L	4
55-14	JMD45VSPF-55-14	Socket Hd Button Screw	M3X6L	2
55-15	JMD45VSPFT-55-15	Terminal		3
55-16	JMD45VSPF-55-16	Side Plate		1
55-17	JMD45VSPF-55-17	Terminal		2
55-18	TS-2171012	Phillips Pan Head Machine Screw	M4x6	2
55-19	JMD45VSPF-55-19	Inverter	RFVF-26D	1
55-20	TS-1532032	Phillips Pan Head Machine Screw	M4x10L	4
55-21	JMD45VSPF-55-21	Copper Grounding Plate		1
55-22	TS-2284082	Phillips Pan Head Machine Screw	M4x8L	8
55-23	TS-0733031	Lock Washer, Ext Tooth	#10 (M5)	4
55-24	JMD45VSPF-55-24	Relay	24V	3
55-25	JMD45VSPF-55-25	Fixed Plate		2
55-26	JMD45VSPF-55-26	Transformer		1
55-27	JMD45VSPF-55-27	Switch bracket		1
55-28	JMD45VSPF-55-28	Main Power w/ Lock Key	48x48	1
55-29	SR-PG11	Strain Relief	PG11	2
55-30	JMD45VSPF-55-30	Fan	110V	1
55-31	SR-PG9	Strain Relief	PG-9	2
55-32	SR-PG8	Strain Relief	PG-8	1
55-35	TS-2283102	Phillips Pan Head Machine Screw	M3x10L	2
55-36	JMD45VSPF-55-36	Sensor		1
55-37	JSH275-43-1	Phillips Pan Head Machine Screw	M3x16L	2
55-38	JMD45VSPFT-55-38	Control Panel for JMD-45VSPFT		1
55-39	JMD45VSPF-55-39	Fuse Bracket		1
55-40	JMD45VSPF-55-40	Fuse	0.5A 2CM	1
55-41	2SS-3C-01701	Phillips Pan Head Machine Screw	M4x40L	4
55-42	TS-1540021	Hex Nut	M4	4
55-43	JMD45VSPF-55-43	Motor Cord		1
55-44	JMD45VSPFT-55-44	Limit Switch Wire	0.75X2C	1
55-45	JMD45VSPFT-55-45	Control Cable		1
55-46	JMD45VSPF-55-46	Power Cord	SJT 14x3C	1

13.0 Electrical Connections, JMD-45VSPF series

13.1 Wiring Diagram for JMD-45VSPF



13.2 Wiring Diagram for JMD-45VSPFT



HL: POWER LIGHT	SB2
R1,R2,R3	CONTROL RELAY
SB1:	EMERGENCY STOP SWITCH
SB2:	DOUBLE PUSH SWITCH
SA2:	SELECT SWITCH
SB3:	JOG SWITCH
SQ1:	LOWER LIMIT SWITCH
SQ2:	UPPER LIMIT SWITCH
TC:	TRANSFORMER

F:	FUSE BASE AND FUSE
SA1:	POWER SWITCH
C:	INVERTER
M:	MOTOR
VR:	VARIABLE RESISTOR
D:	RPM METER
E:	FAN-115V

14.0 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

This warranty gives you specific legal rights, subject to applicable state law.

Limitations on This Warranty

JET LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD OF THE LIMITED WARRANTY FOR EACH PRODUCT. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. JET SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY, OR FOR INCIDENTAL, CONTINGENT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

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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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