Operating Instructions and Parts Manual
3-ft. Radial Arm Drill Press
Model J-720R

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1.0 IMPORTANT SAFETY INSTRUCTIONS

Read and follow these simple rules for best results and full benefits from your machine. Used properly, JET machinery is among the best in design and safety. However, any machine used improperly can be rendered inefficient and unsafe. It is mandatory that those who use our products be properly trained in how to use them correctly. They should read and understand the Operating Instructions and Parts Manual as well as all labels affixed to the machine. Failure to follow all of these warnings can cause serious injuries.

1.1 General Machine Safety

1. 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.
2. Wear proper apparel. No loose clothing or jewelry which can get caught in moving parts. Contain long hair. Rubber soled footwear is recommended for best footing.
3. Do not overreach. Failure to maintain proper working position can cause you to fall into the machine or cause your clothing to get caught — pulling you into the machine.
4. Keep guards in place and in proper working order. Do not operate the machine with guards removed.
5. Avoid dangerous working environments. Do not use stationary machine tools in wet or damp locations, or in an explosive environment. Keep work areas clean and well lit. Special electrics should be used when working on flammable materials.
6. Avoid accidental starts by being sure the start switch is “OFF” before plugging in the machine.
7. Machinery must be anchored to the floor.
8. Never leave the machine running while unattended. Machine shall be shut off whenever it is not in operation.
9. Disconnect electrical power before servicing. Whenever changing accessories or general maintenance is done on the machine, electrical power to the machine must be disconnected before work is done.
10. Maintain all machine tools with care. Follow all maintenance instructions for lubricating and the changing of accessories. No attempt shall be made to modify or have makeshift repairs done to the machine. This not only voids the warranty but also renders the machine unsafe.
11. Secure work. Use clamps or a vise to hold work, when practical. It is safer than using your hands and it frees both hands to operate the machine.
12. Never brush away chips while the machine is in operation.
13. Keep work area clean. Cluttered areas invite accidents.
14. Remove adjusting keys and wrenches before turning machine on.
15. Use the right tool. Don’t force a tool or attachment to do a job for which it was not designed.
16. Use only recommended accessories and follow manufacturer’s instructions pertaining to them.
17. Keep hands in sight and clear of all moving parts and cutting surfaces.
18. All visitors should be kept a safe distance from the work area. Make workshop completely safe by using padlocks, master switches, or by removing starter keys.
19. Know the tool you are using; its application, limitations, and potential hazards.
20. Never modify the machine without consulting JET. Modifications may create an unsafe situation and void the machine warranty. Do not remove or relocate any limit switches, restraint blocks or interlocking mechanisms.

1.2 General Electrical Cautions

This machine must be grounded in accordance with the National Electrical Code and local codes and ordinances. This work should be done by a qualified electrician. The machine should be grounded to protect the user from electrical shock.

Caution: For circuits which are far away from the electrical service box, the wire size must be increased in order to deliver ample voltage to the motor. To minimize power losses and to prevent motor overheating and burnout, the use of wire sizes for branch circuits or electrical extension cords according to the following table is recommended:

Conductor Length	AWG Number	
	240 Volt Lines	*120 Volt*
0 – 50 Ft.	No. 14	No. 14
50 – 100 Ft.	No. 14	No. 12
Over 100 Ft.	No. 12	No. 8

Table 1

1.3 Safety for Drill Presses

1. 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 work piece being drilled.
2. Drill press head and table shall be securely locked to the column before operating the drill press. This must always be checked prior to starting the machine.

3. Always use the correct tooling. Tooling shall always be maintained and properly sharpened. All tooling must be run at the proper speeds and feeds as they apply to the job. Use only recommended accessories and follow those manufacturer's instructions pertaining to them. Tooling shall not be forced into any work piece but fed according to the proper specifications. Failure to follow these instructions will not only ruin the tooling as well as the machine, but can cause serious injury.
4. Never brush away shavings or chips while the machine is in operation. All clean up should be done after the machine is stopped. Wear gloves when brushing away shavings, do not use bare hands.
5. Keep hands in sight. Do not put hands or fingers around, on, or below any rotating cutting tools. Leather safety gloves should be used when handling any sharp objects or cutting tools. See Figure A.
6. Always wear protective eye wear when operating, servicing or adjusting machinery. Eyewear shall be impact resistant, protective safety glasses with side shields complying with ANSI Z87.1 specifications. Use of eye wear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection. See Figure B.
7. When drilling in material which causes dust, a dust mask shall be worn. See Figure C.
8. Avoid contact with coolant, especially guarding the eyes.
9. Non-slip footwear and safety shoes are recommended. See Figure D.
10. Wear ear protectors (plugs or muffs) during extended periods of operation. See Figure E.

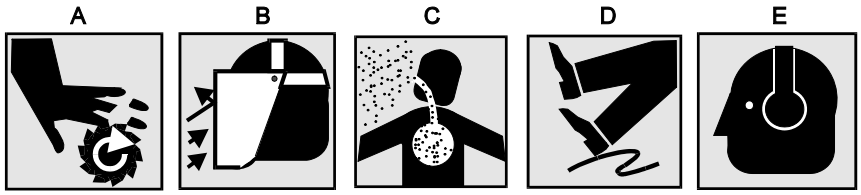


Figure 1

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

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

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

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

SAVE THESE INSTRUCTIONS

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

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

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

2.0 **Table of Contents**

Section **Page**

3.0 About this machine

The JET Model J-720R is a powerful and versatile radial arm drill press. The drill head is mounted on an arm and can slide along the arm to position the spindle over the work piece. The arm itself can be rotated on its support column to allow centering the spindle over the work piece.

Drilling can be performed manually or with power feed assistance. In addition, parameters of RPM, power feed rate and drilling depth can be pre-set by the operator, using controls conveniently positioned on the drill head.

The power train gears and spline shaft are made of high quality heat-treated and ground nickel chrome steel, offering greater strength and smoothness to high-torque loads. The spindle is of case hardened steel and supported by dual row taper roller and thrust ball bearings at the nose, with thrust and axial bearings at the top. The frame is made of Meehanite® and high-tensile strength cast iron.

A precision machined box table allows convenient positioning and clamping of smaller work pieces. The box table can be removed from the base to allow larger work pieces to be clamped on the base itself. Both table and base have multiple T-slots for clamping set-ups.

4.0 **Specifications**

Model number		**J-720R**
Stock number		320033
Head and Spindle		
Push button controls		110V
Spindle motor		TEFC, 3HP (2.2kW), 3PH, 8.2/4.1A, 230/460V, **prewired 230V** [1]
Spindle taper		MT4
Spindle speeds		six speeds: 88, 154, 282, 455, 796, 1500 RPM
Quill travel		8-21/32 in. (220 mm)
Quill travel with powerfeed engaged		8-1/4 in. (209.5 mm)
Spindle travel along arm, total		20-7/8 in. (530 mm)
Quill downfeed rates		0.002, 0.004, 0.006 IPR (0.5, 0.09, 0.15 MMPR)
Spindle to base surface, maximum (no tooling)		41-3/4 in. (1060 mm)
Spindle to base surface, minimum (no tooling)		9-5/8 in. (244.5 mm)
Spindle center to column, maximum		29-1/2 in. (750 mm)
Spindle center to column, minimum		8-5/8 in. (220 mm)
Sound level (approx. 3-1/4ft./1m from gearbox) [2,3]		73 dB(A) at 1500 rpm; 71 dB(A) at 88 RPM
Machining capacities		
Drilling	Mild Steel	1-1/2 in. (38 mm)
	Cast Iron	2 in. (51 mm)
Tapping	Mild Steel	3/4 in. (19 mm)
	Cast Iron	1 in. (25.4 mm)
Boring	Mild Steel	2-3/8 in. (60.3 mm)
	Cast Iron	4 in. (101.6 mm)
Arm and Column		
Column Diameter		8-1/4 in. (210 mm)
Arm vertical travel on column		23-13/16 in. (605 mm)
Arm elevating motor		TEFC, 1HP (0.75 kW), 3PH, 230/460V, 3.2/1.6A, 60Hz
Base and Table		
Box table dimensions (LxWxH)		23-5/8 x 17-1/2 x 15 in. (600 x 445 x 380 mm)
T-slots in table		6 at 3/4 in. (19 mm)
Base dimensions (LxWxH)		49-1/4 x 25-1/4 x 6-3/8 in. (1250 x 640 x 160 mm)
T-slots in base		3 at 3/4 in. (19 mm)
Additional specifications		
Coolant pump motor		TEFC, 1/8 HP (0.1kW), 3 PH, 220/440V, 0.2/0.1A, 60Hz
Machine height, floor to motor at max. elevation)		85-1/2 in. (2170 mm)
Machine height, floor to column top		73 in. (1850 mm)
Net weight (approx.)		2697 lbs. (1224 kg)
Shipping weight (approx.)		2970 lbs. (1347 kg)
Shipping dimensions (LxWxH)		64 x 32 x 85 in. (1625 x 810 x 2160 mm)

Table 1

[1] *Conversion to 460 volt requires separate purchase and installation of overload relay, fuses and amp meter. See sect. 6.4.4.*

[2] *Measured under test conditions SS41 material, 32mm thick, Ø32mm tool.*

[3] *The specified values are emission levels and are not necessarily to be seen as safe operating levels. As workplace conditions vary, this information is intended to allow the user to make a better estimation of the hazards and risks involved only.*

IPR = inches per revolution MMPR – millimeters per revolution

L = length, W = width, H = height

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 **Machine Environment**

1. Do not position the machine where it receives direct sunlight.
2. Normal ambient temperature should be between +5°C (41°F) and 40°C (104°F).
3. Humidity: Between 30% and 95%. At maximum temperature of 40°C/104°F, relative humidity should not be over 50%. Higher humidity is acceptable at relative lower temperatures (e.g. 90% humidity at 20C°).
4. Keep machine away from gasoline, chemical substances, dust, acid, sulfides, magnetic interference and explosive environments.
5. Keep machine away from electrical interference sources such as welding machines and EDM (Electric Discharge Machining).
6. Illumination of work area should be greater than 500lux.
7. Work area must have adequate ventilation.

4.2 **Power Supply Requirements**

1. Acceptable voltage fluctuation: normally +/- 10%
2. Acceptable frequency fluctuation: +/- 1Hz (50/60Hz)
3. Acceptable momentary power-off duration: less than 10m.sec
4. Acceptable voltage impulse:

   Peak value: 200% or less than the line voltage of the actual value (rms.value).

   Duration: 1.5m.sec or less.
5. Acceptable AC voltage of the waveform distortion.
6. Acceptable imbalance of the line voltage: 5% or less.

4.3 **Overall Dimensions, J-720R**

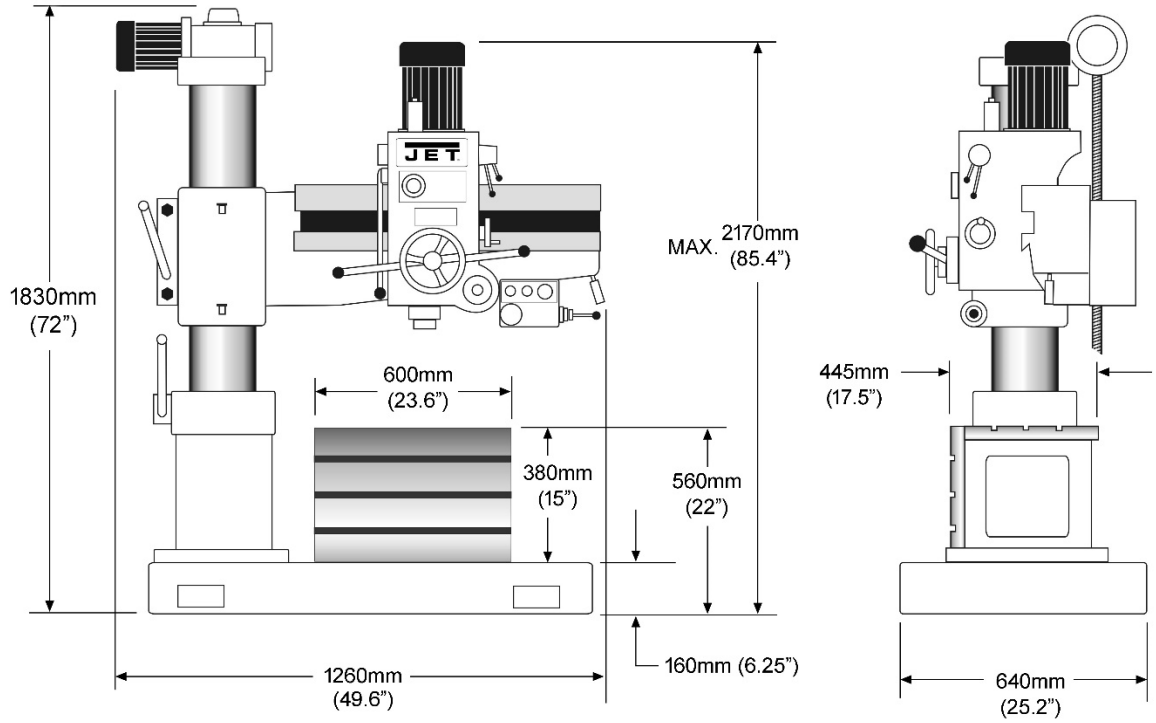


Figure 4-1

5.0 **General Features and Terminology**

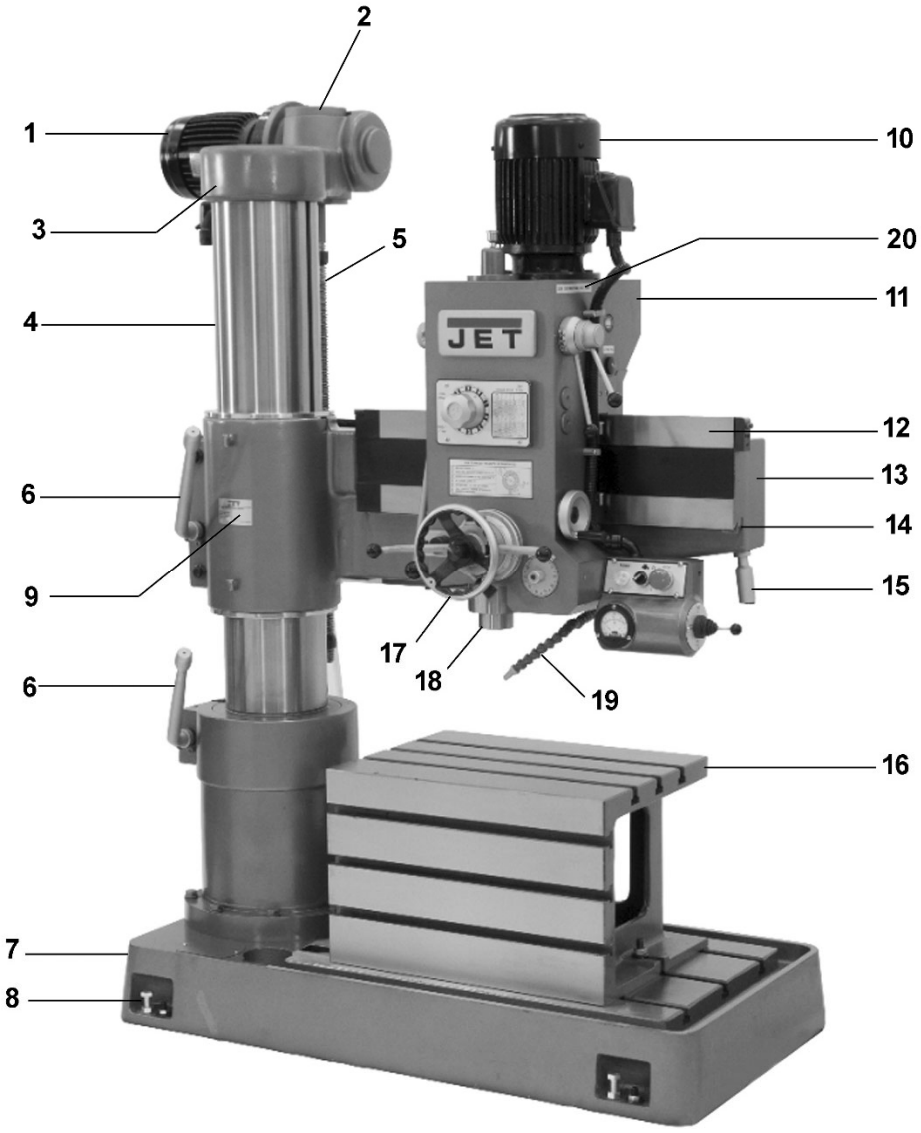


Figure 5-1

1. Arm Elevating Motor
2. Elevating Worm Gear Reducer
3. Top Cap
4. Column
5. Elevating Ball Screw
6. Locking Handle (x2)
7. Base
8. Leveling Screw (x4)
9. Machine Identification Plate
10. Spindle Motor
11. Drill Head/Gearbox (see Figure 10 for details)
12. Arm Rail
13. Arm
14. Rack
15. Arm Rotation Handle
16. Box Table
17. Handwheel (horizontal head travel)
18. Spindle
19. Coolant Nozzle
20. Caution Label – Stop Spindle (p/n J1230R-CL)
21. Cam Shaft Cover
22. Caution Label – High Voltage (p/n CL-HV)
23. Electrical Control Box
24. Work Lamp
25. Cover
26. Coolant Pump
27 Coolant Flow Valve
28 Work Lamp Switch

General Features and Terminology (cont.)

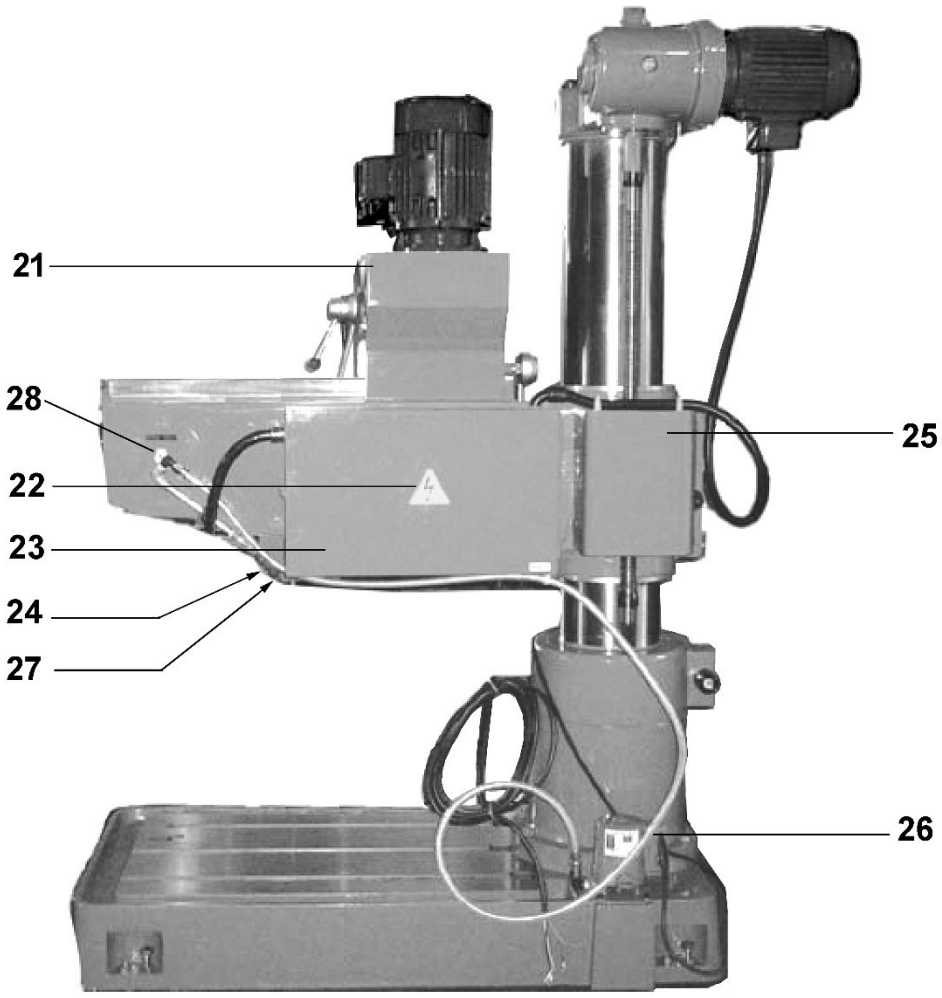


Figure 5-2

6.0 **Set-Up and Assembly**

6.1 **Floor Diagrams for J-720R**

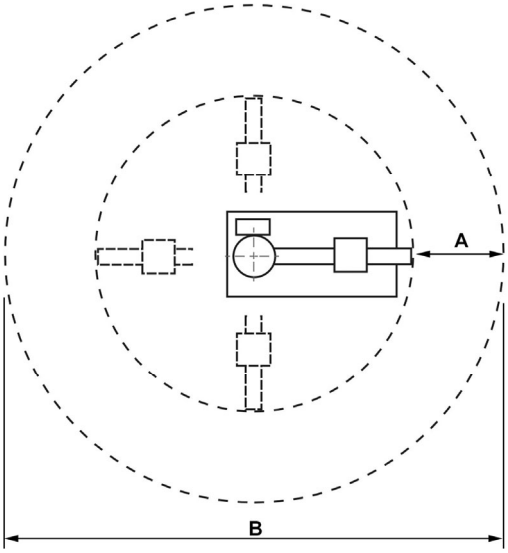


Figure 6-1

Figure 6-1 shows spacing for the 360° rotational path of the arm, plus 1000mm (approx. 40 inches) of general maintenance area on each side.

Distance column center to arm limit	Maintenance area (A)	Total space required (B)
1028mm (40.5 in.)	1000mm (40 inches)	4056mm (160 in.)

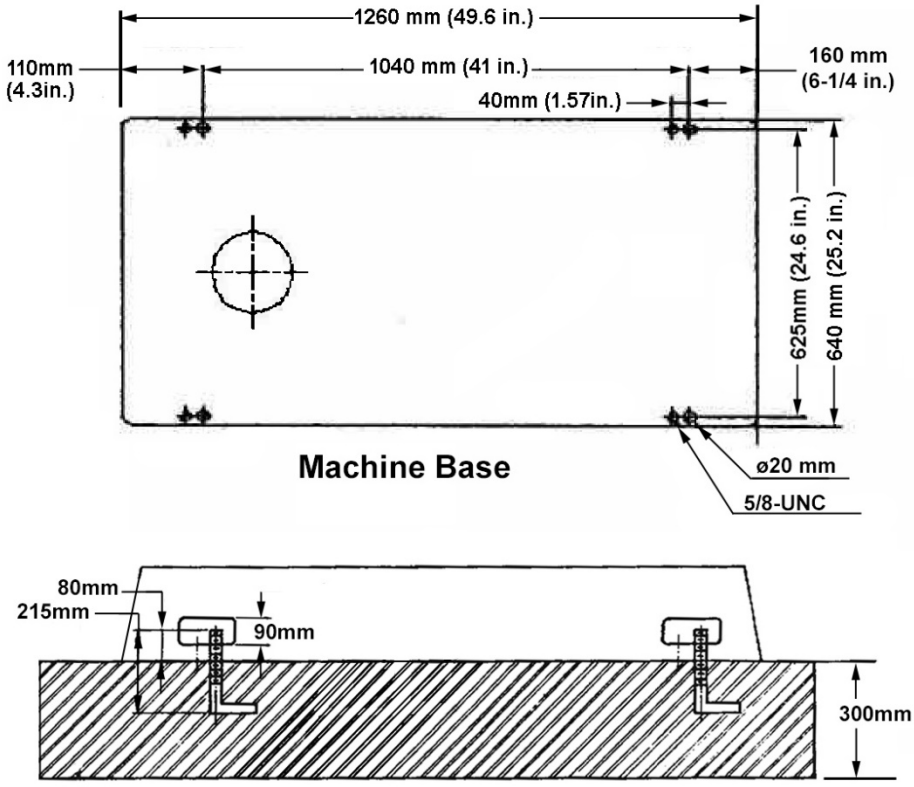


Figure 6-2

6.2 **Unpacking**

Remove any remnants of the shipping crate and check for shipping damage. Report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until the Radial Arm Drill Press is installed and running properly.

Compare the contents of your container with the following parts list to make sure all parts are intact. Missing parts, if any, should be reported to your distributor. Read the instruction manual thoroughly for assembly, maintenance and safety instructions.

Contents of Shipping Container

(Figure 6-3)

1 Radial Arm Drill Press (not shown)
6 Leveling Pads
1 Tool Box, containing:
  1 Grease gun
  1 Oil bottle
  1 Tapered Drift
  1 Adjustable wrench
  1 Set of hex keys
  1 Flat blade screwdriver
  1 Cross point screwdriver
1 Instructions and Parts Manual (not shown)
1 Product Registration Card (not shown)
1 Manufacturer's Test Chart (not shown)

Figure 6-3

⚠WARNING **Read and understand the entire contents of this manual before attempting set-up or operation! Failure to comply may cause serious injury.**

6.3 **Machine Set-Up**

1. Remove toolbox and any accessory items from around machine.
2. Make sure locking handles (A, Figure 6-4) on head and column are tightened before lifting.
3. Place lifting straps as shown in Figure 6-4. Use cushioning to protect machine surfaces.

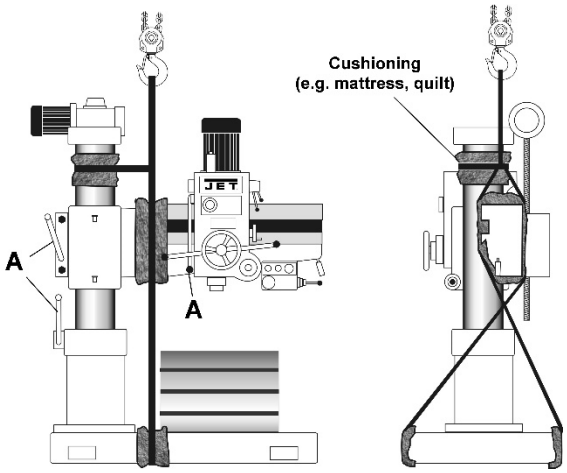


Figure 6-4

4. Remove bolts holding machine to pallet.

⚠WARNING All lifting equipment must be rated appropriately to safely sustain the weight of the drill press. Do not allow anyone near or beneath the machine while it is being moved.

5. Lift machine and position it over the anchor bolts in an area with good lighting, and a level and well-supported floor.
6. Place the leveling pads beneath the level adjusting bolts. Place a level (its tolerance should be within 0.02mm/m) on box table and level the machine.
7. The drill press MUST be anchored to floor. Use the layout diagram in *sect. 6.1* as a guide, and mount the nuts to the ground bolts.

⚠WARNING Failure to anchor the machine properly, according to the diagrams, could result in machine tipping over and consequent damage to machine and possible injury to machine operator and bystanders.

8. Connect the electrical service branch to the machine according to the instructions which follow in *sect. 6.4.* This work should be done only by a qualified and licensed electrician who is familiar with machine service and national and local codes.
9. Turn on drill press (see *sect. 8.0*), release upper locking handle, and move arm elevation lever to UP, until quill clears the shipping block. Remove shipping block from box table.
10. Wipe machine surfaces which have been treated with a protective coating, using mineral spirits or a cleaner/degreaser.
11. Inspect all sight glasses on machine to be certain they are filled to their level lines. If low, add fluid as necessary according to instructions in *sect. 12.0.*
12. Perform a lubrication check at all points recommended in *sect. 12.0*.
13. Follow directions in *sect. 8.0* to check all operation functions of the drill press. If coolant is being used, put coolant in the sump and test coolant delivery.
14. When all of the above operations are complete, the machine is ready for service.

6.4 **Electrical Connections**

⚠WARNING Electrical set-up should be performed only by a licensed electrician who is familiar with national and local electrical codes. This machine must be properly grounded to help prevent electrical shock and possible fatal injury.

Model J-720R radial drills are tested before shipping, for all functions and circuits under electrical power specified for the machine and motors. The only hook-up requirement should be for correct connection to an appropriate cutout on an appropriate service branch.

Where the following instructions do not agree with local electrical codes and procedures, the applicable codes and procedures should be followed, exclusively.

6.4.1 **Wiring diagram**

A wiring diagram for the drill press is found inside the door of the electrical cabinet. It is also shown at the back of this manual. This diagram is for reference by your licensed installing or servicing electrician. In addition to using a licensed electrician for connection to the drill press service branch, the servicing of components and circuits inside the control box should be serviced only by a qualified electrician. This includes fuse replacement, if required. If any of these fuses, upon replacement, should continue to fail at short service intervals, the electrician should be asked to check all machine components for excessive loads, short circuits or other failures.

6.4.2 **Electrical branch service**

The machine is wired for either a 230V or 460V 3-phase service branch. The cable supplying the drill press will be tagged with the voltage at which the machine was tested and corresponding to the customer's order.

If the tag has been lost, it will be necessary for you to open the electrical cabinet on the rear of the drill press and examine the connections on the transformer found inside the box. The transformer can be connected to either a 230 or 460 volt source and its taps are labeled for voltage. By locating the source tap on the transformer you will be able to determine the branch voltage required.

A service disconnect is recommended. The use of fuses or circuit breakers for each of the voltage supply wires is required. Use fuses or circuit breakers which are appropriate to the voltage for the motor system delivered.

A positive cut-out/lock-out lever or rocker switch should be located on the outside of the service disconnect to allow the machine operator to disconnect from the branch circuit when working with tooling on the machine.

It is recommended that the **230 volt** Drill Press be connected to a dedicated 25 amp circuit with a 25 amp circuit breaker or time delay fuse. Connect the **460 volt** drill press to a dedicated 15 amp circuit with 15 amp circuit breaker or time delay fuse. **Local codes take precedence over recommendations.**

6.4.3 Connecting branch to drill press

1. Disconnect service branch to machine by moving lever or rocker switch on cutout box to OFF.
2. Connect green wire (or green with white trace) to the branch ground.
3. Connect the remaining three wires in cable (labeled R, S and T) to the three power lines in branch.
4. Turn power to machine ON at cutout box.
5. Turn coolant switch (See Figure 7-1) to the ON position.

   ⚠CAUTION Make sure there is coolant in flood coolant system before operating pump.

6. Observe the rotation through the glass atop the pump. Shaft rotation should match direction of the arrow cast into the pump assembly. If the shaft is rotating the wrong direction, the power leads need to be switched. Correct as follows:
7. Disconnect power to machine by turning it off at cutout box.
8. Reverse *any two* of the power lead connections.
9. Repeat steps 4, 5, and 6, above, and you should observe the pump shaft turning in the proper direction. The electrical service to the machine is now complete.

6.4.4 Converting from 230V to 460V

The J-720R is prewired for 230 volt. To convert to 460 volt input:

1. Change wire connections inside *spindle motor* junction box. Follow diagram inside junction box cover.
2. Change wire connections inside *arm elevating motor* junction box. Follow diagram inside junction box cover.
3. Change wire connections inside *coolant pump motor* junction box. Follow diagram inside junction box cover.

Open electrical box at rear of drill press:

4. Move wire on transformer from 230V terminal to 460V terminal.
5. Replace both 230V overload relays with 460V overload relays (part no. E0207007 and E0207008; additional purchase).
6. Replace (3) 32-amp fuses with (3) 20-amp fuses (part no. E3101015, additional purchase). Note: The 5-amp fuse should remain in place.
7. Replace the 230V amp meter (see Figure 7-1) with the 460V amp meter (part no. E3602003, additional purchase).

7.0 **Operating Controls, J720R**

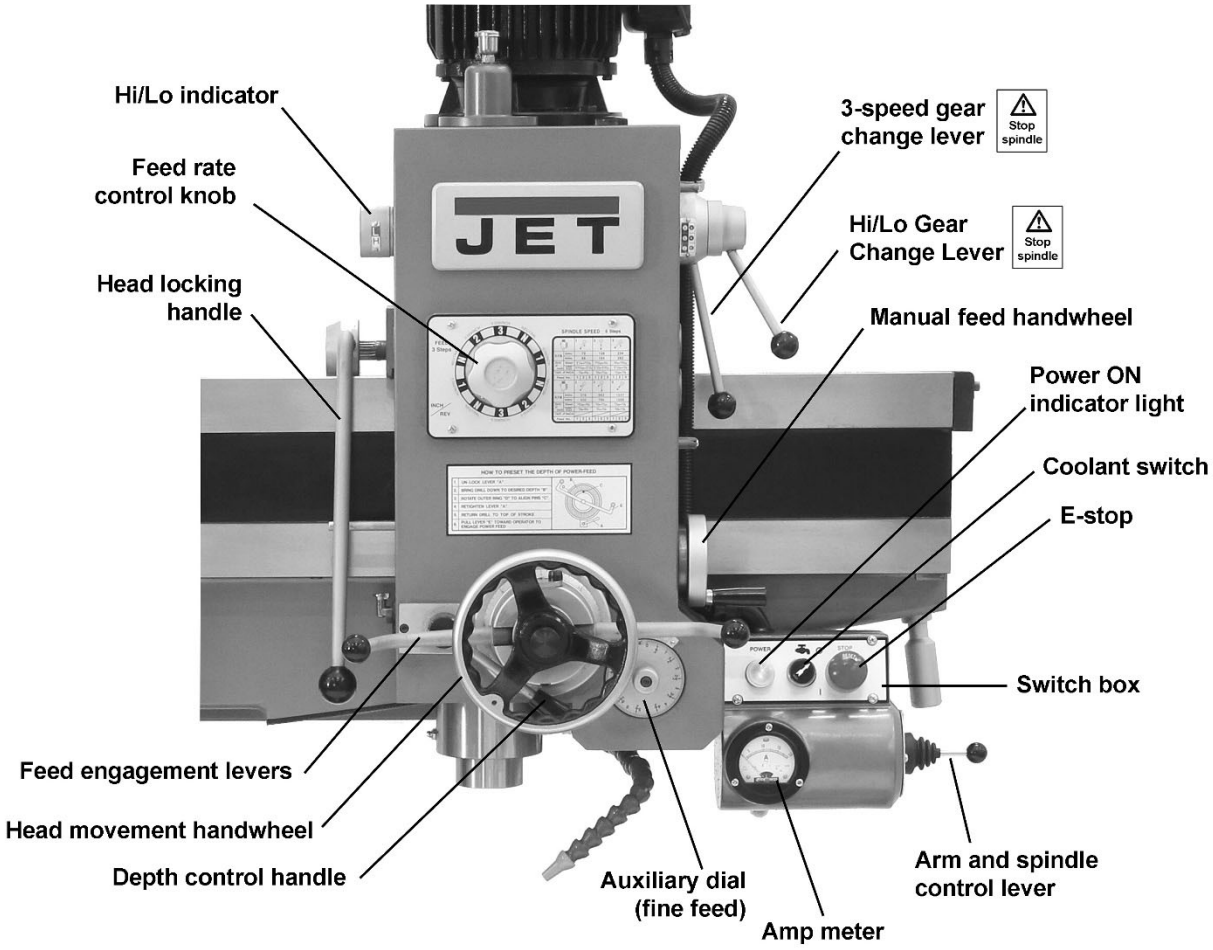


Figure 7-1
Operating Controls

8.0 Operation

8.1 Clamping work pieces

To load/unload heavier work pieces, unlock arm and rotate it out of the way. Lift work piece with slings or other properly rated lifting equipment.

Both the box table and base surface are slotted to accept a suitably sized T-slot clamp. Before beginning any work on the drill press, anchor the work piece, and the box table if used, to be certain that work piece and/or box table will not move when tool enters work piece.

If the box table will not be used, simply remove the nuts at the base, and move table off using proper lifting equipment.

⚠WARNING Failure to properly anchor work piece and box table could result in damage to machine, damage to work piece, and severe injury to machine operator. Never work on the drill press without clamping the materials using a T-slot system set-up.

8.2 Tool insertion

The Model J-720R uses a No. 4 Morse taper in the spindle to secure tooling. Any drill, milling cutter, or tool holder with an MT4 can be inserted into the quill.

⚠CAUTION The first step in removing or inserting any tooling is to **be absolutely certain the machine cannot be accidentally started during the insertion or removal operation.** The only way to be certain of this fact is to disconnect power to the machine. The service box should have a cut-out switch or lever on the outside of the box. Put the switch or lever in the OFF position before inserting or removing tooling.

To insert tooling:

1. Verify that machine is disconnected from power.
2. Be certain spindle is clean, free from oil, and ready to accept the shank of any tooling.
3. Check shank of tooling to be certain tooling is free from dirt, nicks or burrs. If nicks or burrs are discovered, file or stone the shank until it is smooth.
4. Be certain quill is in full UP position.
5. Slide shank of tooling into spindle until it seats.
6. Use a soft-faced mallet (such as lead, plastic, brass, etc.) to give the tooling a sharp tap on its tip. This will secure the tooling in the taper.
7. Re-establish power to machine. The drill is ready to use.

To remove tooling:

1. Verify that machine is disconnected from power.
2. Place a wood block under the tooling in the spindle to prevent it being damaged should it fall out during the removal process.
3. Lower quill using the feed levers until tool removal window is exposed. Rotate spindle by hand until removal windows align.
4. Insert tapered drift (included in toolbox) into removal window, above the tip of tooling shank.
5. Use a leather glove to hold the tooling with your hand to prevent it falling from quill.
6. With your free hand, tap the tapered drift with a hammer until tooling can be removed.

8.3 Tool Positioning over work piece

After work piece has been clamped to base or table, position the tooling over the work piece, using any or all of the following methods:

1. Adjusting height of arm on support column.
2. Moving drill head along arm.
3. Rotating column upon which the arm and head are attached.

⚠CAUTION Always be certain lock handles are tight before using drill press. Pull on the arm handle and try to rotate handwheel at front of head, before starting spindle. Failure to have all locks secure may result in damage to tooling, damage to work piece, and possible injury to operator.

8.4 Raising/lowering radial arm

⚠WARNING Arm movement can produce a crushing or pinch hazard. Keep hands and limbs clear of arm and column areas when raising or lowering.

1. Release upper locking handle on column, by pushing it to the left.
2. Raise or lower arm to required height using arm/spindle control lever (see Figure 7-1). See also *sect. 8.11.*
3. When arm is at required height and no other adjustments to spindle location are required, tighten locking handle by pushing firmly to the right.

8.5 Moving drill head along arm

1. Release drill head by pushing head locking handle downward (see Figure 7-1).
2. Turn handwheel to move drill head along arm, clockwise to move right, counterclockwise for left movement.
3. When drill head is at desired position and no other adjustments to spindle location are required, pull locking handle upward to secure.

8.6 Rotating arm on column

⚠WARNING NEVER swing drill press arm on column unless you are absolutely certain the drill press base is firmly attached to the shop floor. If the arm is moved off its position directly above the base and the base is not bolted to the floor, **THE DRILL MAY TIP OVER AND CAUSE SERIOUS INJURY TO THE DRILL PRESS OPERATOR,** and will certainly result in damage to the drill press itself.

1. Release lower locking handle on column.
2. Swing arm using handle to required spindle position.
3. When spindle is positioned correctly and no other adjustments are required, tighten locking handle.

8.7 Setting spindle speed

Spindle speeds are established using the gear change levers on upper right-hand side of drill head (See Figure 7-1). The shorter of the two levers operates a two-speed mechanism which puts the gearbox in either high gear or low gear. A HI/LOW indicator on the upper left hand side of the drill head identifies selected speed range.

The longer gear change lever operates a three speed gearbox mechanism. A detent in the middle of the lever travel indicates when lever is in intermediate gear position.

This gearbox set-up offers a total of six spindle speeds which may be selected. The speed selected clearly depends on the position of *both gear change levers*.

A chart on front of drill head shows gear change lever positions for speed selection. A similar chart is included in *sect. 10.0* of this manual.

On the gear change chart you will also find recommended drill sizes for the various speeds which are selectable. **These recommendations are only approximate.** With the wide variety of drill types and coatings available, as well as cutting fluids, and the even wider variety of work piece materials which you might be machining – you should consult with your tooling, coolant and/or work piece suppliers to determine the best spindle speed to use for any specific drilling operation.

⚠CAUTION Do not attempt to change gears while spindle is turning. This may cause serious damage to spindle drive system.

Allow spindle to stop completely before attempting to change gears. If the gear change lever you want to move does not slip easily into the new position, jog the motor briefly using the control lever. Then allow spindle to come to a stop before attempting to change gears again. Repeat this jogging process, as necessary, until the gears match up properly for changing.

⚠CAUTION Plan for quill movement during high speed spindle rotation. High speed rotation without quill travel will increase spindle temperatures.

8.8 Limit switches

The J-720R has limit switches on the quill which cut power to the drive motor when quill has reached either upper or lower limit of its travel. This system is designed to prevent gearbox damage if power feed mechanism is engaged – damage which would occur if quill were to bottom out against upper or lower limit of quill travel. In the event of failure of either limit switch there is also a safety clutch mechanism which will slip when travel limits are reached.

However, while you are able to use virtually the full travel of the quill for drilling or other operations, the drill press operator typically sets both rate of feed (travel-per-revolution of the spindle), and depth of cut (quill travel to make the required cut).

These two operations are described here:

8.9 Setting feed rate

Feed rate is set using the knob on front of drill head. See Figure 8-1. The knob can be rotated to select any of three different feed rates, plus a neutral position where power feed does not operate on the quill. Line up rivet on dial with desired feed rate on scale.

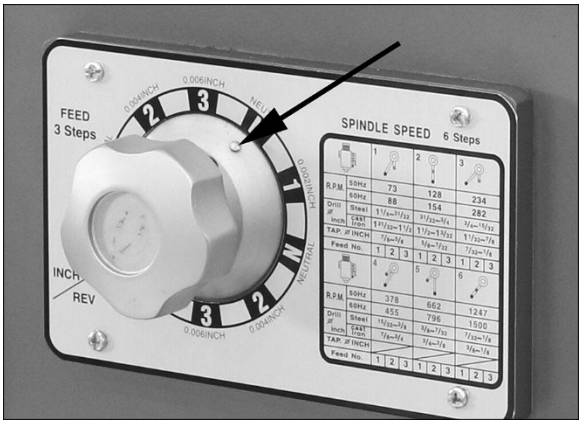


Figure 8-1

It is recommended that when power feed is not used, the dial be set to neutral. This minimizes any wear on power feed mechanism.

Any of the three feed rates are available for selection using any of the spindle speeds available. There will be a recommended feed rate for any drilling or boring operation, and this rate must be determined by consulting appropriate machining handbooks or tooling and work piece suppliers.

8.10 Setting depth of cut using power feed

There is a mechanism for engaging power feed and also a “trip” mechanism which can be set to disengage power feed when a pre-set depth has been reached.

The feed levers (A, Figure 8-2) are pulled outward or pushed inward on pivots in the feed lever hub. When the levers are pushed toward the drill head, the power feed mechanism is disengaged. When the feed levers are pulled outward, the power feed system is engaged. In the power feed position (outward) the quill and spindle will be driven until one of the following happens:

- Spindle reaches limit of travel and the limit switches disable power; or
- Trip mechanism automatically disengages power feed; or
- Drill press operator pushes feed levers into disengaged position.

To set depth of cut:

Refer to Figure 8-2.

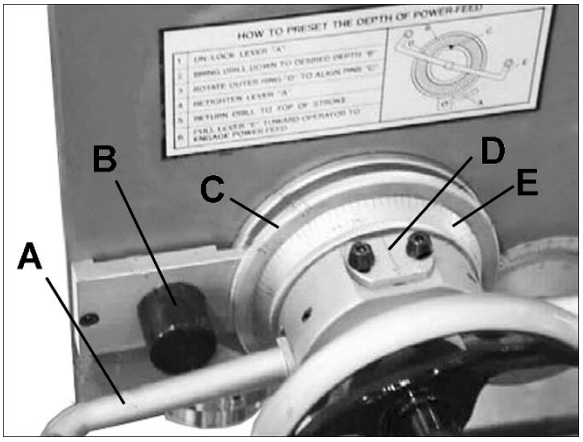


Figure 8-2

1. Rotate feed levers (A) counterclockwise to lower drill until it just touches work piece. (Note: C and E will rotate together.) Drill-to-work piece contact represents zero depth position. Continue holding feed levers in this position.
2. Push handle (B) to unlock depth control.
3. Rotate dial (C) until required feed depth on scale (E) is at zero reference mark (D).
4. Push handle (B) to lock this depth setting.
5. Release feed lever (A) to return spindle to upper position.
6. Rotate feed levers (A) slightly counter-clockwise (about 5mm quill descent) to start spindle.
7. Turn spindle switch to SPDL.FOR.
8. Pull feed levers (A) outward to engage power feed clutch. The power feed mechanism will feed drill into work piece at the rate selected on feed rate dial until selected depth of cut is complete.

   Note: The depth limit for power feed drilling is 4.0 inches (100mm). If deeper holes are needed, the machining must be done in steps.

IMPORTANT: Power feed is used only for drilling/boring, not for tapping. A feed rate must be set (out of neutral position) before power feed can be engaged.

8.11 Spindle direction and power feed

Spindle rotation direction is managed by the arm/spindle control lever on right side of drill head. See Figure 7-1.

Clockwise or "forward" rotation is the direction of rotation for right-hand tooling – the vast majority of tooling used in machine operations. Reverse spindle rotation for left-hand tooling.

Power feed direction is determined by spindle direction. When spindle is set to its most common direction (clockwise/forward) the quill and spindle are driven downward. When spindle direction is set counterclockwise (reverse), quill and spindle are driven upward.

8.12 Manual feed: roughing operations

When the feed levers are pushed toward drill head the power feed mechanism is disengaged. In this position, the feed levers can be used to move the quill and spindle and perform manual drilling or other machining operations.

8.13 Fine manual feed using power feed clutch

The fine feed handwheel is located on right side of drill head (see Figure 7-1) and is used as follows:

1. Set feed rate control knob to N (neutral).
2. Pull feed levers out to engage feed clutch.
3. Turn on drill press, and set arm/spindle control lever to desired direction.

4. Manually turn fine feed handwheel. Quill and spindle will move downward or upward (depending upon which way you turn hand-wheel and the direction the spindle is turning) until you stop turning handwheel.

8.14 Tapping operations

1. Determine most efficient tapping speed (spindle speed) by consulting appropriate machinist's tables, the tap supplier, coolant supplier and/or work piece supplier.
2. Make certain screw tap is mounted securely within spindle.
3. Set feed rate control knob to “N” (neutral). See *sect. 8.9.*
4. Turn on spindle motor. Also, turn on coolant pump if coolant is being used.
5. Rotate feed levers slightly counterclockwise, then move arm/spindle control lever to SPDL.FOR.
6. Rotate feed lever to move tap into its pilot hole until tap makes its initial thread cut and is engaged in the work piece.
7. Allow tap to "self-feed" into pilot hole until it has completed its tapping operation.
8. Move arm/spindle control lever to *neutral* position and allow spindle to stop completely.
9. Move arm/spindle control lever to SPDL.REV until tap withdraws completely from hole.
10. Move arm/spindle control lever to neutral.

8.15 Power ON/OFF

If your J-720R was connected to its service branch correctly, there will be a service disconnect with an external power cutoff lever or switch which disconnects the drill press from the service branch. This is your ultimate protection against accidental machine start-up when clamping work pieces or inserting and removing tooling. Always be certain you have turned off power at this disconnect before beginning such procedures.

8.16 Power ON light

Whenever machine is receiving electrical power, the indicator light on the switch box (Figure 7-1) will be illuminated.

8.17 Coolant control

The flood coolant system is controlled by the switch on front of switch box (Figure 7-1). If coolant has been turned on, but does not flow, check pump rotation by observing the pump shaft. It should be rotating in the direction of arrow on pump casting. If rotation is incorrect, see *sect. 6.4.3.*

Open coolant valve at rear of machine (#27, Figure 5-2). The nozzle can be adjusted to any angle above the work piece.

8.18 Spindle motor controls

Power to spindle motor is controlled as follows:

1. Cutout box control lever must be in ON position.
2. Motor speed control switch must be in either HI or LOW position.
3. Emergency Stop button must be disengaged (rotate clockwise).
4. Arm/spindle control lever must be engaged for selected rotation. See *sect. 8.21*.

8.19 Turning off spindle drive

To turn power OFF to spindle drive motor, do one of the following:

1. Put arm/spindle control lever in neutral, or
2. Push red E-Stop button, or
3. When servicing tooling or other machine components, put service disconnect lever in OFF position.

Once E-stop has been pushed (item #2 above) none of the other switches on the panel can be used to control power to spindle drive motor or coolant pump, until E-stop has been reset (rotate button clockwise until it disengages).

8.20 Using load ammeter

An ammeter on the switch box is used to monitor the load on the spindle drive motor. It is connected into one of the three power lines which supply the main spindle motor.

When the drive motor is ON and up to speed, and there is no tooling being used to drill, tap or bore a hole, the ammeter should read approximately 2.5 amps. If it exceeds this value there is a problem internally (such as lack of lubrication in the gearboxes, bad bearings, etc.). You should turn off the machine and determine the cause of any excessive free-running load.

Monitor the ammeter during machining operations. The ammeter should stay below 9 amps of current draw during machining. You should adjust spindle speed, feed rate and coolant use to maintain full load current draw below the 9 amp value.

If you exceed 9 amps current draw a thermal overload switch in the electrical control panel will trip. If this occurs, locate and reset the thermal switch.

8.21 **Arm/spindle control lever**

The four-position control lever (Figure 7-1) controls spindle rotation direction and raising and lowering of arm.

The ability to control arm height is available when:

1. Main power to machine is ON at its branch service panel.
2. E-Stop button is disengaged.
3. Arm/spindle control lever is pushed up or down.
4. The upper locking handle has been released.

NOTE: The control lever does not return to neutral when released, but remains in position. This means unless you push it to neutral, the arm will keep rising or lowering until it contacts a limit switch.

9.0 **Adjustments**

After extended use, usually several years, the radial arm drill may require adjustment of certain parts. These areas require particular attention:

- Column locking handle (clamping force)
- Gap (backlash) between head and rail.
- Feed lever/clutch engagement
- Spindle travel range

9.1 **Clamping force**

1. Turn machine OFF and press E-stop button.
2. Release locking handle (Figure 5-1).
3. Loosen socket head screw (A, Figure 9-1).
4. Rotate adjustment nut (B) one turn clockwise.
5. Tighten screw (A).
6. Tighten locking handle (Figure 5-1).

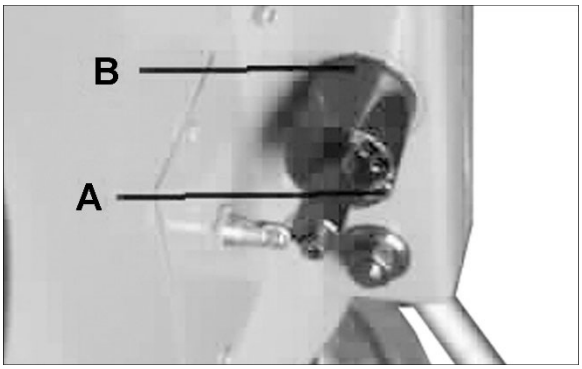


Figure 9-1

9.2 **Head/Rail Backlash**

If backlash appears between gearbox head and arm rail, the tightness between rail and bearings can be corrected, as follows.

1. Remove cam shaft cover (#21, Figure 5-2).
2. Loosen set screws (D, Figure 9-2).
3. Insert hex key into hole (E), and rotate bearing shaft. Rotate handwheel to move head along rail; it should be snug but still easily turned.
4. Tighten set screws (D).
5. Repeat steps 1 through 4 for opposite side of head.
6. Back at the original side of head, loosen set screws (F, Figure 9-3).
7. Insert hex key into hole (G) and rotate bearing shaft. Test handwheel tightness again. When satisfied, retighten set screws (G).
8. Install cam shaft cover.

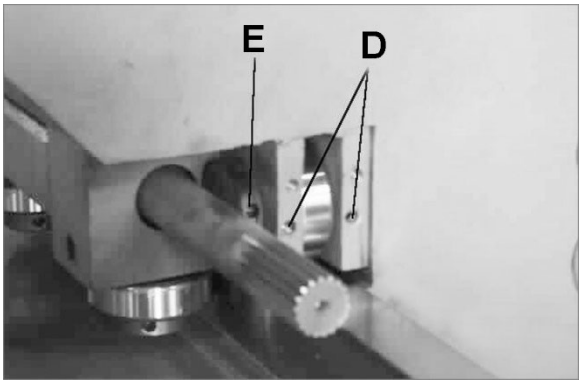


Figure 9-2

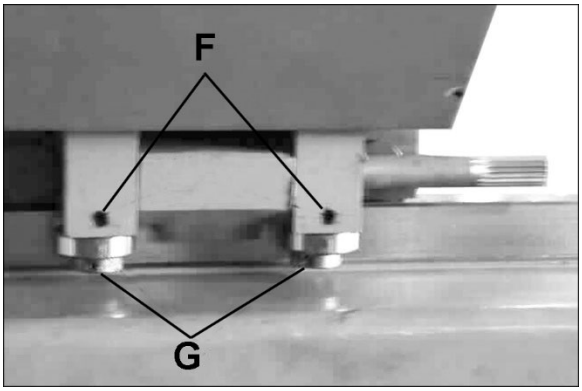


Figure 9-3

9.3 **Feed lever/clutch engagement**

If backlash occurs when attempting to engage clutch with feed levers, loosen screws (H, Figure 9-4) and push adjusting block (J) forward. Retighten screws (H).

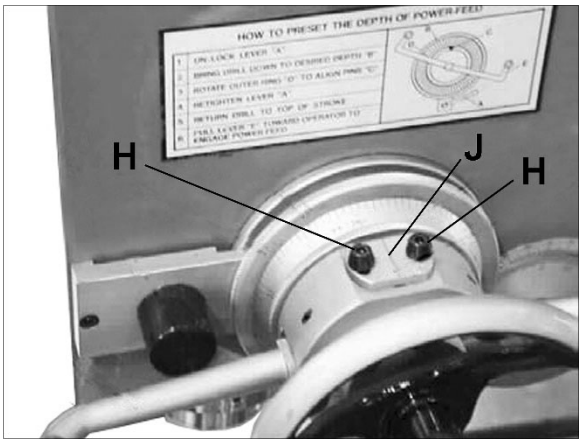


Figure 9-4

9.4 **Spindle travel range**

If “overstroke” occurs in the spindle upper or lower position (i.e. spindle continues to travel too far after reaching its limit), adjust as follows:

1. The adjustment area is on back of head, opposite the auxiliary dial. Move head to the far right end of rail for access.
2. Move spindle to its upper position. There should be 3 to 5mm (1/8” to 3/16”) clearance.
3. The cam should be sufficiently contacting the limiter, as shown in Figure 9-5. If it does not, Loosen set screw on cam (L) and rotate cam so that it contacts the limiter, as shown in Figure 9-5.
4. If needed, loosen screw (N) and adjust limit device for proper contact with cam.
5. Tighten cam set screw (L).
6. Move spindle to lowest position and slowly allow cam to touch limit switch until you hear a “click”.
7. Tighten screw (N).

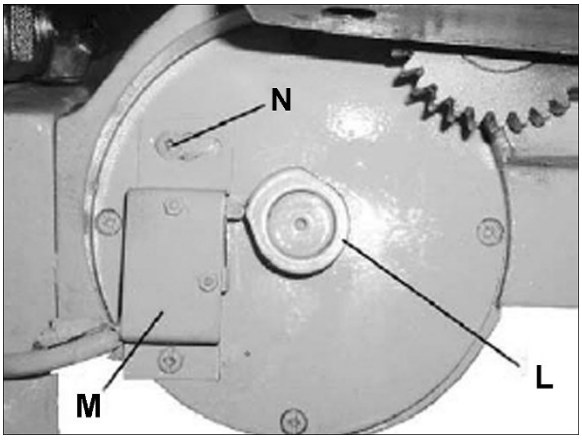


Figure 9-5

10.0 **Spindle Speed Chart**

Note: A similar chart is found on the front of the drill head.

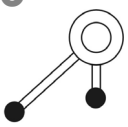
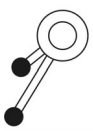
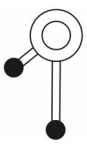
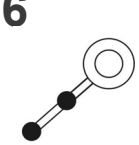
6-Step Spindle Speed Settings for J-720R Radial Arm Drill		Low Speed			High Speed		
		1 	2 	3 	4 	5 	6 
Speed (RPM)	60Hz	88	154	282	455	796	1500
	50Hz	73	128	234	378	662	1247
Suitable drilling diameter (inches)	Steel	1-1/4 ~ 31/32	31/32 ~ 3/4	3/4 ~ 15/32	15/32 ~ 3/8	3/8 ~ 7/32	7/32 ~ 1/8
	Cast Iron	1-31/32 ~ 1-1/2	1-1/2 ~ 1-3/32	1-1/32 ~ 7/8	7/8 ~ 3/4	3/4 ~ 3/8	3/8 ~ 1/8
Tapping (inches)		7/8 ~ 5/8	5/8 ~ 7/32	7/32 ~ 1/8	**Not recommended**		

Table 3

11.0 **Troubleshooting J-720R Radial Drill Press**

Trouble	**Probable Cause**	**Suggested Remedy**
Spindle overloads, causing relay to trip.	Drill bit is too large.	Turn off power, wait three minutes after spindle stops turning, then push the re-set on the relay in the control box. Correct initial problem by using shorter drill bit or lower feed rate; consult appropriate feed and speed rate tables. Replace fuse if needed. Verify proper voltage at power source.
	Feed rate too fast.	
	Operation not in compliance with speed and feed rate tables.	
	Fuse is burned out.	
	Low voltage.	
Spindle overloads, causing fuse to blow.	Drill bit is too large.	Replace fuse in control box. Correct initial problem by using smaller drill bit or lower feed rate; consult appropriate feed and speed rate tables.
	Feed rate too fast.	
	Operation not in compliance with speed and feed rate tables.	

Table 4

If drill bit gets broken in the spindle:
1. Move arm/spindle control lever to neutral.
2. Press emergency stop button.
3. Push the head/gearbox out of the way.
4. Pinch the end of the broken bit with pliers.
5. Rotate counterclockwise and pull it out upwards.

If screw tap gets broken in the spindle:
1. Move arm/spindle control lever to neutral.
2. Press emergency stop button.
3. Using a thread releaser, rotate the screw tap counterclockwise until it comes out.

If something becomes entangled during operation:
1. Press emergency stop button.
2. Disconnect power.
3. Switch speed change lever to highest gear.
4. Rotate spindle by hand in reverse direction from that used during the operation, until the obstruction is free.

12.0 **User-maintenance**

Regularly scheduled maintenance is crucial to ensure a long service life for your machine. The schedule below shows general cleaning, lubrication points and coolant replacement information for the J-1230R Radial Arm Drill Press. Item numbers are located in Figures 12-1 through 12-5. Using proper eye protection, clean parts using a metal brush and a rag dipped with oil (Mobil Vactra AA or equivalent). **Push E-stop button and power off before lubricating.** Avoid direct skin contact with lubricating fluids or coolants, and follow local regulations for proper disposal of used lubricants.

12.1 **General Cleaning**

No.	Item	Action	Interval	Lubricant *
1	Column	Clean and lightly wipe with oil	Daily	Mobil Vactra™ oil AA
2	Arm Rail	Clean and lightly wipe with oil	Daily	Mobil Vactra™ oil AA
3	Spindle and Quill	Clean and lightly wipe with oil	Daily	Mobil Vactra™ oil AA
4	Box Table	Clean and lightly wipe with oil	Daily	Mobil Vactra™ oil AA
5	Base	Remove shavings; clean and wipe with oil	Daily	Mobil Vactra™ oil AA
6	Ball Screw	Clean with metal brush and oiled rag	Weekly	Mobilux™ Grease No. 3
7	Spindle motor	Blow dust from fan housing with compressed air	Periodically	--
8	Arm raising motor	Blow dust from fan housing with compressed air	Periodically	--

Table 5

12.2 **Lubrication**

No.	Item	Location	Action	Interval	Lubricant *
9	Oil Cup *(for arm/column contact)*	Top and bottom of arm base at column	Add lubricant to full capacity.	Daily	Mobil Vactra™ oil AA
10	Oil Cup *(for spindle)*	Top of drill head	Add lubricant to full capacity.	Daily	Mobil Vactra™ oil AA
11	Oil Cups - 3 *(for head/arm contact)*	Right and left sides of drill head	Add lubricant to full capacity.	Daily	Mobil Vactra™ oil AA
12a thru 12c	Arm Raising Worm Gear	Rear of column	Top off at fill hole (12a). Fill to sight glass full level (12b).	Check sight glass daily	Mobil Vactra™ oil AA
			Replace annually; drain at (12c). Use sight glass to fill to capacity. *NOTE: Put pipe thread compound on drain plug before re-installing.* **Capacity = 2 liters (1/2 gal.)**	Once per year	
13	Coolant	Reservoir in base	Monitor for cleanliness and efficiency. Replace when dirty or when cutting becomes inefficient. Drain by removing plug in side of base (13a). Pour coolant through filter screen in base trough (13b); fill to about 5mm (3/16") below screen. **Capacity = 30 liters (8 gal.)**	Frequent inspection; top off as needed	Use high quality coolant of choice
14	Grease nipple *(for spindle)*	On spindle	Lubricate with lube gun	Daily	Mobilux™ Grease No. 3
15	Rack	On arm	Lubricate with lube gun	Every 3 days	Mobil Vactra™ oil AA
16a thru 16c	Gearbox	Top right side of drill head	Top off at fill hole (16a). Fill to sight glass full level (16b).	Check sight glass daily	Mobil Vactra™ oil AA
			Replace annually; drain at (16c). Use sight glass (16b) to fill to capacity. *NOTE: Put pipe thread compound on drain plug before re-installing.* **Capacity: 4.5 Liters (1.2 gal.)**	Once per year	

Table 6

* **NOTE:** These are recommendations; equivalents may be used. If switching brands of lubricants, prevent compatibility issues by thoroughly draining and, if possible, cleaning the reservoir before filling with the replacement brand.

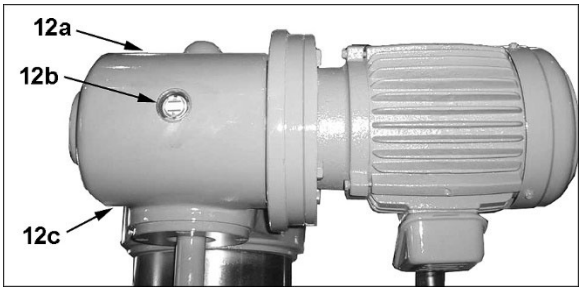


Figure 12-1

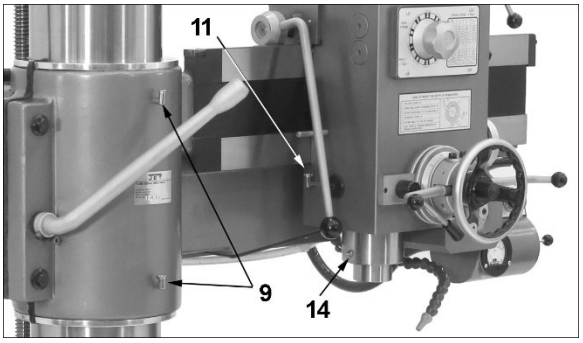


Figure 12-2

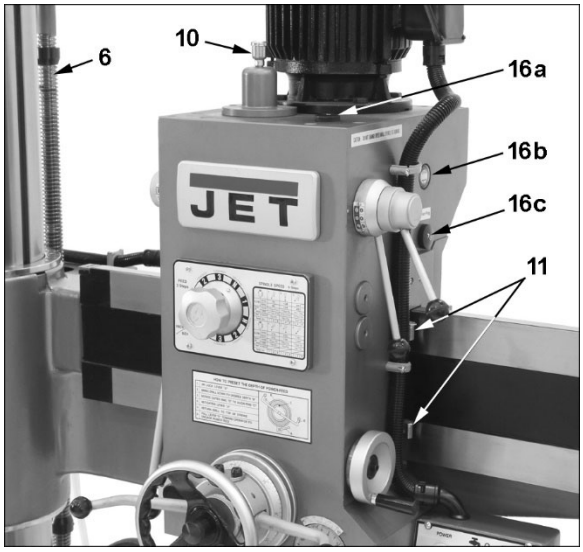


Figure 12-3

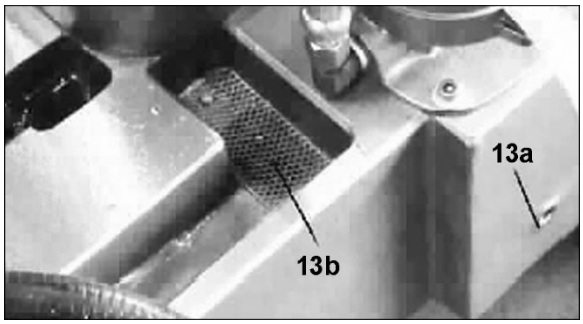


Figure 12-4

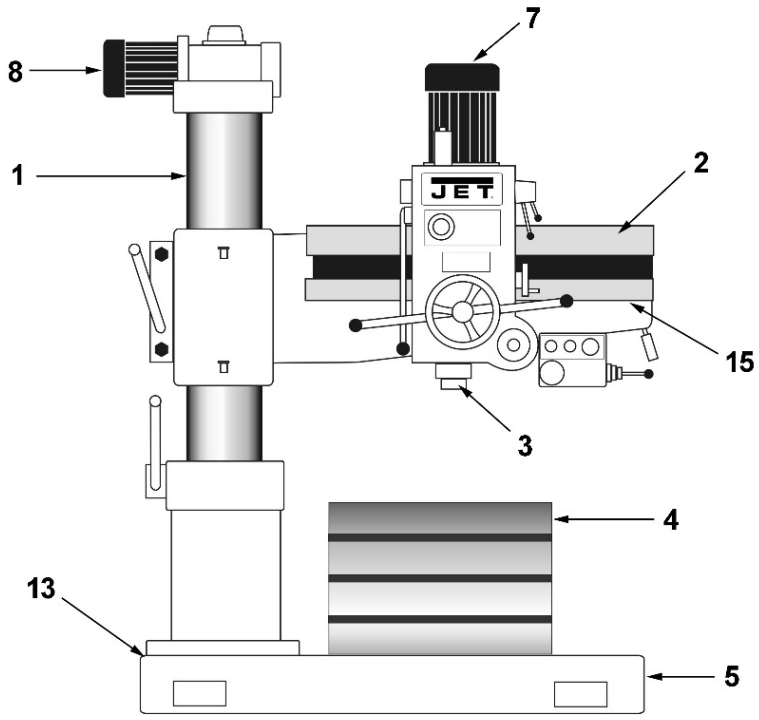


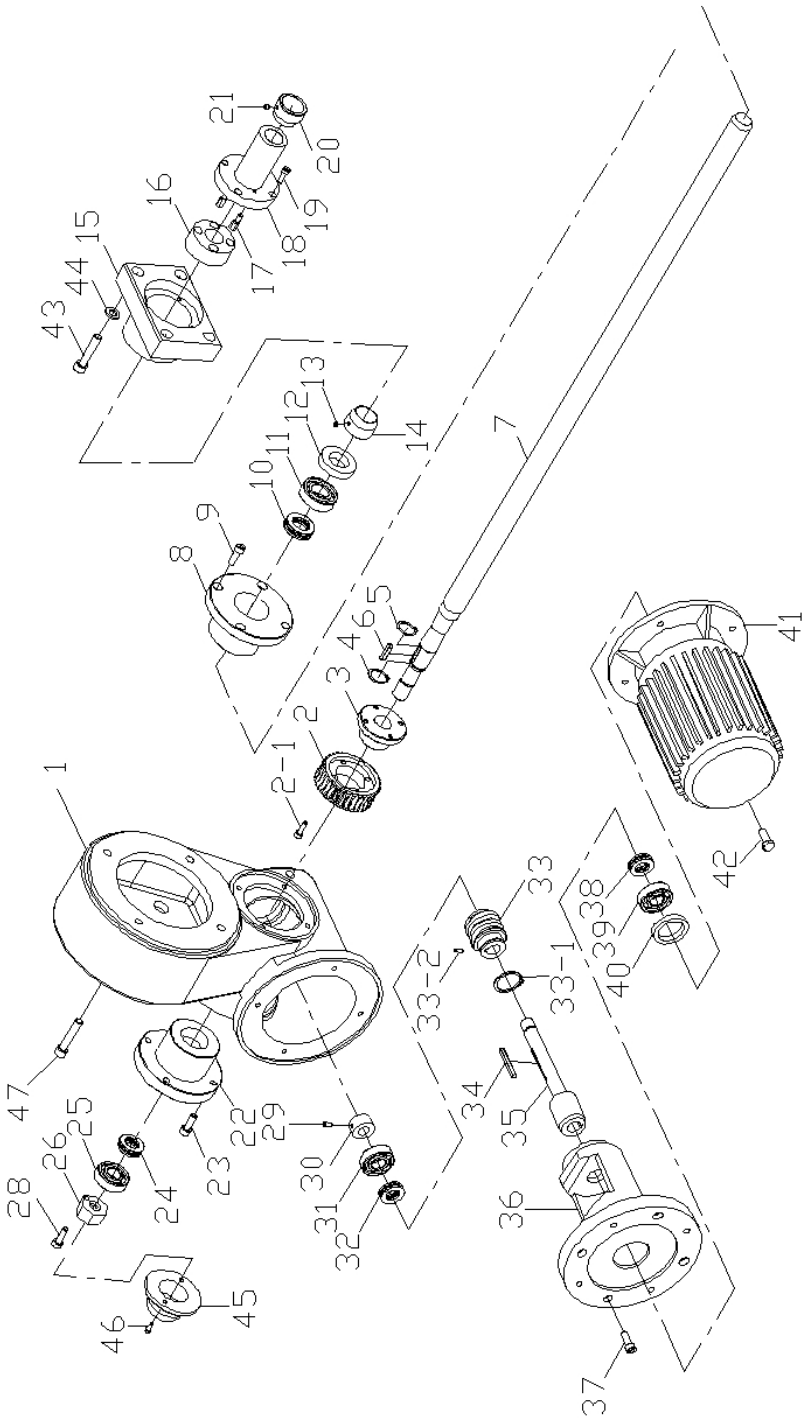
Figure 12-5

13.0 **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.

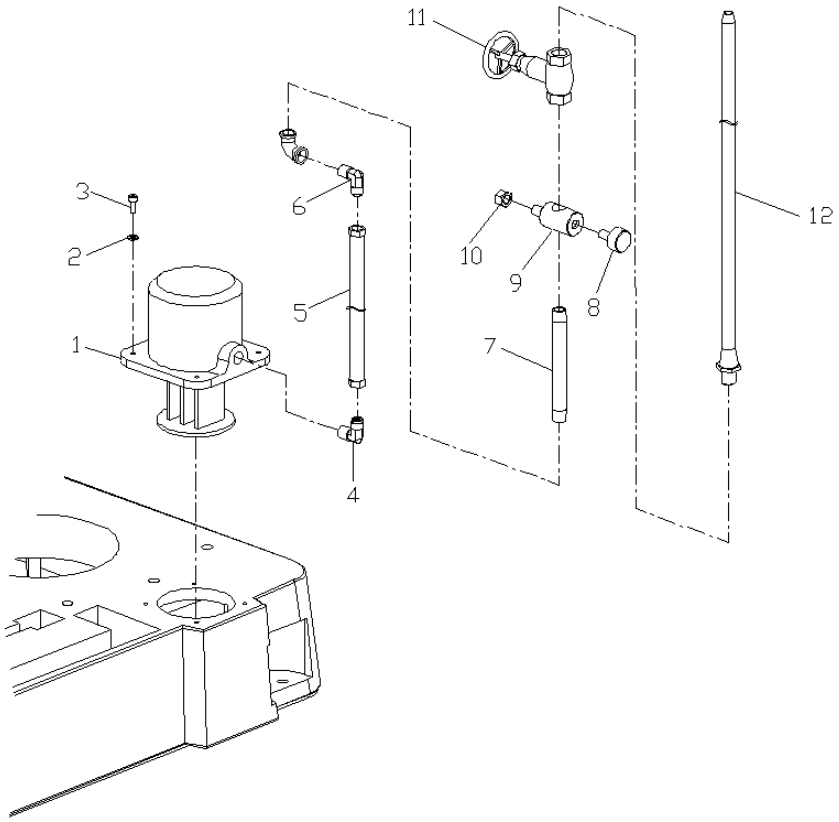
13.1.1 **Lift Mechanism – Exploded View**



13.1.2 **Lift Mechanism – Parts List**

Index No.	Part No.	Description	Size	Qty
1	10162G	Top Cap		1
2	10163	Worm Gear		1
2-1	TS-1503051	Socket Head Cap Screw	M6x20L	4
3	10173	Worm Bushing		1
4	5233791	Retainer	S24	1
5	5233791	Retainer	S24	1
6	M1328-6x30	Key	6mmx30L	1
7	10013	Lead Screw		1
8	10165G	Bearing Bracket		1
9	TS-1504051	Socket Head Cap Screw	M8x25L	4
10	BB-51105	Bearing	51105	1
11	BB-6205ZZ	Bearing	6205ZZ	1
12	M0702034	Oil Seal	TC30x52x11	1
13	TS-1523011	Set Screw	M6x6L	2
14	10172	Bushing		1
15	10176G	Nut Cover		1
16	10175	Safety Nut		1
17	10177	Bolt		2
18	10174G	Brass Nut		1
19	TS-1503051	Socket Head Cap Screw	M6x20L	4
20	10172	Bushing		1
21	TS-1523011	Set Screw	M6*6L	2
22	10166G	Bearing Bracket		1
23	TS-1504051	Socket Head Cap Screw	M8x25L	4
24	BB-51104	Bearing	51104	1
25	BB-6204ZZ	Bearing	6204ZZ	1
26	M1503-M24	Nut	M24	1
28	TS-1503041	Socket Head Cap Screw	M6x16L	1
29	TS-1523041	Set Screw	M6x12L	1
30	10171	Nut		1
31	BB-6204ZZ	Bearing	6204ZZ	1
32	BB-51104	Bearing	51104	1
33	10168	Worm Shaft		1
33-1	M1312-S36	Retainer	S36	1
33-2	TS-2276081	Set Screw	M6x8L	1
34	5232581	Key	5mmx55L	1
35	10170	Pinion Shaft		1
36	10169G	Gear Bracket		1
37	TS-1504051	Socket Head Cap Screw	M8x25L	4
38	BB-51104	Bearing	51104	1
39	BB-6204ZZ	Bearing	6204ZZ	1
40	M0702035	Oil Seal	TC30x45x8	1
41	M1210006	Motor	1HP, 220/380V, 50/60Hz	1
42	TS-1491031	Hex Cap Screw	M10x25L	4
43	M1401-M10x55	Socket Head Cap Screw	M10x55L	4
44	TS-1550071	Washer	M10	4
45	10178G	Cover		1
46	5235731	Bolt	3/16”x1/2”L	2
47	TS-1505041	Socket Head Cap Screw	M10x30L	4

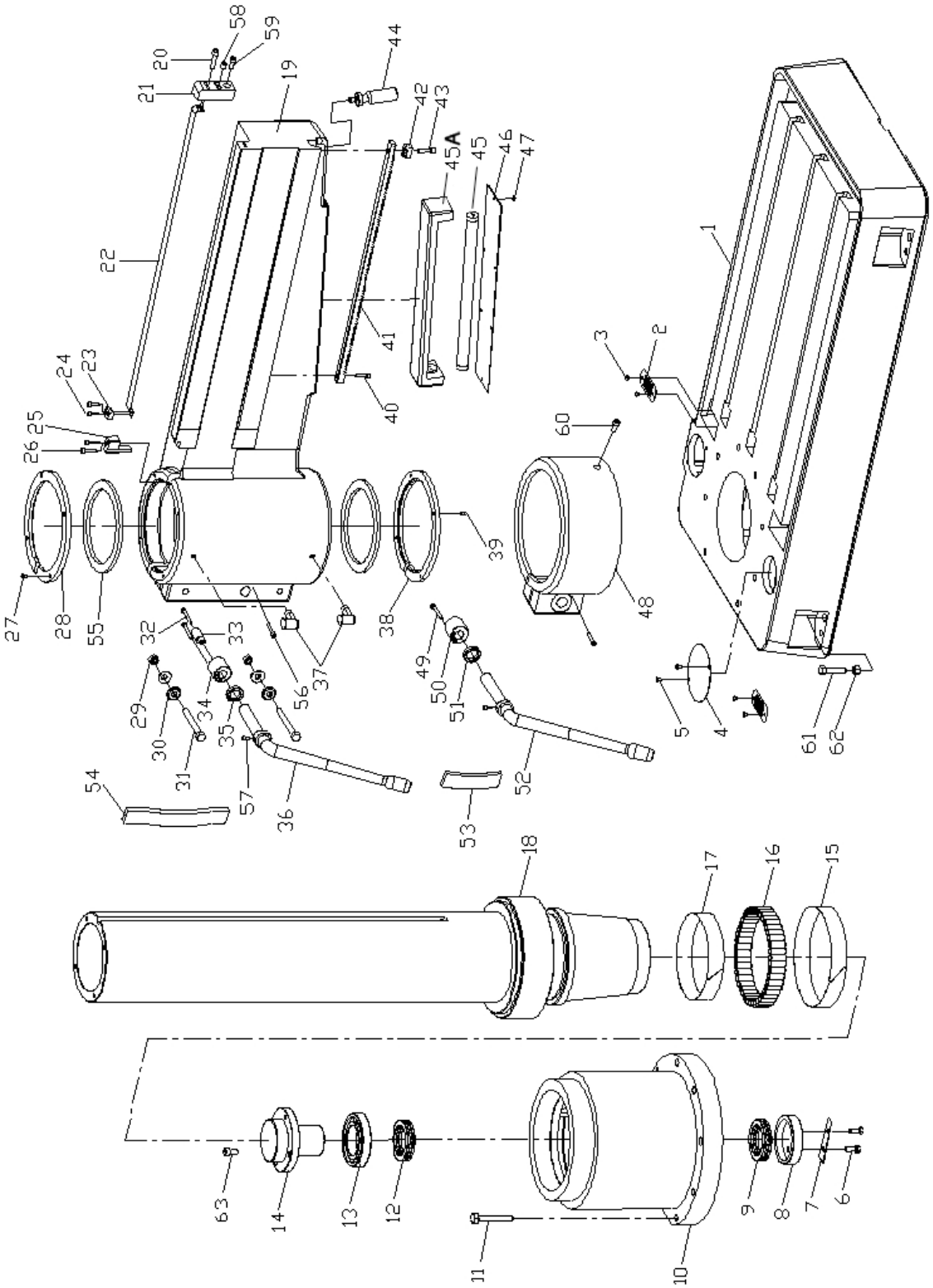
13.2.1 **Coolant Pump Assembly – Exploded View**



13.2.2 **Parts List for Coolant Pump Assembly – Parts List**

Index No.	Part No.	Description	Size	Qty
1	5232291	Coolant Pump	130L 220/380V	1
2	TS-1550041	Washer	M6	4
3	TS-1503041	Socket Head Cap Screw	M6x16L	4
4	M0602001	90° Elbow	PT3/8” x PS3/8” x 90°	1
5	M0506003	Tube	PT3/8” x 95”L	1
6	M0602001	90° Elbow	PT3/8”xPS3/8”x90°	1
7	M0510003	Tube	38”x6”L	1
8	5232391	Knurled Screw	M10x25L	1
9	10014	Tube Sleeve		1
10	5235811	Nut	1/2"	1
11	5232421	Brass Valve	3/8”	1
12	5232431	Coolant Hose	3/8”x450L	1

13.3.1 **Base, Column, and Arm Assemblies – Exploded View**

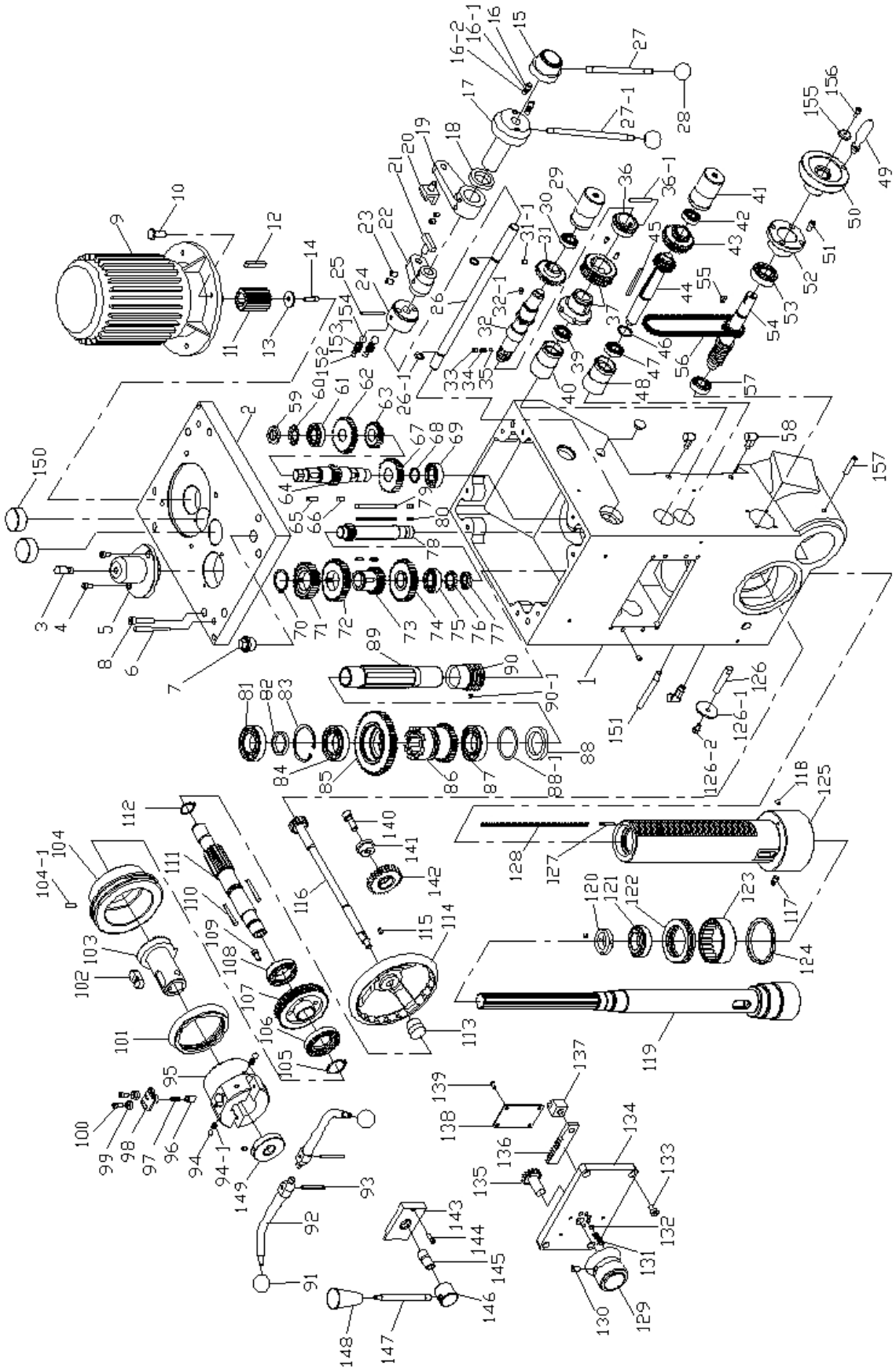


13.3.2 **Base, Column, and Arm Assemblies – Parts List**

Index No.	Part No.	Description	Size	Qty
1	J720R-301G	Base		1
2	10039	Filter Screen		2
3	5513357	Pan Head Machine Screw	3/16” x 3/8”L	4
4	10037G	Cover		1
5	5513357	Pan Head Machine Screw	3/16” x 3/8”L	2
6	TS-1491031	Hex Cap Screw	M10 x 25L	2
7	J720R-307	Washer		1
8	J720R-308	Bearing Cover		1
9	BB-51114	Bearing	51114	1
10	J720R-310G	Column Support Collar		1
11	M1402002	Bolt	M16 x 90L	8
12	BB-51114	Bearing	51114	1
13	M0901-6214ZZ	Bearing	6214ZZ	1
14	10007	Bearing Cover		1
15	10009	Steel Band		1
16	J720R-316	Needle		45
17	10010	Steel Band		1
18	J720R-318	Column		1
19	J720R-319G	Arm		1
20	TS-1503061	Socket Head Cap Screw	M6x25L	2
21	10027G	Fixed Flange		1
22	10005	Steel Band		1
23	10029	Fixed Flange		1
24	TS-1503051	Socket Head Cap Screw	M6x20L	2
25	10032	Key		1
26	TS-1503071	Socket Head Cap Screw	M6x30L	2
27	5513357	Pan Head Machine Screw	3/16” x 3/8”L	4
28	10028	Aluminum Alloy Ring		1
29	M1501003	Nut	1/2"	2
30	10040	Washer		4
31	M1402009	Bolt	1/2" x 4-1/2”L	2
32	M1401-M6x65	Socket Head Cap Screw	M6 x 65L	1
33	10038	Eccentric Shaft		1
34	J720R-334	Nut		1
35	10041	Washer		1
36	10035	Locking Lever		1
37	5233391	Oil Cup	PT1/8” x 90°	2
38	10028	Aluminum Alloy Ring		1
39	M1414006	Bolt	3/16” x 3/8”L	4
40	TS-1504071	Socket Head Cap Screw	M8 x 35L	1
41	J720R-341	Arm Rack		1
42	J720R-342	Stop Rack		1
43	TS-1504071	Socket Head Cap Screw	M8x35L	1
44	10033	Handle		1
45	5233331	Work Lamp	FS51441	1
45A	5233341	Lamp Seat		1
46	J720R-346	Acrylic Cover		1
47	M1425001	Bolt	3/16” x 3/8”L	9
48	10008G	Ring Clamp		1
49	TS-1503121	Socket Head Cap Screw	M6x55L	2
50	J720R-350	Nut		1
51	10041	Washer		1
52	10035	Locking Lever		1
53	M0809001	Dust Seal	5mm	1
54	M0809001	Dust Seal	5mm	1
55	M0809001	Dust Seal	5mm	2
56	TS-1504081	Socket Head Cap Screw	M8x40L	2
57	TS-1504031	Socket Head Cap Screw	M8x16L	2
58	TS-1524031	Set Screw	M8x12L	2

Index No.	Part No.	Description	Size	Qty
59	TS-1503051	Socket Head Cap Screw	M6x20L	1
60	TS-1505031	Socket Head Cap Screw	M10x25L	1
61	M1402011	Bolt	5/8” x 2-1/2”L	4
62	5233111	Nut	5/8”-11UNC	4
63	TS-1505021	Socket Head Cap Screw	M10 x 20L	4
64	J720R-364	Box Table (not shown)	23-5/8x17-1/2x15	1

13.4.1 **Gear Box Assembly – Exploded View**



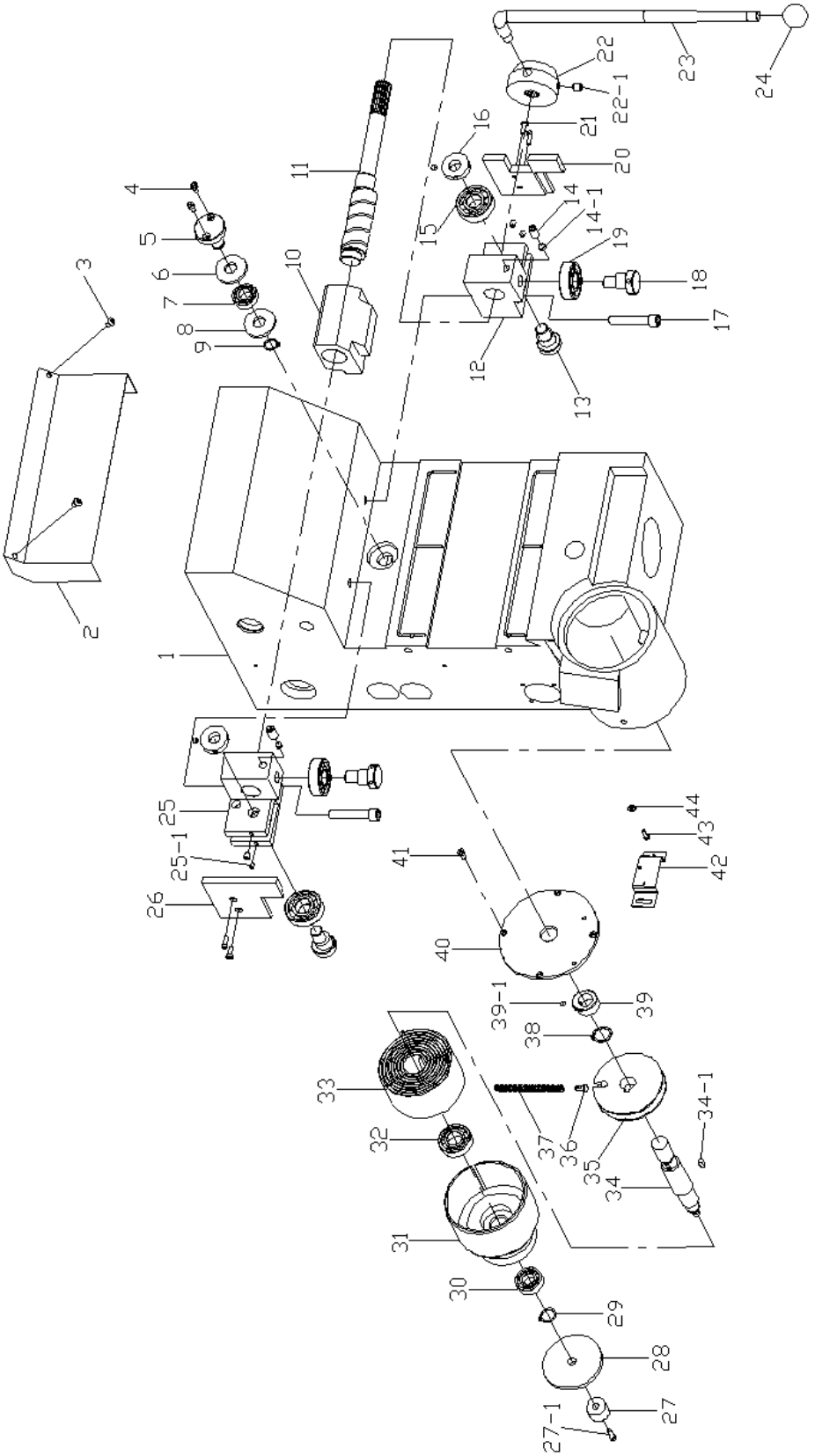
13.4.2 **Gear Box Assembly – Parts List**

Index No.	Part No.	Description	Size	Qty
1	10044G	Gear Box		1
2	10045G	Gear Box Cover		1
3	5234171	Oil Cup	PT1/8” x 3/4”	1
4	TS-1503031	Socket Head Cap Screw	M6x12L	2
5	10119G	Spindle Cover		1
6	5234191	Taper Pin	#7 x 75L	2
7	M0604005	Fill Plug	PT1/2”	1
8	TS-1504081	Socket Head Cap Screw	M8 x 40L	8
9	M1210020	Motor	2HP, 220/380V, 50/60Hz, 4P	1
10	TS-1491031	Hex Cap Screw	M10x25L	4
11	5234441	Motor Gear		1
12	5234411	Key	8mm x 40L	1
13	5234451	Washer		1
14	TS-1503051	Socket Head Cap Screw	M6 x 20L	1
15	10071	Feed Speed Selector		1
16	TS-1525011	Set Screw	M10 x 10L	2
16-1	J720R-416	Spring		2
16-2	BB-5/16	Steel Ball	5/16”	2
17	10069	Three Step Speed Change Lever Adapter		1
18	5234661	Oil Seal	TC30 x 45 x 8	1
19	10067	Speed Change Rocker Arm		1
20	5234681	Copper Block		1
21	5234711	Copper Block		1
22	5234721	Speed Change Rocker Arm		1
23	TS-1524031	Set Screw	M8 x 12L	4
24	10073	Shaft End Cover		1
25	M1305-5x50	Spring Pin	5mm x 50L	2
26	10064	Speed Change Shaft		1
26-1	5234741	O-Ring	P12	2
27	10072	Three Step Speed Change Lever		1
27-1	10070	Three Step Speed Change Lever		1
28	M1317009	Plastic Knob	5/16”	2
29	10079	Bushing		1
30	BB-6002ZZ	Bearing	6002ZZ	1
31	5234921	Gear		1
31-1	TS-1523021	Set Screw	M6 x 8L	1
32	10074	Gear Shaft		1
32-1	5234881	Key	5mm x 12L	1
33	M1403-M10x8	Set Screw	M10 x 8L	1
34	5234781	Spring		1
35	SB-5/16	Steel Ball	5/16”	1
36	5234851	Gear		1
36-1	M1305-5x40	Spring Pin	5mm x 40L	1
	B100026	Worm Gear with Sleeve Assembly (#33,34,35,37)		1
37	J720R-437	Worm Gear with Sleeve		1
39	BB-6002ZZ	Bearing	6002ZZ	1
40	10082	Bushing		1
41	10079	Bushing		1
42	BB-6002ZZ	Bearing	6002ZZ	1
43	5234771	Gear		1
44	10080	Gear Shaft		1
45	M1328-5x65	Key	5mm x 65L	1
46	M1312-S22	Retainer	S22	1
47	BB-6002ZZ	Bearing	6002ZZ	1
48	10082	Bushing		1
49	M1317004	Handle	3/8”	1
50	10085	Manual Feed Handwheel		1
51	TS-1503031	Socket Head Cap Screw	M6 x 12L	4
52	10084G	Bushing		1

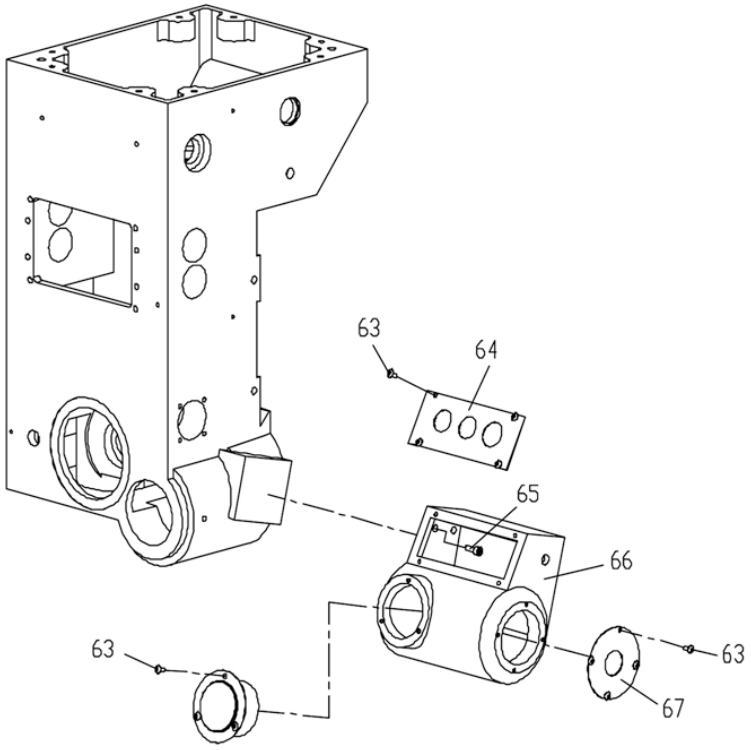
Index No.	Part No.	Description	Size	Qty
53	BB-6204ZZ	Bearing	6204ZZ	1
54	10083	Sprocket		1
55	M1328-6x12	Key	6mm x 12L	1
56	M1204005	Chain	25H x 70	2
57	BB-6002ZZ	Bearing	6002ZZ	1
58	M1323019	Oil Cup	PT1/8” x 90°	3
59	5234481	Lock Nut		1
60	5234491	Crown Washer	AW04	1
61	BB-6004ZZ	Bearing	6004ZZ	1
62	5234521	Gear		1
63	5234531	Gear		1
64	5234561	Gear Shaft		1
65	5234551	Key	7mm x 20L	1
66	5234571	Key	7mm x 12L	1
67	5234581	Gear		1
68	5234591	Retainer	S22	1
69	BB-6004ZZ	Bearing	6004ZZ	1
70	5234341	Retainer	S35	1
71	5234331	Gear		1
72	5234321	Gear		1
73	5234311	Gear		1
74	5234281	Gear		1
75	BB-6004ZZ	Bearing	6004ZZ	1
76	5234491	Crown Washer	AW04	1
77	5234251	Lock Nut		1
78	5234361	Gear Shaft		1
79	5234371	Key	6mm x 85L	2
80	5234351	Key	6mm x 10L	2
81	BB-6007ZZ	Bearing	6007ZZ	1
82	10061	Washer		1
83	5234131	Retainer	R62	1
84	BB-6007ZZ	Bearing	6007ZZ	1
85	5234111	Clutch Upper Gear		1
86	5234091	Clutch Lower Gear		1
87	5234141	Bearing	6007UU	1
88	5234071	Oil Seal	TC42*58*8	1
88-1	5234081	O-Ring	P30	1
89	5234231	Spindle Shaft		1
90	5234061	Worm		1
90-1	TS-1523011	Set Screw	M6x6L	1
91	M1317009	Plastic Knob	5/16”	1
92	J720R-492	Feed Handle		2
93	M1305-5x50	Spring Pin	5mm x 50L	2
94	SB-3/8	Steel Ball	3/8”	2
94-1	10680	Spring		2
95	10099	Clutch Housing		1
96	J720R-496	Cotter Pin		1
97	10125	Spring		1
98	10100	Stop Cotter		1
99	10118	Screw Cover		2
100	M1401-M5x14	Socket Head Cap Screw	M5 x 14L	2
101	10098	Dial		1
102	10095	Key		1
103	10094	Clutch Upper Gear		1
104	J720R-4104	Dial Seat		1
104-1	M1301-8x20	Pin	8mm x 20L	1
105	M1312-S30	Retainer	S30	1
106	10093	Clutch		1
107	10092	Worm Gear		1
108	BB-6006ZZ	Bearing	6006ZZ	1
109	M1401-M6x14	Socket Head Cap Screw	M6 x 14L	4
110	M1328-6x50	Key	6mm x 50L	2

Index No.	Part No.	Description	Size	Qty
111	10091	Gear Shaft		1
112	M1312-S24	Retainer	S24	1
113	J720R-4113	Handwheel Lock Nut		1
114	J720R-4114	Handwheel		1
115	M1328-5x12	Key	5mm x 12L	1
116	J720R-4116	Pinion Shaft		1
117	M1321002	Grease Nipple	PT1/8”	1
118	TS-1523021	Set Screw	M6 x 8L	1
119	10089	Spindle		1
120	J-10090	Lock Nut		1
121	BB-32006	Bearing	32006	1
122	BB-51111	Thrust Bearing	51111	1
123	RNA4911	Bearing	RNA4911	1
124	10088	Nut		1
125	J720R-4125	Quill		1
126	10087	Copper Key		1
126-1	10123	Washer		1
126-2	TS-1503031	Socket Head Cap Screw	M6 x 12L	1
127	10063	Set Screw		1
128	M1204003	Chain	25H x 94	1
129	5233871	Feed Speed Selector		1
130	M1403-M10x16	Set Screw	M10 x 16L	1
131	J720R-4131	Spring		1
132	SB-5/16	Steel Ball	5/16”	1
133	TS-1504031	Socket Head Cap Screw	M8 x 16L	4
134	10112G	Gear Box Front Cover		1
135	5233911	Feed Speed Change Gear		1
136	5233821	Arm Rack		1
137	10115	Gear Shift Lever		1
138	J720R-4138	Plate		1
139	M1414006	Bolt	3/16” x 3/8”L	4
140	TS-1505041	Socket Head Cap Screw	M10 x 30L	1
141	10108	Eccentric Bushing		1
142	J720R-4142	Gear		1
143	10109	Set Block		1
144	TS-1502041	Socket Head Cap Screw	M5 x 16L	1
145	10110	Lock Screw		1
146	10111	Nut		1
147	10072	Three Step Speed Change Lever		1
148	M1317005	Knob	5/16”	1
149	J720R-4149	Nut		1
150	10121	Gasket		2
151	10122	Fixed Lock		1
152	M1403-M10x10	Set Screw		2
153	J720R-4153	Spring		2
154	M1323025	Steel Ball		2
155	10047	Washer		1
156	TS-1503031	Socket Head Cap Screw	M6 x 12	1
157	TS-1504081	Socket Head Cap Screw	M8 x 40L	1
158	10127	Copper Ball		1
159	M1403-M6x10	Set Screw	M6 x 10L	1
160	M1323021	Oil Sight Glass (not shown)		1
161	M0606002	Drain Plug (not shown)		1

13.5.1 **Rear Gear Box Assembly I – Exploded View**



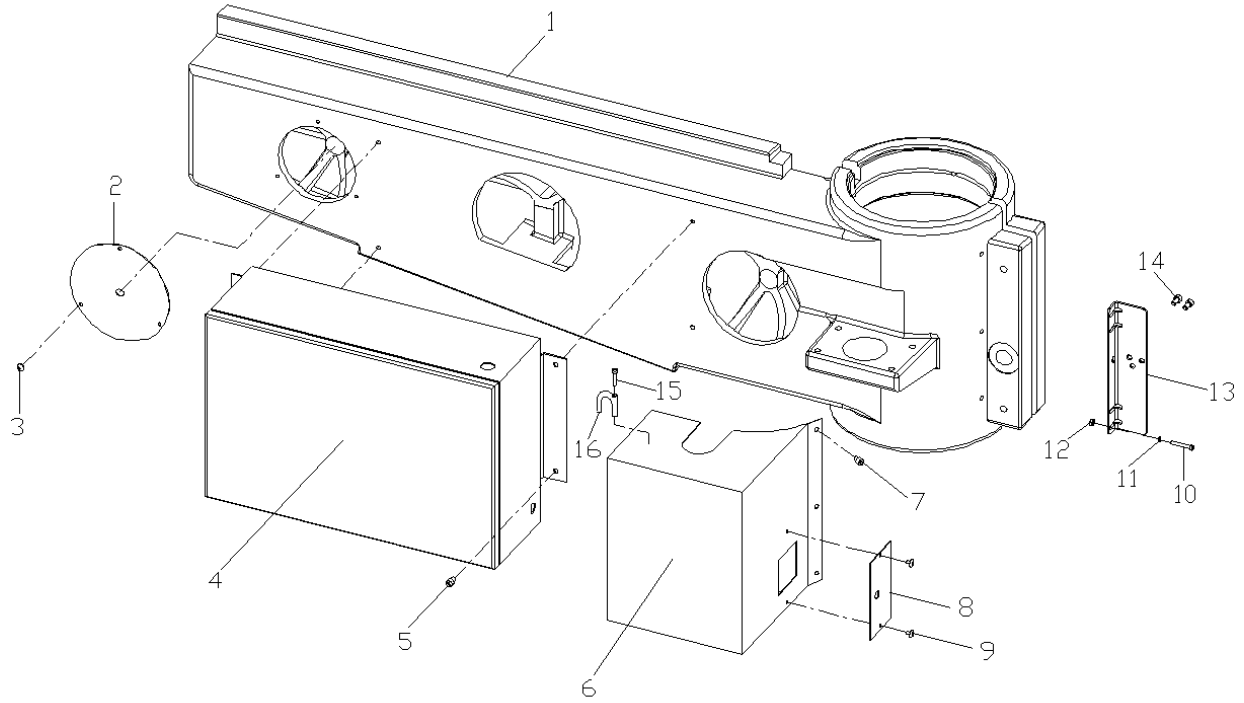
13.5.2 **Rear Gear Box Assembly II – Exploded View**



13.5.3 **Rear Gear Box Assembly – Parts List**

Index No.	Part No.	Description	Size	Qty
1	10044G	Gear Box		1
2	10128G	Guard		1
3	TS-1534032	Phillips Pan Head Machine Screw	M6 x 10L	2
4	TS-1502021	Socket Head Cap Screw	M5 x 10L	2
5	10129	Shaft		1
6	10130	Washer		1
7	BB-6002ZZ	Bearing	6002ZZ	1
8	10130	Washer		1
9	M1312-S15	Retainer	S15	1
10	10147	Cam Shaft Sleeve		1
11	10148	Clamping Cam Shaft		1
12	10134G	Bearing Bracket		1
13	10133	Eccentric Shaft		2
14	TS-1525041	Set Screw	M10 x 20L	2
14-1	10153	Copper Ball		2
15	BB-6204ZZ	Bearing	6204ZZ	2
16	10132	Adjusting Washer		2
17	M1401-M10x55	Socket Head Cap Screw	M10 x 55L	2
18	10135	Eccentric Shaft		2
19	BB-6204ZZ	Bearing	6204ZZ	2
20	10136G	Plate		1
21	M1414001	Bolt	3/16” x 1/2"L	4
22	10149	Feed Speed Selector		1
22-1	TS-1524021	Set Screw	M8 x 10L	1
23	10150	Clamping Lever		1
24	M1317007	Knob	1/2"	1
25	10131G	Bearing Bracket		1
25-1	TS-1523021	Set Screw	M6 x 8L	4
26	10137G	Plate		1
27	10145	Handwheel Lock Nut		1
27-1	TS-1503041	Socket Head Cap Screw	M6 x 16L	1
28	10143	Auxiliary Dial		1
29	M1312-S17	Retainer	S17	1
30	BB-6003ZZ	Bearing	6003ZZ	1
31	10140	Spring Housing		1
32	BB-6004ZZ	Bearing	6004ZZ	1
33	10139	Spring		1
34	10141	Shaft		1
34-1	M1328-5x12	Key	5mm x 12L	1
35	10138	Pulley		1
36	10154	Adapter of Chain		1
37	M1204003	Chain	25H x 94	1
38	M1312-S20	Retainer	S20	1
39	10151	Cam		1
39-1	M1403-M6x6	Set Screw	M6 x 6L	1
40	10142G	Cover		1
41	M1414006	Bolt	3/16” x 3/8”L	4
42	10152G	Mounting Plate		1
43	M1414010	Bolt	5/32” x 5/8”L	2
44	M1501007	Nut	5/32”	2
63	M1414006	Bolt	3-3/16” x 3/8”L	11
64	10726	Switch Plate		1
65	TS-1503041	Socket Head Cap Screw	M6 x 16L	2
66	10146G	Switch Box		1
67	10725	Switch Plate		1

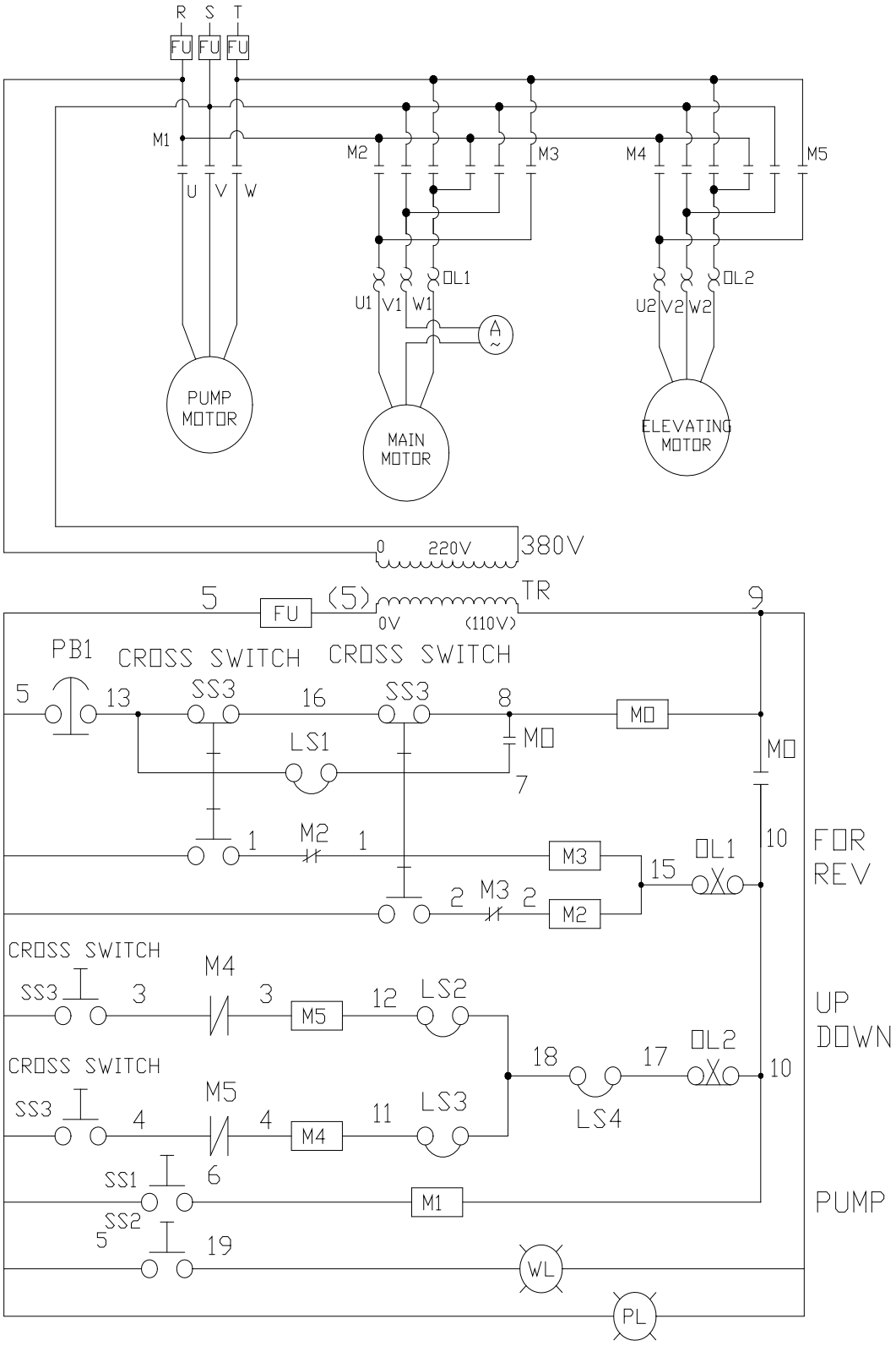
13.6.1 **Electrical Box – Exploded View**



13.6.2 **Electrical Box – Parts List**

Index No.	Part No.	Description	Size	Qty
1	10030G	Arm		1
2	10156G	Cover		1
3	M1414002	Bolt	3/16” x 1/4”L	3
4	10161G	Electric Control Box		1
5	TS-1503021	Socket Head Cap Screw	M6 x 10L	4
6	10157G	Cover		1
7	TS-1503021	Socket Head Cap Screw	M6 x 10L	4
8	10158G	Mounting Plate		1
9	M1414002	Bolt	3/16” x 1/4”L	2
10	M1414009	Bolt	5/32” x 1-1/4”L	4
11	M1602037	Washer	5/32”	4
12	M1501007	Nut	5/32”	4
13	10159G	Mounting Plate		1
14	TS-1503031	Socket Head Cap Screw	M6 x 12L	2
15	M1414003	Bolt	3/16” x 1-1/4”	2
16	M1315028	Cable Holder		2

14.0 **Electrical Connections for J-720R**



14.1 **Electrical Connections for J-720R – Parts List**

Symbol	Part No.	Description	Size	Qty
M1	JTM1254VS-FKM1	Magnetic Contactor	TECO CU-11	1
M2	JTM1254VS-FKM1	Magnetic Contactor	TECO CU-11	1
M3	JTM1254VS-FKM1	Magnetic Contactor	TECO CU-11	1
M4	JTM1254VS-FKM1	Magnetic Contactor	TECO CU-11	1
M5	JTM1254VS-FKM1	Magnetic Contactor	TECO CU-11	1
M0	JTM1254VS-FKM1	Magnetic Contactor	TECO CU-11	1
FU	E2802003	Fuse Seat	3P	1
FU	E2802013	Fuse Seat	1P	2
FU	E3101016	Fuse	5A	2
FU	E3101014	Fuse	30A	3
FU	E3101015	Fuse (460V)	20A	3
TR	E1801005	Transformer	PT40	1
OL1	E0207011	Overload Relay (230V)(for main motor)	RH 18/7	1
OL1	E0207007	Overload Relay (460V)(for elevating motor)	RH 18/4	1
OL2	E0207007	Overload Relay (230V)(for main motor)	RH 18/4	1
OL2	E0207008	Overload Relay (460V)(for elevating motor)	RH 18/1.7	1
PB1	E1618001	Emergency Push Button Switch	SBT-307	1
SS1	E1304001	Selector Switch	ST251	1
SS2	E1604001	Selector Switch	SN1021	1
SS3	5231981	Cross Switch		1
LS1	E0901021	Limit Switch	V-15-1E5	1
LS2	E0901014	Limit Switch	MJ2-1308	1
LS3	E0901014	Limit Switch	MJ2-1308	1
LS4	E0901014	Limit Switch	MJ2-1308	1
WL	E1701002	Work Lamp	FS51441	1
PL	E2303002	Pilot Light	SP-251 110V	1
Ã	E3602002	Amp Meter (230V)	S065 20A	1
Ã	E3602003	Amp Meter (460V)	S065 10A	1

15.0 **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

NOTE: JET is a division of JPW Industries, Inc. References in this document to JET also apply to JPW Industries, Inc., or any of its successors in interest to the JET brand.