PROMAC®

06-2017

Metal Lathe
Metalldrehbank
Tour à métaux

PBD-2555V

CE

Schweiz / Suisse
JPW (TOOL) AG
Tämperlistrasse 5
CH-8117 Fällanden Switzerland
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CE-Conformity Declaration
CE-Konformitätserklärung
Déclaration de Conformité CE

Product / Produkt / Produit:
Metal lathe / Metalldrehbank / Tour à métaux

PBD-2555V

Brand / Marke / Marque:

PROMAC

Manufacturer / Hersteller / Fabricant:
JPW (Tool) AG, Tämperlistrasse 5, CH-8117 Fällanden
Schweiz / Suisse / Switzerland

We hereby declare that this product complies with the regulations
Wir erklären hiermit, dass dieses Produkt der folgenden Richtlinie entspricht
Par la présente, nous déclarons que ce produit correspond aux directives suivantes

2006/42/EC
Machinery Directive
Maschinenrichtlinie
Directive Machines

2014/30/EU
electromagnetic compatibility
elektromagnetische Verträglichkeit
compatibilité électromagnétique

designed in consideration of the standards
und entsprechend folgender zusätzlicher Normen entwickelt wurde
et été développé dans le respect des normes complémentaires suivantes

EN ISO 12100:2010

EN ISO 23125:2015

EN 60204-1:2006/AC2010

EN 61000-6-2:2005

EN 61000-6-4:2007/A1:2011

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Schweiz / Suisse / Switzerland

EN Operating Instructions (Original)

1.0 About this Manual

This manual is provided by PROMAC, covering the safe operation and maintenance procedures for a **PROMAC Model PBD-2555V Metal Lathe**. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. The 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.

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

2.0 Table of Contents

3.0 IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THIS LATHE.

 **– To reduce risk of injury:**

1. Read and understand entire owner's manual before attempting assembly or operation of this machine.
2. Read and understand the warnings posted on the machine and in this manual.
3. Replace warning labels if they become obscured or removed.
4. This machine is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a metal lathe, do not use until proper training and knowledge have been obtained.
5. Do not use this machine for other than its intended use. If used for other purposes, PROMAC disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
6. Always wear approved safety glasses or face shield while using this machine. (Everyday eyeglasses only have impact resistant lenses; they are *not* safety glasses.)
7. Before operating this machine, remove tie, rings, watches and other jewellery, and roll sleeves up past the elbows. Remove loose clothing and confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do **not** wear gloves.
8. Wear hearing protection (plugs or muffs) during extended periods of operation.
9. Some dust created by sawing may contain chemicals known to cause cancer, 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 face or dust masks that are specifically designed to filter out microscopic particles.
10. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
11. Make certain the switch is in the **OFF** position before connecting the machine to the power supply. Turn off all controls before unplugging.
12. Make certain the machine is properly grounded. Connect to a properly grounded outlet only. See Grounding instructions.
13. Make all machine adjustments or maintenance with the machine unplugged from the power source.
14. 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.
15. 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 maintenance is complete.
16. 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.
17. Provide for adequate space surrounding work area and non-glare, overhead lighting.
18. Keep the floor around the machine clean and free of scrap material, oil and grease.
19. Keep visitors a safe distance from the work area. **Keep children away.**
20. Make your workshop child proof with padlocks, master switches or by removing starter keys.
21. Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in serious injury.
22. Keep an ergonomic body position. Maintain a balanced stance at all times so that you do not fall or lean against the chuck or other moving parts. Do not overreach or use excessive force to perform any machine operation.
23. 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 safer.
24. The machine is intended for indoor use. To reduce the risk of electric shock, do not use outdoors or on wet surfaces.
25. Do not handle plug or machine with wet hands.
26. Use recommended accessories; improper accessories may be hazardous.
27. Maintain tools with care. Keep tools sharp and clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
28. Turn off machine and disconnect from power before cleaning. Use a brush or compressed air to remove chips or debris; do not use bare hands.
29. Do not stand on the machine. Serious injury could occur if the machine tips over.
30. Never leave the machine running unattended. Turn the power off and do not leave the machine until it comes to a complete stop.
31. Remove loose items and unnecessary work pieces from the area before starting the machine.
32. Pull the mains plug if the machine is not in use.
33. Make sure the workpiece is securely clamped.

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

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

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

SAVE THESE INSTRUCTIONS

WARNING:

These symbols blow advise that you follow the correct safety procedures when using this machine.

Read and understand the entire user manual before attempting assembly or machine operation.

Always wear approved working outfit
Wear safety goggles.
Wear ear protection.

Always wear the approved working outfit
Wear safety shoes.
Remove tie, rings, watches, jewellery.
Roll up sleeves above elbows.
Remove all loose clothing and confine long hair

Make all machine adjustments or maintenance with the machine unplugged from the power source.

Any work piece stock extending the rear end of the headstock must be covered on its entire length. High danger of injury

Do not operate this machine under the influence of drugs, alcohol or medication

Do not wear gloves while operating this machine

Connection and repair work on the electrical installation may be carried out by a qualified electrician only.

Never reach into the machine while it is operating or running down.

3.1 **Designated use and limitations to use**

The machine is designed for turning and drilling machinable metal and plastic materials only.

The workpiece must allow to safely be loaded, supported and clamped.

The machine is intended for indoor use. The protection rating of the electrical installation is IP 54.

To avoid tipping, the machine must be bolted down with four anchor bolts.

If used for other purposes, PROMAC disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.

 **WARNING:**

The machine is not suitable for machining magnesium…high danger to fire !

Never place your fingers in a position where they could contact any rotating parts or chips.

Check the save clamping of the work piece before starting the machine.

Don't exceed the clamping range of the chuck.

Work pieces longer than 3 times the chucking diameter need to be supported by the tailstock or a steady rest.

Avoid small chucking diameters at big turning diameters. Avoid short chucking lengths and small chucking contact.

Do not exceed the max speed of the work holding device.

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.

Use recommended accessories; improper accessories may be hazardous.

Maintain tools with care. Keep cutting tools sharp and clean for the best and safest performance.

Follow instructions for lubricating and changing accessories.

Do not attempt to adjust or remove tools during operation.

Never stop a rotating chuck or workpiece with your hands.

Choose a small spindle speed when working unbalanced work pieces and for threading and tapping operations.

Any work piece stock extending the rear end of the headstock must be covered on its entire length. High danger of injury!

Long work pieces may need a steady rest support. A long and thin work piece can suddenly bend at high speed rotation.

Never move the tailstock or tailstock quill while the machine is running.

Remove cutting chips with the aid of an appropriate chip hook when the machine is at a standstill only.

Measurements and adjustments may be carried out when the machine is at a standstill only.

Maintenance and repair work may only be carried out after the machine is protected against accidental starting, pull the mains plug.

Remove loose items and unnecessary work pieces from the area before starting the machine.

Rotate workpiece by hand before applying power. Use lowest speed when starting new workpiece.

Tighten all locks before operating.

3.2 **Remaining hazards**

When using the machine according to regulations some remaining hazards may still exist.

The rotating work piece and chuck can cause injury.

Thrown and hot work pieces and cutting chips can lead to injury.

Chips and noise can be health hazards. Be sure to wear personal protection gear such as safety goggles and ear protection.

The use of incorrect mains supply or a damaged power cord can lead to injuries caused by electricity.

When opening the electrical cabinet, the grid-feeding voltage persists. Therefore pay attention every time you enter it.

4.0 **Specifications**

Model number	PBD-2555V
Stock number	PBD-2555V

Motor and electricals:

Motor type	DC-motor, variable speed
Motor power	1.1 kW
Power supply	1~230V, PE, 50Hz
Protection class	IP54
Listed load amps	6 A
Machine lamp	Halogen lamp 24V, 35 W
Coolant pump	40 W

Capacities:

Centre height	125 mm
Swing over bed	250 mm
Swing over cross slide	140 mm
Distance between Centres	550 mm

Spindle:

Spindle nose mounting	short taper (1:4 Ø53.975mm, Ø75x3xØ9)
Spindle bore	26 mm
Spindle taper	MT4
Number of spindle speeds	variable
Range of spindle speeds	50~1250 & 100~2500 /min

Tailstock:

Tailstock ram travel	65 mm
Tailstock taper	MT2

Tool Slide:

Cross slide travel	110 mm
Top slide travel	70 mm
Tool size max	12x12 mm
Lead screw pitch	3 mm
Longitudinal feed	(6x) 0.07/ 0,1 / 0.14/ 0.2/ 0.28/ 0.40 mm/rev
Metric threads	(21x) 0.2 ~ 4.0 mm/rev
Inch threads	(21x) 8 ~ 56 TPI

Materials:

Machine Bed	Cast iron, induction hardened and precision ground
Headstock, tailstock, slides	Cast iron
Spindle bearings	Taper roller bearings, quality level P5

Sound emission in idle 1	73.4 dB (LpA)
Sound emission during cutting 1	78.3 dB (LpA)

[1] *Sound emission measured in 1m distance, 1.6m above ground. 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.*

Dimensions and Weights:

Overall dimensions, assembled (W x D x H)	1250 x 590 x 480 (1300) mm
Shipping dimensions (W x D x H)	1200x560x610 & 820x580x430 mm
Net weight (approximate)	178 kg
Shipping weight (approximate)	200 kg

L = length; W = width; H= height; D= depth

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 **Spindle nose mounting:**

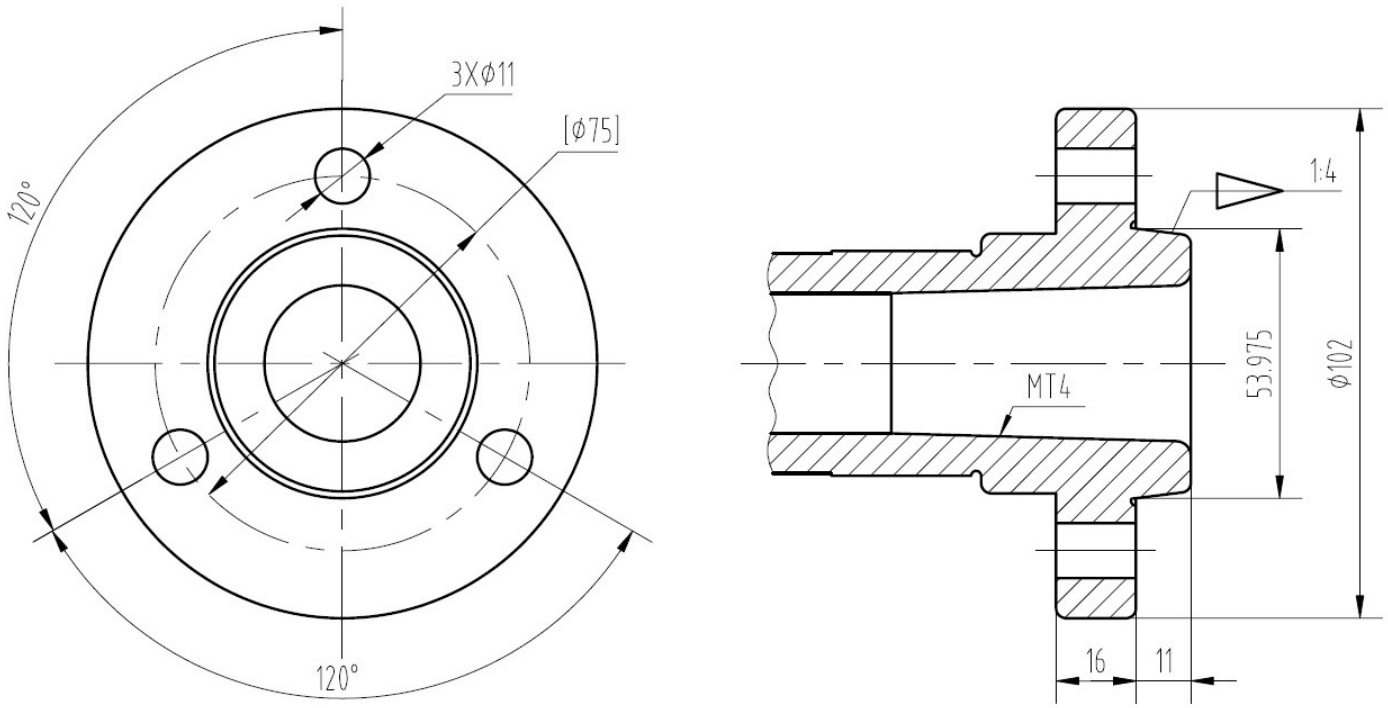


Figure 4-1: Spindle nose mounting

4.2 **Anchor bolt hole pattern:**

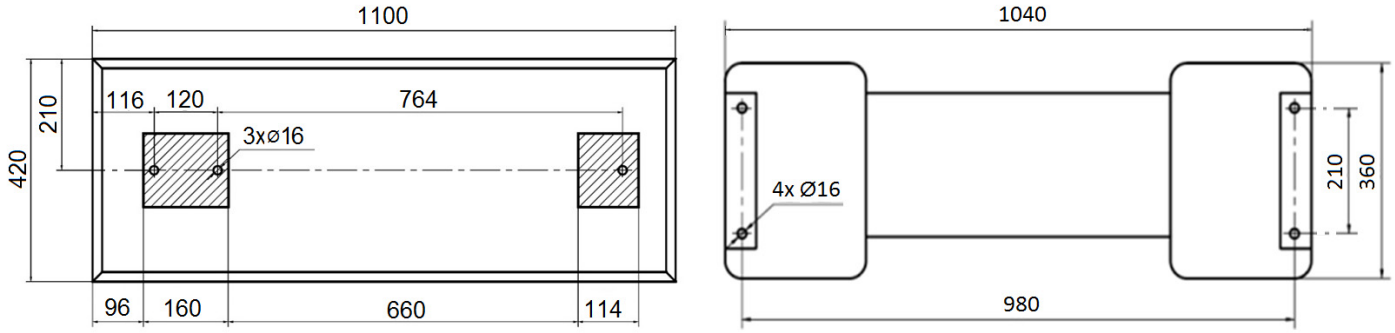


Figure 4-2: Anchor bolt pattern for lathe bed (left) & machine stand (right)

WARNING:
To avoid tipping, the machine must be bolted down with four anchor bolts (not provided).

5.0 **Machine Description**

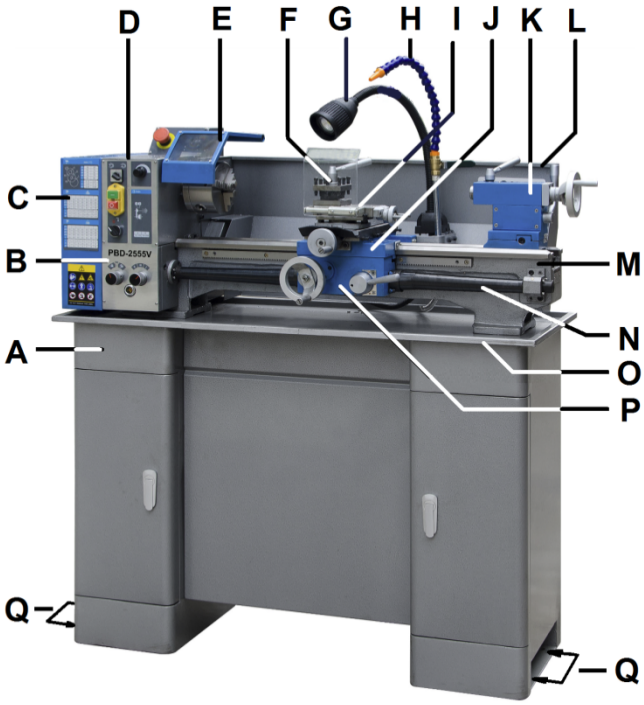


Figure 5-1: Machine description

A ..... Machine cabinet stand

B ..... Gear box

C .....Pulley cover

D ..... Headstock

E .....Chuck and chuck guard

F .....Tool post and tool post guard

G ..... Machine lamp

H ..... Coolant nozzle

I .....Top slide

J .....Carriage

K .....Tailstock

L ..... Splash guard

M .....Lathe bed

N .....Lead screw

O .....Chip tray

P ..... Apron

Q ..... Anchor points

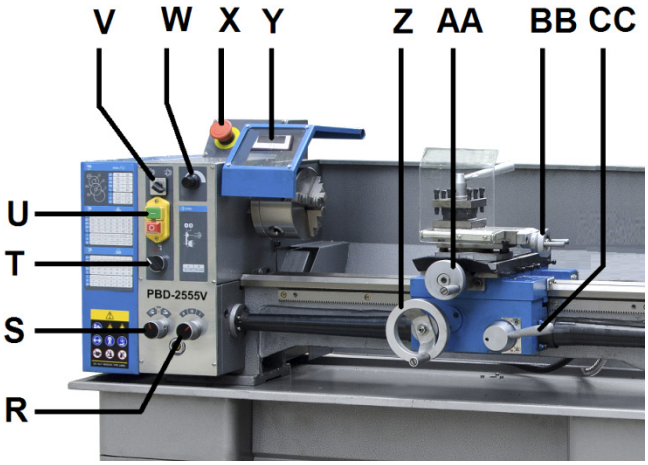


Figure 5-2: Machine description

R .....Feed speed select knob

S ..... Feed forward/off/reverse

T ..... Coolant ON/OFF

U .....Spindle power ON/OFF

V ..... Spindle forward/reverse

W ..... Variable speed select knob

X .....Emergency Stop

Y .....Spindle speed display

Z .....Apron hand wheel

AA .....Cross slide hand wheel

BB ..... Top slide hand wheel

CC ..... Half-nut lever

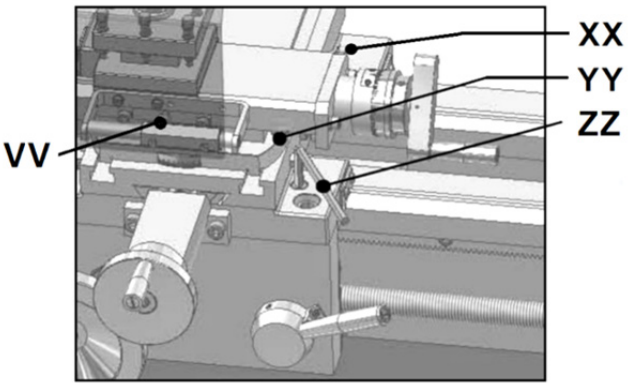


Figure 5-3 Machine description

VV .....Top slide lock

XX ..... Cross slide lock

YY ..... Top slide taper adjustment

ZZ .....Carriage lock

6.0 Setup and Assembly

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

6.1 Unpacking and clean up

Remove all contents from shipping crate and compare parts to the contents list in this manual. If shipping damage or any part shortages are identified, contact your distributor. Do not discard crate or packing material until machine is assembled and running satisfactorily.

Clean all rust protected surfaces with kerosene or a light solvent. Do not use lacquer thinner, paint thinner or gasoline, as these can damage plastic components and painted surfaces.

6.2 Shipping contents

1 Machine
1 Cabinet stand
1 Coolant facility
1 Machine lamp
1 125mm 3-jaw universal chuck
1 125mm 4-jaw independent chuck
1 Chuck guard
1 4-way tool post
1 Tool post guard
1 Set of change gears
1 MT4 fixed centre
1 MT2 fixed centre
1 Steady rest
1 Follow rest
1 Operating tools in tool box
1 Oil can
1 Operating instructions and parts manual

6.3 Assembly

The machine comes completely assembled.
Install the drive belt (V-belt).
Inspect that all fasteners are tight.

6.4 Initial lubrication

The machine must be serviced at all lubrication points before it is placed into service (see chapter 11.1 for lubrication).

6.5 Installation

Unbolt the lathe from the shipping crate bottom.

Use heavy duty fibre belt for lifting the machine off the pallet.

Warning:
The machine is heavy (200 kg)!
Assure the sufficient load capacity and proper condition of your lifting devices.
Never step underneath suspended loads.

To avoid tipping, the machine must be bolted down with four anchor bolts (not provided).

To avoid twisting the bed, make sure the setup surface is absolutely flat and level.

Loosen anchor bolts, shim and tighten bolts if needed.

The machine must be level to be accurate !

7.0 Electrical Connections

WARNING:
All electrical connections must be done by a qualified electrician in compliance with all local codes and ordinances. Failure to comply may result in serious injury.

The PBD-2555V Metal Lathes are rated at 1~230V, PE, 50Hz power supply. The machines come with a plug designed for use on a circuit with a *grounded outlet.*

Mains connection and any extension cords and plugs used must comply with the information on the machine license plate.

The mains connection must have a 16A surge-proof fuse.

Only use extension cords marked H07RN-F, with wires 1,5mm^2 or more.

The total length of cord may not exceed 18 Meter

Power cords and plugs must be free from defects.

Connections and repairs to the electrical equipment may only be carried out by qualified electricians.

The machine is equipped with 1.8m power cord and plug.

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

7.1 Grounding instructions

This tool 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 and a grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING:
Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool.

The green/yellow conductor 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.

Use only 3-wire extension cords with grounding plugs.

Repair or replace damaged or worn cord immediately.

7.2 Extension cords

The use of extension cords is discouraged; try to position machines near the power source. If an extension cord is necessary, make sure it is in good condition.

An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

Only use extension cords marked H07RN-F, with wires 1,5mm2 or more.

The total length of cord may not exceed 18 Meter

Extension cords and plugs must be free from defects.

8.0 Adjustments

8.1 Changing spindle speed range

The speeds of the lathe are controlled by the variable speed select knob (W, Fig 5-2) as well as the position of the belt on the pulleys (Fig 8-1).

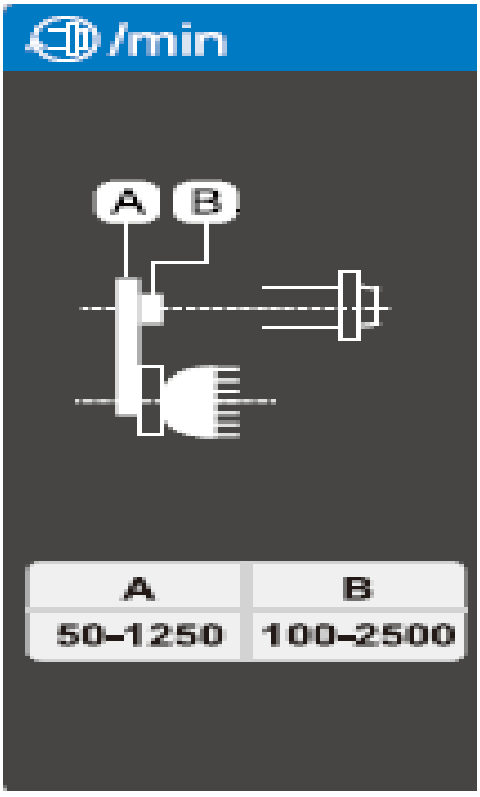


Figure 8-1: Spindle speed range setup

A ..... 50~1250 RPM ..... for maximum torque.

B ..... 100~2500 RPM ..... for maximum speed.

Remove the pulley cover (C, Fig 5-1) to change the belt position. Reinstall the pulley cover.

8.2 Change gear setup

Remove the pulley cover.

The rotational speed of the lead screw, and hence the rate of feed of the cutting tool, is determined by the gear configuration and by the feed speed select lever (R, Fig 5-2).

Assemble the gears with desired setup (Fig 8-2)

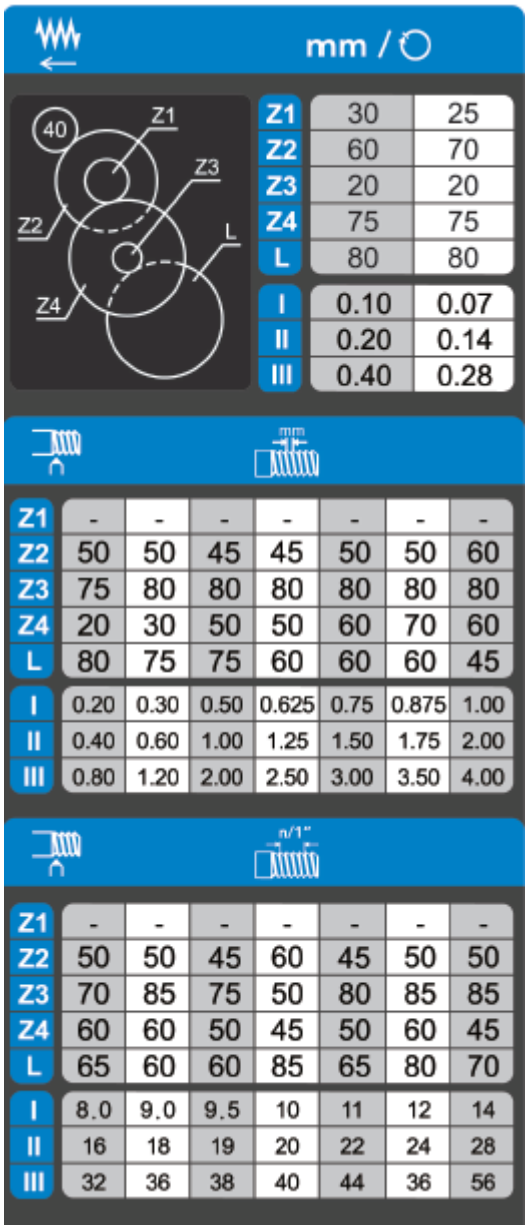


Figure 8-2: Change gear setup

Adjust gears to mesh with upper and lower gear.

Placing ordinary paper in between gears helps to adjust for correct gear spacing (… remove the paper afterwards!).

Reinstall the pulley cover.

8.3 Taper turning with tailstock

Mount the work piece fitted with the drive dog between centres. The drive dog is driven by the face plate.

Lubricate the tailstock centre with grease to prevent tip from overheating.

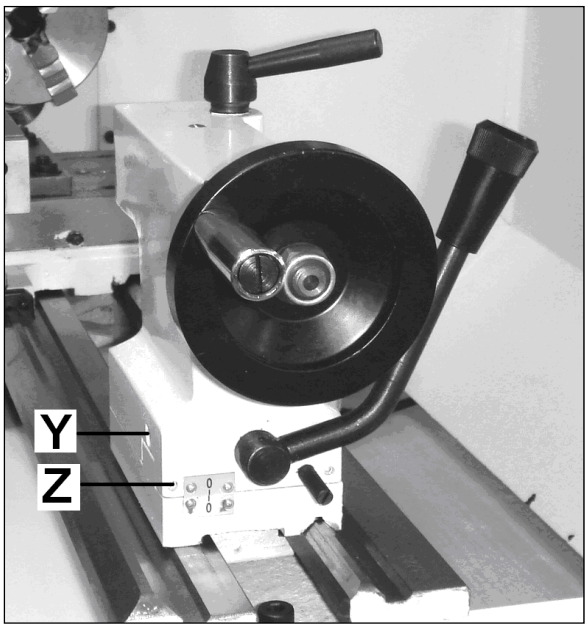


Figure 8-3: Taper turning between centres

To turn a taper, offset the tailstock, loosen the locking screws (Z, Fig 8-3) and use screws (Y) to adjust.

After taper turning, the tailstock must be returned to its original position. Turn a test piece and adjust until the machine turns a perfect cylinder.

8.4 Taper turning with top slide

By angling the top slide, tapers may be turned.

Loosen two hex nuts (A, Fig 8-4) and rotate the top slide according to the graduated scale (B).

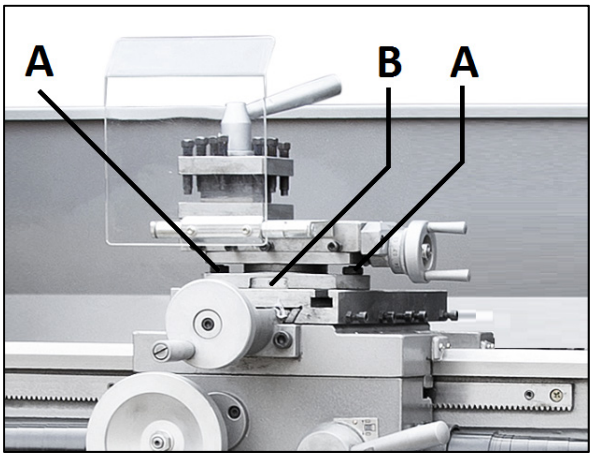


Figure 8-4: Taper turning with top slide

8.5 Three jaw universal chuck

With this universal chuck, cylindrical, triangular and hexagonal stock may be clamped (Fig 8-5).

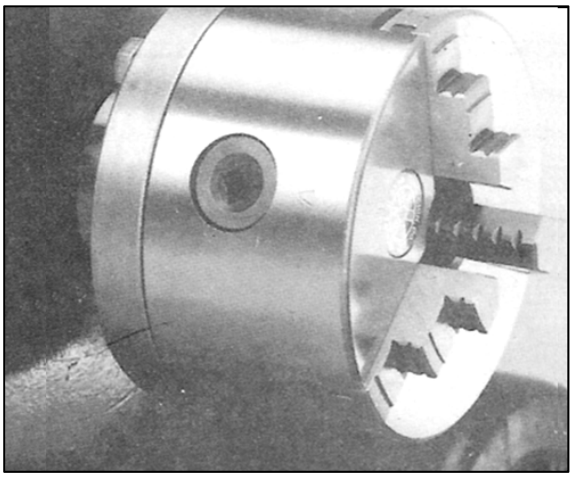


Figure 8-5: Three jaw universal chuck

To hold big diameter stock, a set of OD chuck jaws is supplied.

The jaws need to be inserted to the chuck in the correct order.

Use Molykote Paste G (or adequate grease) to lubricate the jaws.

8.6 Four jaw independent chuck (Optional)

This chuck has four independently adjustable chuck jaws (Fig 8-6).

These permit the holding of square and asymmetrical pieces and enables accurate concentric set-up of cylindrical pieces.

Figure 8-6: Four jaw independent chuck

8.7 **Live centre (Optional)**

The live centre (Fig 8-7) is mounted in ball bearings.

Its use is highly recommended for speeds above 500 RPM.

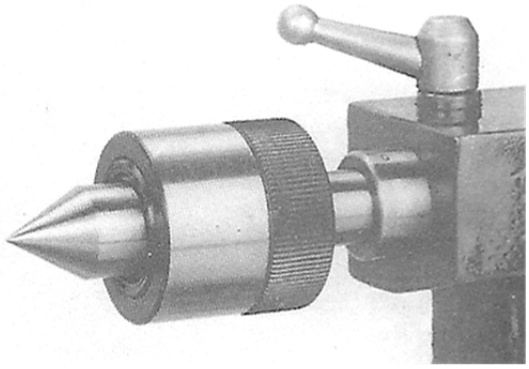


Figure 8-7: Live centre

To eject the live centre, fully retract the tailstock quill.

8.8 **Steady rest and follow rest**

The rests prevent flexing of long and thin work pieces under pressure from the tool.

The steady rest (Fig 8-8) serves as a support for longer shafts and ensures a safe and chatter free operation.

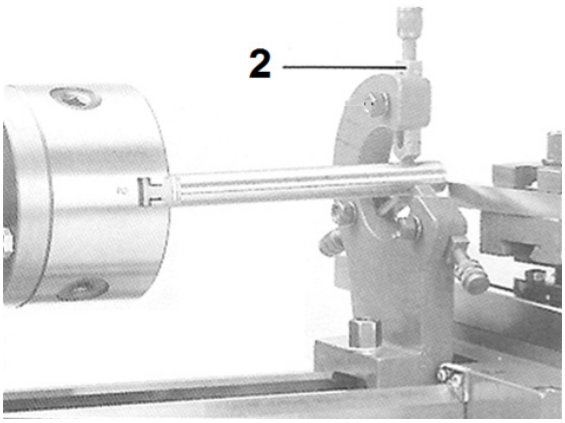


Figure 8-8: Steady rest

The follow rest (Fig 8-9) is mounted on the carriage and follows the movement of the tool.

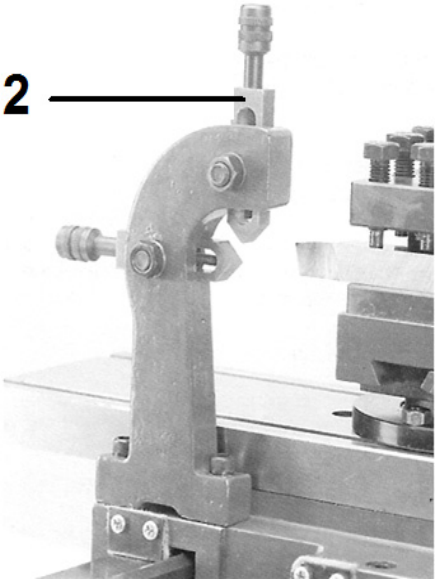


Figure 8-9: Follow rest

Set the fingers (2) snug but not overly tight.
Lubricate the fingers to prevent premature wear.

9.0 **Operating Controls**

Refer to Figure 9-1:

R ..... Feed select knob

S ..... Feed forward/off/reverse

T ..... Coolant ON/OFF

U ..... Spindle power ON/OFF

V ..... Spindle forward/reverse

W ..... Variable speed select knob

X ..... Emergency Stop

Y .....Spindle speed display

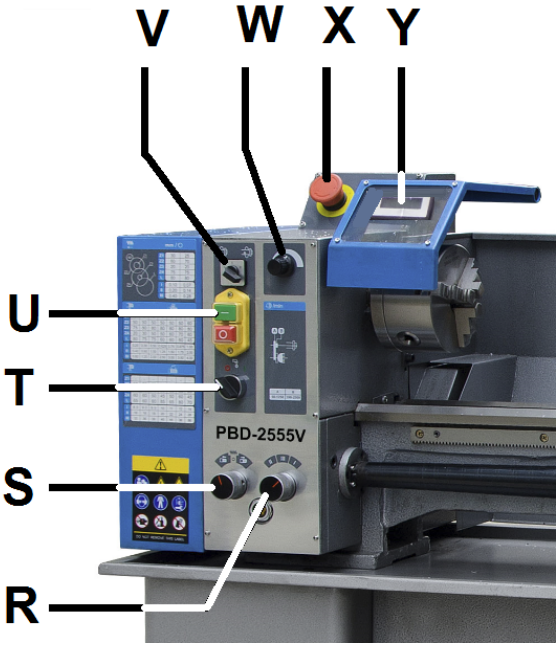


Figure 9-1: Operating Controls

10.0 **Machine Operation**

10.1 **Cutting execution**

Before starting the machine check the proper chucking.

Close the chuck guard and pulley cover before you start the machine.

Select running direction, forward or reverse (V, Fig 9-1).

You can start the machine with the green ON-button (U). The red OFF-button stops the machine.

The speed can be adjusted with the variable speed select knob (W).

The spindle speed will be shown on the display (Y).

The emergency stop button (X) stops all machine functions.

Turn emergency stop button clockwise to reset.

The work lamp (G, Fig 5-1) operates independently; ON/OFF switch is on top of lamp housing.

Unplug the machine if not in use.

10.2 **Chucking**

Do not exceed the max speed of the work holding device.

Jaw teeth and scroll must always be fully engaged. Otherwise chuck jaws may break and fly off in rotation (Fig 10-1).

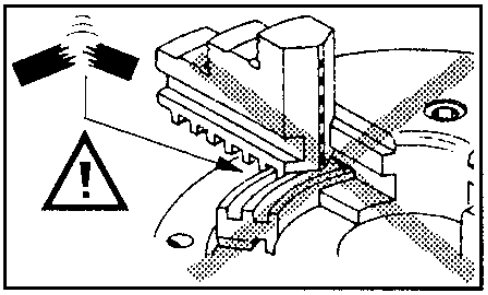


Figure 10-1: Poor jaw engagements

Avoid long workpiece extensions. Parts may bend (Fig 10-2) or fly off (Fig 10-3). Use tailstock or rest to support.

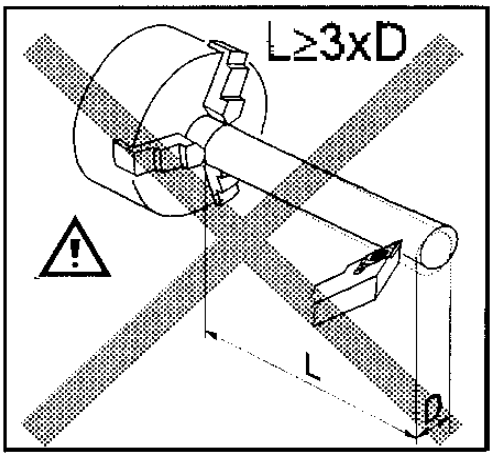


Figure 10-2: Workpiece too long

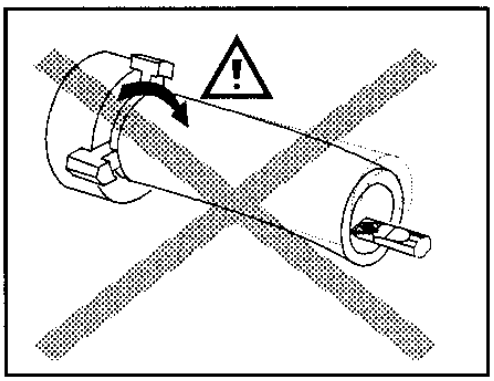


Figure 10-3: Workpiece too long

Avoid short clamping contact (A, Fig 10-4) or clamping on a minor diameter (B). Face locate workpiece for added support

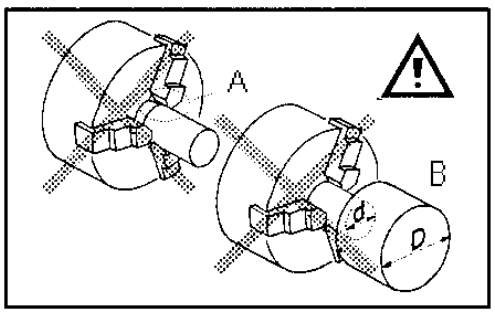


Figure 10-4: Poor clamping

10.3 Cutting Tool Setup

The cutting angle is correct when the cutting edge is in line with the centre axis of the work piece. Use the point of the tailstock centre as a gauge and shims under the tool to obtain the correct centre height (Fig 10-5).

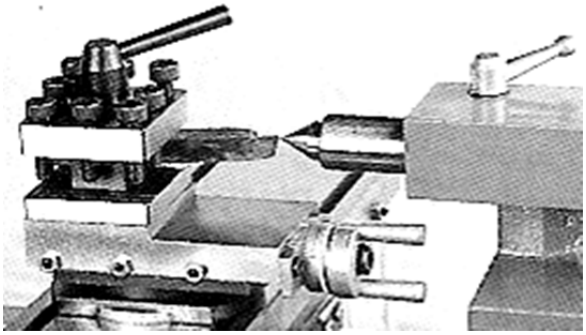


Figure 10-5: Cutting tool setup

Use a minimum of two screws to clamp the cutting tool.

Avoid large tool extensions.

10.4 Recommended spindle speeds

ATTENTION:
Generally speaking, the smaller the cut diameter, the greater the RPM required. Soft materials require higher speeds; hard metals slower speeds.

Metal is usually machined with coolant or cutting oil applied.

Recommended speeds for cutting 10mm diameter, with HSS tools (High speed steel tools):

Plastic: .....2500 RPM

Aluminium: ..... 2500 RPM

Brass: .....1000 RPM

Cast iron: ..... 1000 RPM

Mild steel:..... 800 RPM

High carbon steel: ..... 600 RPM

Stainless steel:..... 300 RPM

For carbide tools (HM), 5 times higher speeds can be chosen.

For example:

Turning mild steel at a diameter of 20mm allows

With HSS tool .....400 RPM

With carbide tool. .....2000 RPM

10.5 Manual turning

Apron travel (Z, Fig 10-6), cross travel (AA) and top slide travel (BB) can be operated for longitudinal and cross feeding.

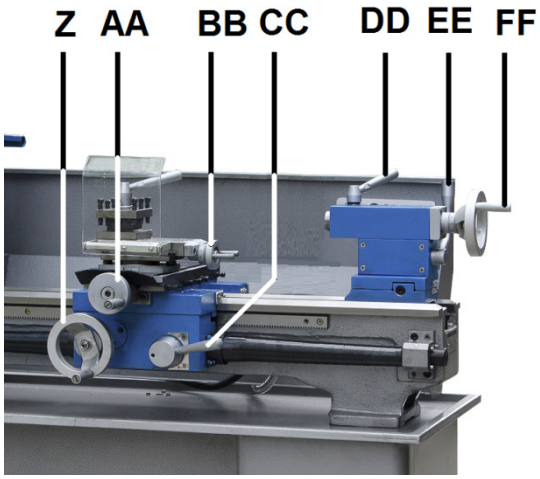


Figure 10-6: Machine controls

The correct feed depends on the material to be cut, the cutting operation, the type of tool, the rigidity of the work piece chucking, the depth of cut and the desired surface quality.

10.6 Turning with auto feed

Move the half-nut lever (CC, Fig 10-6) down, to engage the automatic longitudinal feed. Move it up to disengage

Three feed rates are readily available by rotating the feed select knob (R, Fig 9-1).

For example:

Operation	**feed/rev**	**select knob**
Stock removal	0,28mm	**III**
Finishing cut	0.14mm	**II**
Micro finishing cut	0.07mm	**I**

NOTE: Three additional feed rates are available with different change gear setup (Fig 10-7).

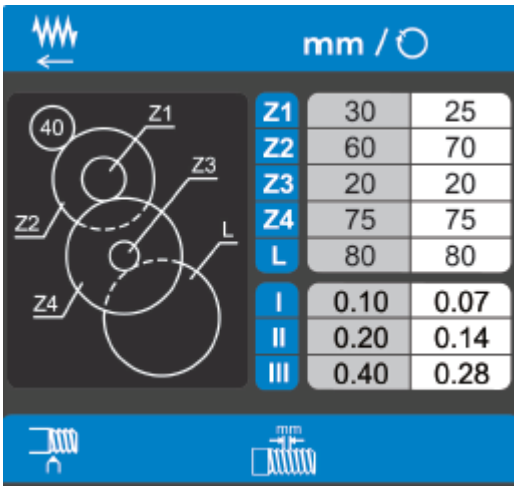


Figure 10-7: Available feed rates

The correct feed depends on the material to be cut, the cutting operation, the type of tool, the rigidity of the work piece chucking, the depth of cut and the desired surface quality.

When roughing big diameters reduce the depth of cut !

10.7 Thread cutting

Threading is performed in multiple passes with a threading tool.

Each depth of cut should be about 0,2mm and become less for the finishing passes.

A) To cut inch and metric threads

Set the machine up for the desired threading pitch (see chapter 8.2).

Select the lowest possible spindle speed.

Engage the halve nut (CC, Fig 10-6).

NOTE: The halve nut must stay engaged during the entire threading process.

- Set the tool up for the threading pass.

- Start the motor.

- When the tool approaches the end of cut, stop the motor and at the same time back the tool out, so that it clears the thread diameter.

- Start the motor in reverse direction, let the cutting tool travel back to the starting point.

Repeat these steps until you have obtained the desired results.

B) To cut metric threads with pitch 0,4/ 0,5/1,0/2,0 mm:

The halve nut can be opened at the end of cut, rather than the motor being stopped and reversed.

10.8 Drilling operation

Use a drill chuck with MT2 arbor (option) to clamp centre drills and twisted drills in the tailstock (Fig 10-8).

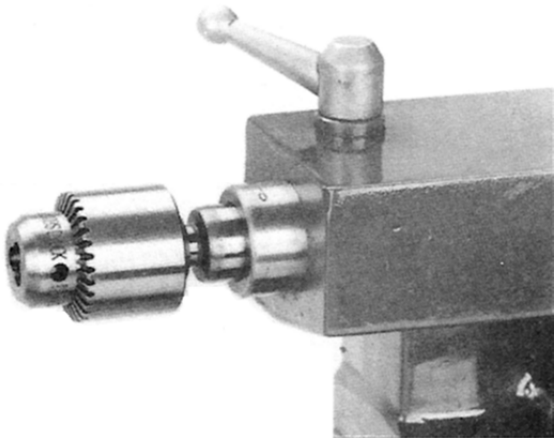


Figure 10-8: Drilling operation

For recommended speeds refer to section 10.4

To eject the drill chuck, fully retract the tailstock quill.

11.0 User-Maintenance

WARNING:
Before any intervention on the machine, disconnect it from electrical supply, pull the mains plug. Failure to comply may cause serious injury.

An important security factor is the cleaning of the machine, of bed, carriage and slides, of the floor and the surrounding places.

Loose objects could come into contact with the moving chuck or workpiece, creating hazards.

Empty the chip tray regularly.

Replace the coolant regularly, follow manufacturer's advice.

Check that bolts are tight and electrical cords are in good condition. If an electrical cord is worn, cut, or damaged in any way, have it replaced immediately.

11.1 Lubrication

Spindle bearings are pre-lubricated and sealed, and require no further lubrication.

Weekly apply oil:

DIN 51502 CG ISO VG 68
(e.g. BP Maccurat 68, Castrol Magna BD 68, Mobil Vectra 2)

1…oil balls on change gear hubs

2…oil bed ways lightly

3…oil tailstock quill over entire length

4…oil lead screw on entire length

5…oil ball on lead screw bracket

6…oil balls on top slide

7…oil balls on tailstock

8...oil balls on carriage

9...oil balls on apron

Monthly apply grease:

DIN 51807-1 non slinging grease
(e.g. BP L2, Mobilgrease Special).

10…grease teeth of change gears

11…grease rack over entire length

Gear box oil:

DIN 51517-2 CL ISO VG 68
(e.g. BP Energol HLP 68, Mobil DTE Oil Heavy Medium)

Oil must be up to indicator mark in oil sight glass.

In case, fill up with oil by removing plug on right side of gear box.

12.0 **Troubleshooting**

Symptom	Possible Cause	Correction *
Lathe will not start.	Lathe unplugged from wall, or motor.	Check all plug connections.
	Fuse blown, or circuit breaker tripped.	Replace fuse, or reset circuit breaker.
	Cord damaged.	Replace cord.
	Chuck guard not closed.	Close chuck guard.
	Pulley cover removed	Install pulley cover
Lathe does not come up to speed.	Extension cord too light or too long.	Replace with adequate size and length cord.
	Low current.	Contact a qualified electrician.
Lathe vibrates excessively.	Base on uneven surface.	Locate lathe on even floor.
	Lathe not bolted to the floor	Bolt machine to the floor
	Unbalanced workpiece	Reduce speed
	Workpiece deflection	Improve chucking length or diameter, support on tailstock end
	Tool deflection	Reduce tool length
	Slide backlash	Adjust slides
	Slides running dry	Lubricate with oil
	Dull tool tip	Re-sharpen or change tool
	Chip load too high	Reduce depth of cut or feed
Noisy operation	Dry change gear hubs.	Lubricate with oil.
	Dry change gears	Lubricate with grease.
Tool tip burns	Cutting speed too high	Reduce spindle speed
	Dull tool tip.	Re-sharpen or change tool
	Dry cutting.	Use coolant.
	Feeding too slowly.	Increase feed rate.
Machine turns a taper.	Tailstock alignment is offset.	Align tailstock position.
	Machine bed is twisted.	Stand supporting surface must be flat. Shim if needed
	Workpiece deflection.	Reduce depth of cut or feed
Drill chuck or arbor does not stay in place.	Dirt, grease, etc. on arbor, chuck, or tailstock quill	Clean all mating surfaces thoroughly with a cleaner-degreaser.

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

Table 1

13.0 **Environmental Protection**

Protect the environment.

Dispose all packaging material in an environmental friendly manner.

Dispose coolant in an environmentally friendly manner.

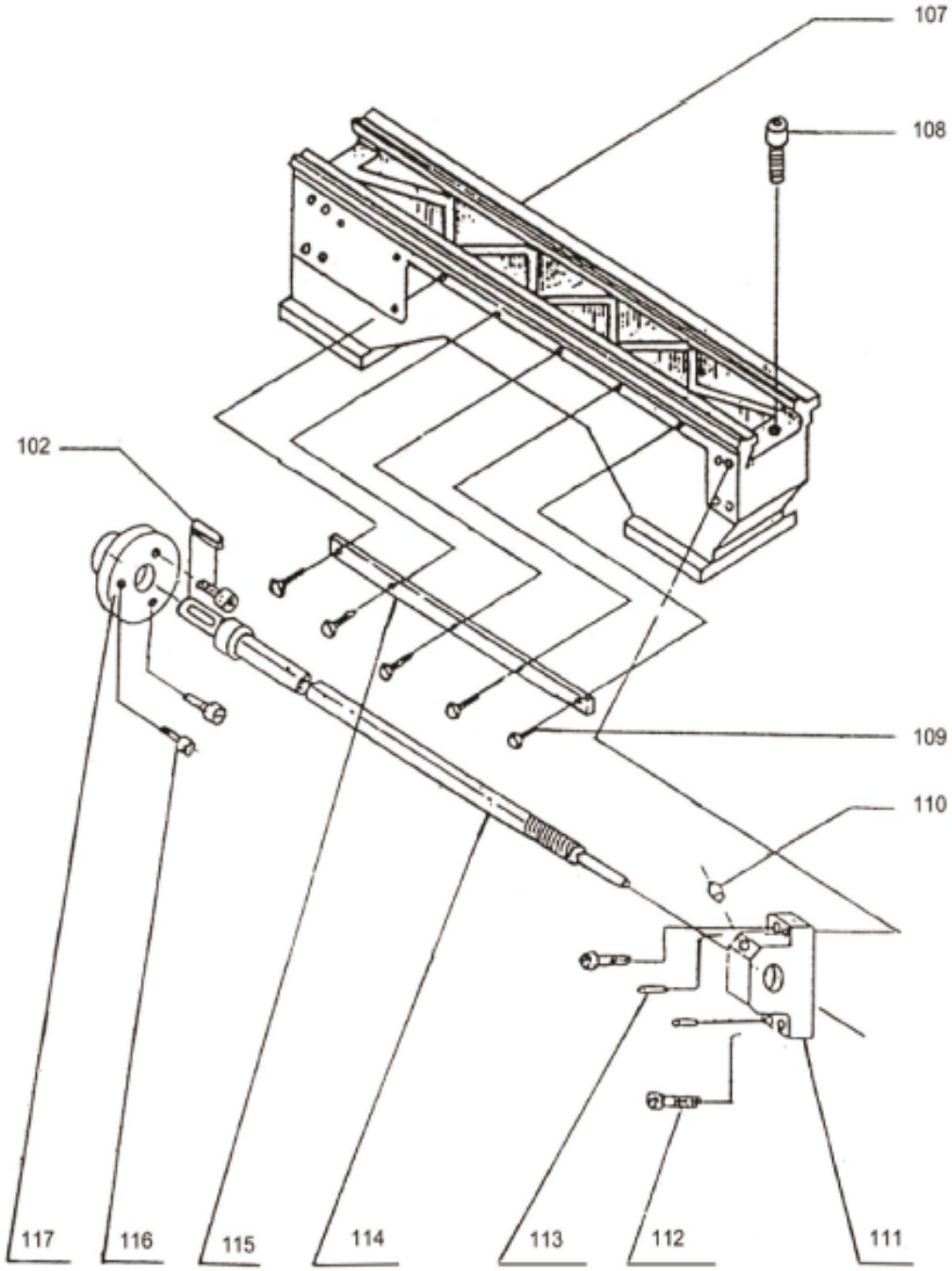
Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.

14.0 **Available Accessories**

Refer to the JET price list.

15.0 **Replacement Parts**

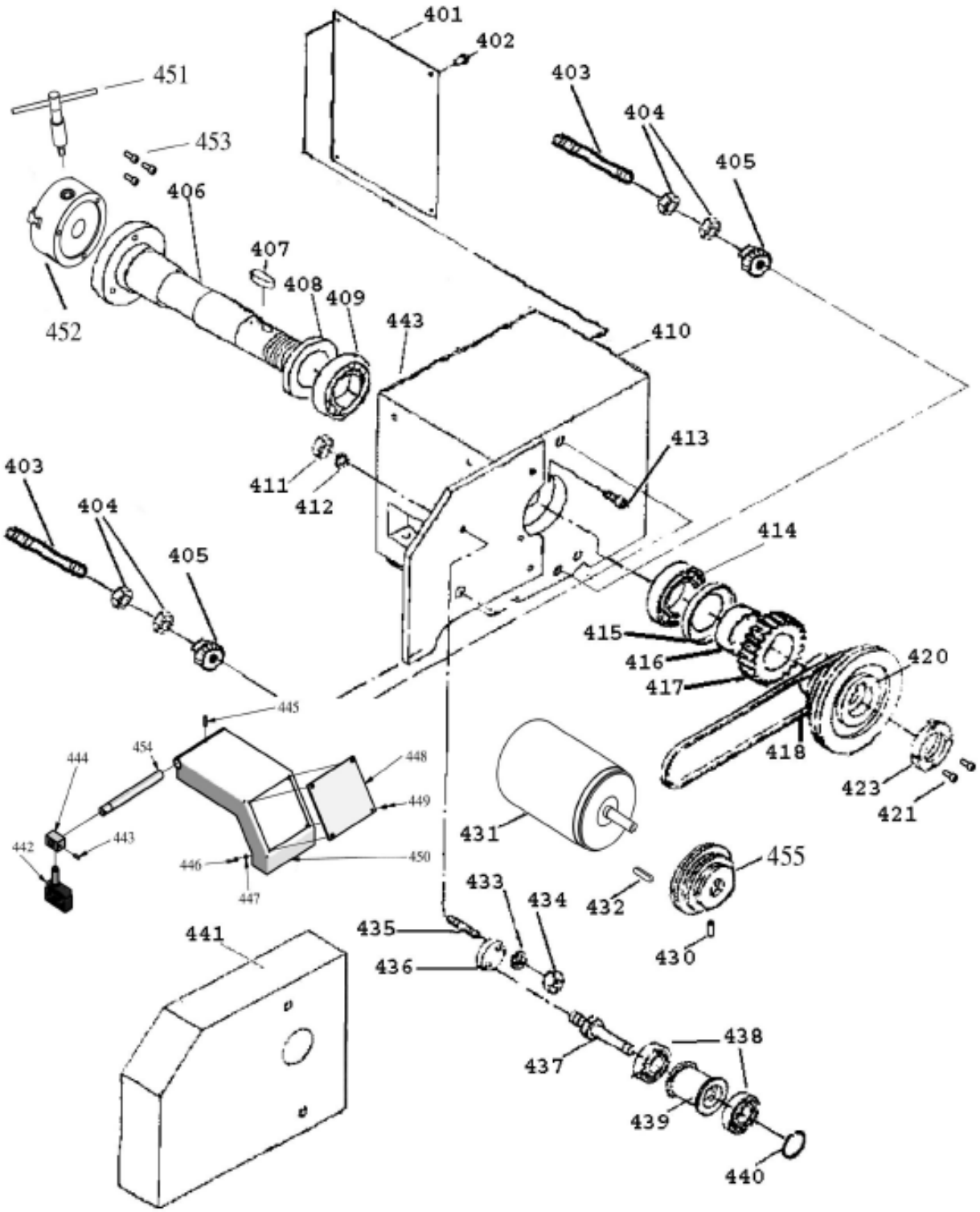
PBD-2555V Assembly Breakdown -1



PBD-2555V Parts List for Breakdown -1

Index No.	Part No.	Description	Size	Qty.
102	PBD2555V-1	FLAT KEY	4 x 12 mm	1
107	PBD2555V-1-107	LATHE BED		1
108	PBD2555V-2	HEXAGON SOCKET SCREW M8×12	M8×12	1
109	PBD2555V-3	HEXAGON SOCKET SCREW M5×12	M5×12	5
110	PBD2555V-4	BALL OILER	6	1
111	PBD2555V-1-111	RIGHT BEARING PEDESTAL		1
112	PBD2555V-5	HEXAGON SOCKET SCREW M6×16	M6×16	4
113	PBD2555V-6	FLAT KEYTAPER PIN 6×22	DIN6885	2
114	PBD2555V-1-114	LEADSCREW		1
115	PBD2555V-1-115	RACK		1
116	PBD2555V-7	HEXAGON SOCKET SCREW M4×16	M4×16	3
117	PBD2555V-1-117	ADJUSTING FLANGE		1

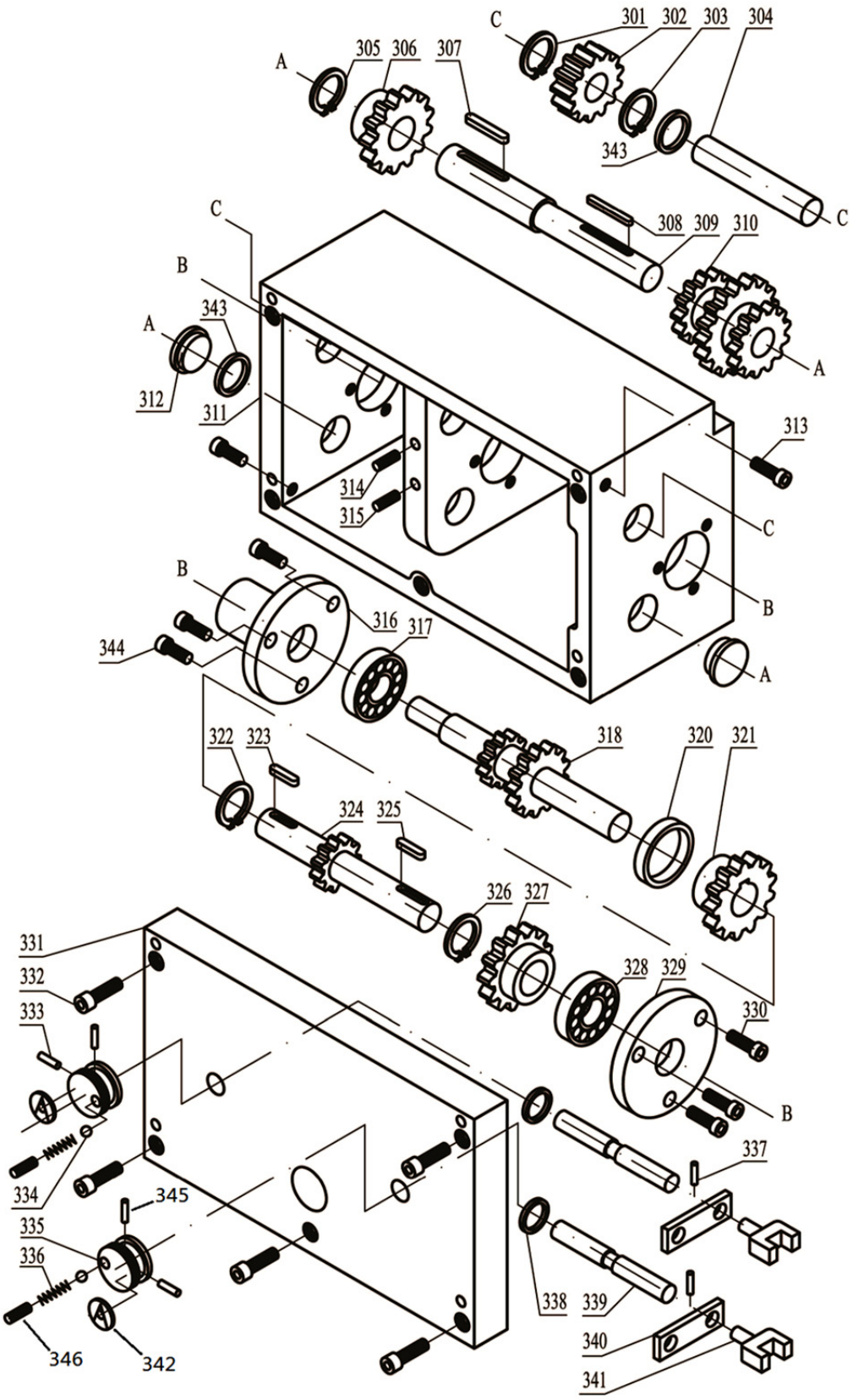
PBD-2555V Assembly Breakdown -2



PBD-2555V Parts List for Breakdown -2

Index No.	Part No.	Description	Size	Qty.
401	PBD2555V-2-401	CHARACTERISTICS PLATE		1
402	PBD2555V-8	FASTENING SCREW	M 4×10	6
403	PBD2555V-2-403	PROTECTIVE COVER OF THREADED ROD		2
404	PBD2555V-9	NUT	M10	4
405	PBD2555V-2-405	KNURL NUT		2
406	PBD2555V-2-406	WORK SPINDLE		1
407	PBD2555V-10	FEATHER KEY	8×45	1
408	PBD2555V-2-408	RING		1
409	PBD2555V-11	BEARING	32009	1
410	PBD2555V-2-410	HEADSTOCK		1
411	PBD2555V-12	NUT	M10	1
412	PBD2555V-13	WASHER	10	1
413	PBD2555V-14	HEXAGON SOCKET SCREW	M8×25	1
414	PBD2555V-15	BEARING	32009	1
415	PBD2555V-2-415	RING		1
416	PBD2555V-2-416	BUSH		1
417	PBD2555V-2-417	GEARWHEEL		1
418	PBD2555V-2-418	SHORT V-BELT	7M-730	1
420	PBD2555V-2-420	PULLEY COMBINATION WORK SPINDLE		1
421	PBD2555V-16	ALLEN SCREWS	M5×12	2
423	PBD2555V-17	SHAFT NUT（GROOVE NUT）		1
430	PBD2555V-18	THREADED PIN	ISO 4028-M6X10	1
431	PBD2555V-2-431	MOTOR	110ZYT59T1	1
432	PBD2555V-19	FLAT KEY	4 x 30 mm	1
433	PBD2555V-20	WASHER		1
434	PBD2555V-21	HEXAGONAL NUT M8	DIN439	1
435	PBD2555V-2-435	ALLEN SCREWS		1
436	PBD2555V-2-436	ECCENTRIC OF TEN-SION PULLEY		1
437	PBD2555V-2-437	SHAFT OF TENSION PULLEY		1
438	PBD2555V-22	BEARING 6001RZ	6001RZ	2
439	PBD2555V-2-439	TENSION PULLEY		1
440	PBD2555V-23	CIRCLIP		1
441	PBD2555V-2-441	HANGING WHEEL BOX COVER		1
442	PBD2555V-2-442	MICRO SWITCH		1
443	PBD2555V-24	HEXAGONAL CYLINDRICAL SIDE SCREW SET	M5×12	1
444	PBD2555V-2-444	SHAFT SLEEVE		1
445	PBD2555V-25	CYLINDRICAL PIN	3×20	1
446	PBD2555V-26	NUT	M4	4
447	PBD2555V-27	FLAT WASHER	Φ4	4
448	PBD2555V-2-448	PROTECTIVE GLASSES		1
449	PBD2555V-28	SOCKET HEAD CAP SCREW	M4×10	4
450	PBD2555V-2-450	CHUCK SHIELD		1
451	PBD2555V-2-451	KEY FOR 3 - JAW CHUCK	10mm	1
452	PBD2555V-2-452	THREE JAW CHUCK	K11-125	1
453	PBD2555V-29	HEXAGON SOCKET SCREW	M8X35	3
454	PBD2555V-2-454	CHUCK SHIELD SHAFT		1
455	PBD2555V-2-455	MOTOR PULLEY		1

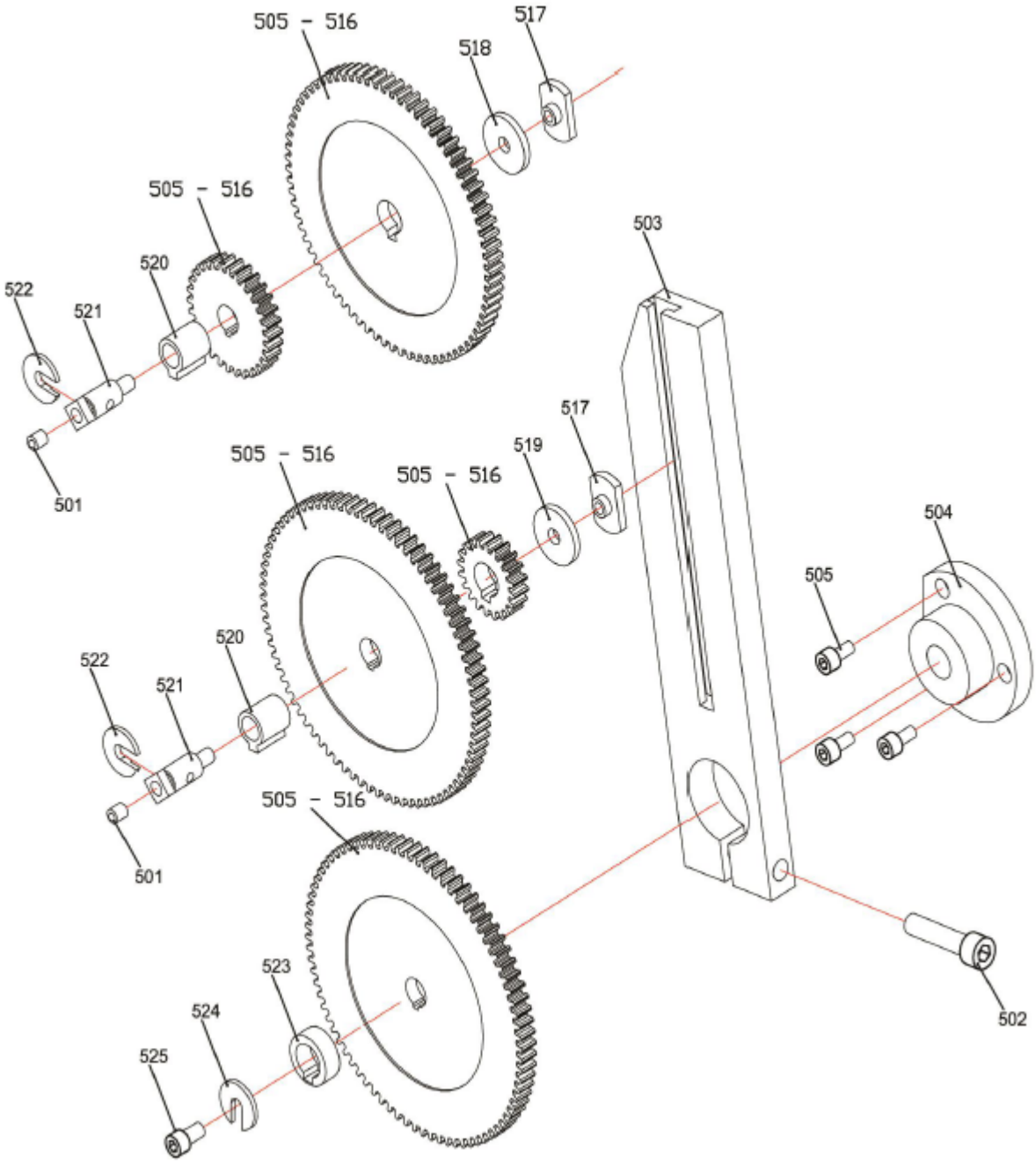
PBD-2555V Assembly Breakdown -3



PBD-2555V Parts List for Breakdown -3

Index No.	Part No.	Description	Size	Qty.
301	PBD2555V-30	LOCK WASHER	Φ12	1
302	PBD2555V-3-302	GEARWHEEL		1
303	PBD2555V-31	LOCK WASHER	Φ12	1
304	PBD2555V-3-304	SHAFT C		1
305	PBD2555V-3-305	CIRCLIP FOR SHAFT Φ16		1
306	PBD2555V-3-306	GEARWHEEL		1
307	PBD2555V-32	FEATHER KEY	4×30	1
308	PBD2555V-33	FEATHER KEY	4×60	1
309	PBD2555V-3-309	SHAFT A		1
310	PBD2555V-3-310	GEARWHEEL COMBINATION		1
311	PBD2555V-3-311	GEAR WHEEL BOX		1
312	PBD2555V-3-312	PLUG		2
313	PBD2555V-3-313	SET?SCREW ZG3/8	ZG 3/8	2
314	PBD2555V-34	HEXAGON SOCKET SCREW	M 6×10	1
315	PBD2555V-35	HEXAGON SOCKET SCREW	M 6×10	1
316	PBD2555V-3-316	FLANGE		1
317	PBD2555V-3-317	BEARING	180202	1
318	PBD2555V-3-318	GEARWHEEL		1
319	PBD2555V-3-319	SHAFT	1215	1
320	PBD2555V-3-320	SHAFT RING		1
321	PBD2555V-3-321	GEARWHEEL		1
322	PBD2555V-36	CIRCLIP	Φ15	1
323	PBD2555V-37	FEATHER KEY	4×14	1
324	PBD2555V-3-324	LONG-FACE PINION		1
325	PBD2555V-38	FEATHER KEY	4×10	1
326	PBD2555V-39	LOCK WASHER	Φ15	1
327	PBD2555V-3-327	GEARWHEEL		1
328	PBD2555V-3-328	BEARING	180202	1
329	PBD2555V-3-329	FLANGE COVER OF LEADSCREW		1
330	PBD2555V-40	HEXAGON SOCKET SCREW	M 6×12	3
331	PBD2555V-3-331	FRONT PLATE		1
332	PBD2555V-41	HEXAGON SOCKET SCREW M6X20	M6X20	5
333	PBD2555V-42	SPRING PIN, ISO8752	A5x30	2
334	PBD2555V-43	STEEL BALL	Φ5	2
335	PBD2555V-3-335	SELECTOR SWITCH		2
336	PBD2555V-44	SPRING	0, 8×45×11	2
337	PBD2555V-45	PIN	Φ5×20	2
338	PBD2555V-46	O-RING	1800710	2
339	PBD2555V-3-339	SHAFT		2
340	PBD2555V-3-340	PLATE		2
341	PBD2555V-3-341	GEAR FORK		2
342	PBD2555V-3-342	SELECTOR SWITCH MARKING		2
343	PBD2555V-3-343	RUBBER SEALING RING 14.0X2.65		2
344	PBD2555V-3-344	HEX SOCKET HEAD SCREW	M5X12	3
345	PBD2555V-3-345	HEXAGON SOCKET SCREW		1
346	PBD2555V-3-346	HEXAGON SOCKET SCREW		1

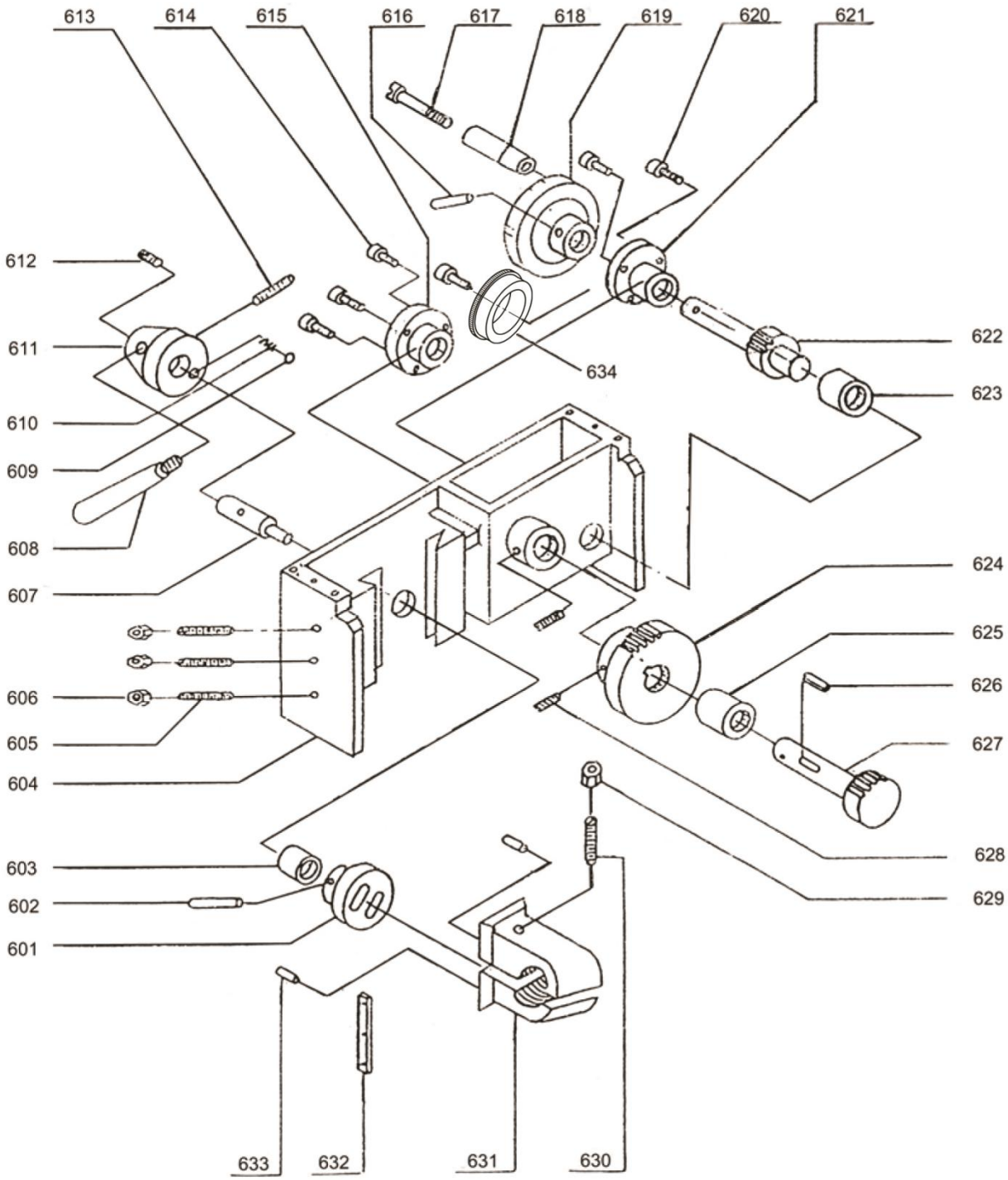
PBD-2555V Assembly Breakdown -4



PBD-2555V Parts List for Breakdown -4

Index No.	Part No.	Description	Size	Qty.
501	PBD2555V-47	OIL NIPPLE		2
502	PBD2555V-48	HEXAGONAL SOCKET HEAD SCREW DIN 912	M 8×35	1
503	PBD2555V-4-503	CHANGE GEAR RAIL		1
504	PBD2555V-4-504	BEARING PEDESTAL		1
505	PBD2555V-49	HEXAGONAL SOCKET HEAD SCREW DIN 912	M5×10	3
506	PBD2555V-4-506	GEAR Z85, Module 1,5		1
507	PBD2555V-4-507	GEAR Z80, Module 1,5		1
508	PBD2555V-4-508	GEAR Z75, Module 1,5		1
509	PBD2555V-4-509	GEAR Z70, Module 1,5		1
510	PBD2555V-4-510	GEAR Z65, Module 1,5		1
511	PBD2555V-4-511	GEAR Z60, Module 1,5		2
512	PBD2555V-4-512	GEAR Z50, Module 1,5		1
513	PBD2555V-4-513	GEAR Z45, Module 1,5		1
514	PBD2555V-4-514	GEAR Z30, Module 1,5		1
515	PBD2555V-4-515	GEAR Z25, Module 1,5		1
516	PBD2555V-4-516	GEAR Z20, Module 1,5		1
517	PBD2555V-4-517	T-NUT	M5	2
518	PBD2555V-4-518	SPACER	1,5mm	1
519	PBD2555V-4-519	SPACER	3mm	1
520	PBD2555V-4-520	BUSHING		2
521	PBD2555V-4-521	AXLE SHAFT		2
522	PBD2555V-4-522	C-WASHER		2
523	PBD2555V-4-523	COLLAR SPREADER		1
524	PBD2555V-4-524	C-WASHER		1
525	PBD2555V-50	HEXAGONAL SOCKET HEAD SCREW DIN 912	M6×10	1

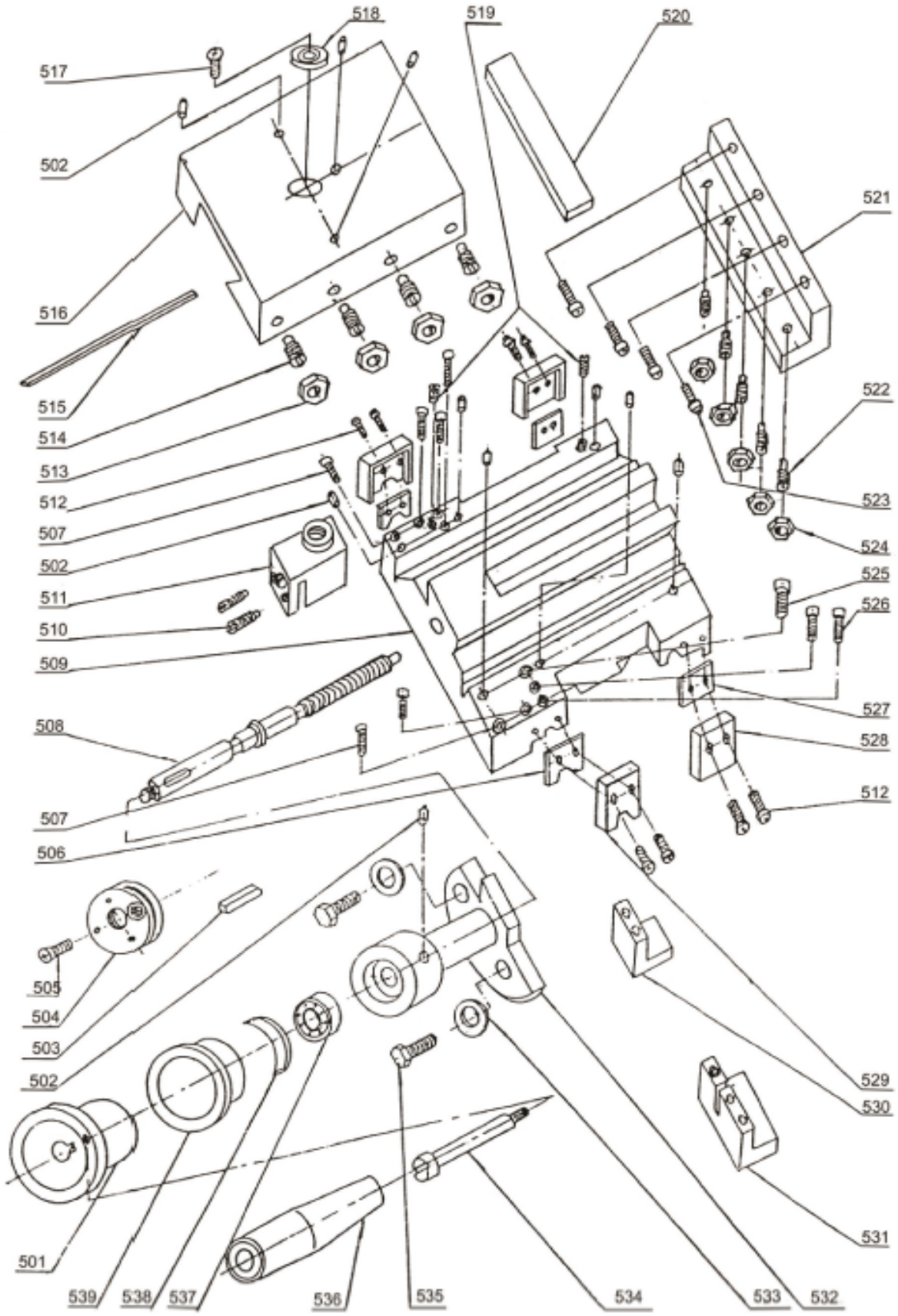
PBD-2555V Assembly Breakdown -5



PBD-2555V Parts List for Breakdown -5

Index No.	Part No.	Description	Size	Qty.
601	PBD2555V-5-601	ECCENTER		1
602	PBD2555V-51	TAPER PIN	3×20	1
603	PBD2555V-5-603	BUSH		1
604	PBD2555V-5-604	HOUSING		1
605	PBD2555V-52	HEXAGON SOCKET SCREW	M5X30	3
606	PBD2555V-53	NUT M5	DIN439	3
607	PBD2555V-5-607	SHAFT		1
608	PBD2555V-5-608	HANDLE		1
609	PBD2555V-54	STEEL BALL 5		1
610	PBD2555V-55	COMPRESSION SPRING	0.8×5×25	1
611	PBD2555V-5-611	ENGAGING HUB		1
612	PBD2555V-56	HEXAGON SOCKET SCREW	M6×10	1
613	PBD2555V-57	HEXAGON SOCKET SCREW	M4×8	3
614	PBD2555V-58	HEXAGON SOCKET SCREW	M4×8	3
615	PBD2555V-5-615	FLANGE PEDESTAL		1
616	PBD2555V-59	TAPER PIN	3×30	1
617	PBD2555V-5-617	HANDLE BAR		1
618	PBD2555V-5-618	HANDLE		1
619	PBD2555V-5-619	HANDWHEEL		1
620	PBD2555V-60	HEXAGON SOCKET SCREW	M4×8	3
621	PBD2555V-5-621	FLANGE PEDESTAL		1
622	PBD2555V-5-622	PINION SHAFT		1
623	PBD2555V-5-623	BUSH		1
624	PBD2555V-5-624	GEARWHEEL		1
625	PBD2555V-5-625	BUSH		1
626	PBD2555V-61	FLAT KEY	5 x 10 mm	1
627	PBD2555V-5-627	PINION SHAFT		1
628	PBD2555V-62	SCREW	M4×8	2
629	PBD2555V-63	NUT	M5	1
630	PBD2555V-64	HEXAGON SOCKET SCREW	M5×25	1
631	PBD2555V-5-631	LEADSCREW NUT（SET）		1
632	PBD2555V-5-632	GUIDE BEAD		1
633	PBD2555V-65	PINION PIN	5×20	2
634	PBD2555V-5-634	GRADUATED COLLAR		1

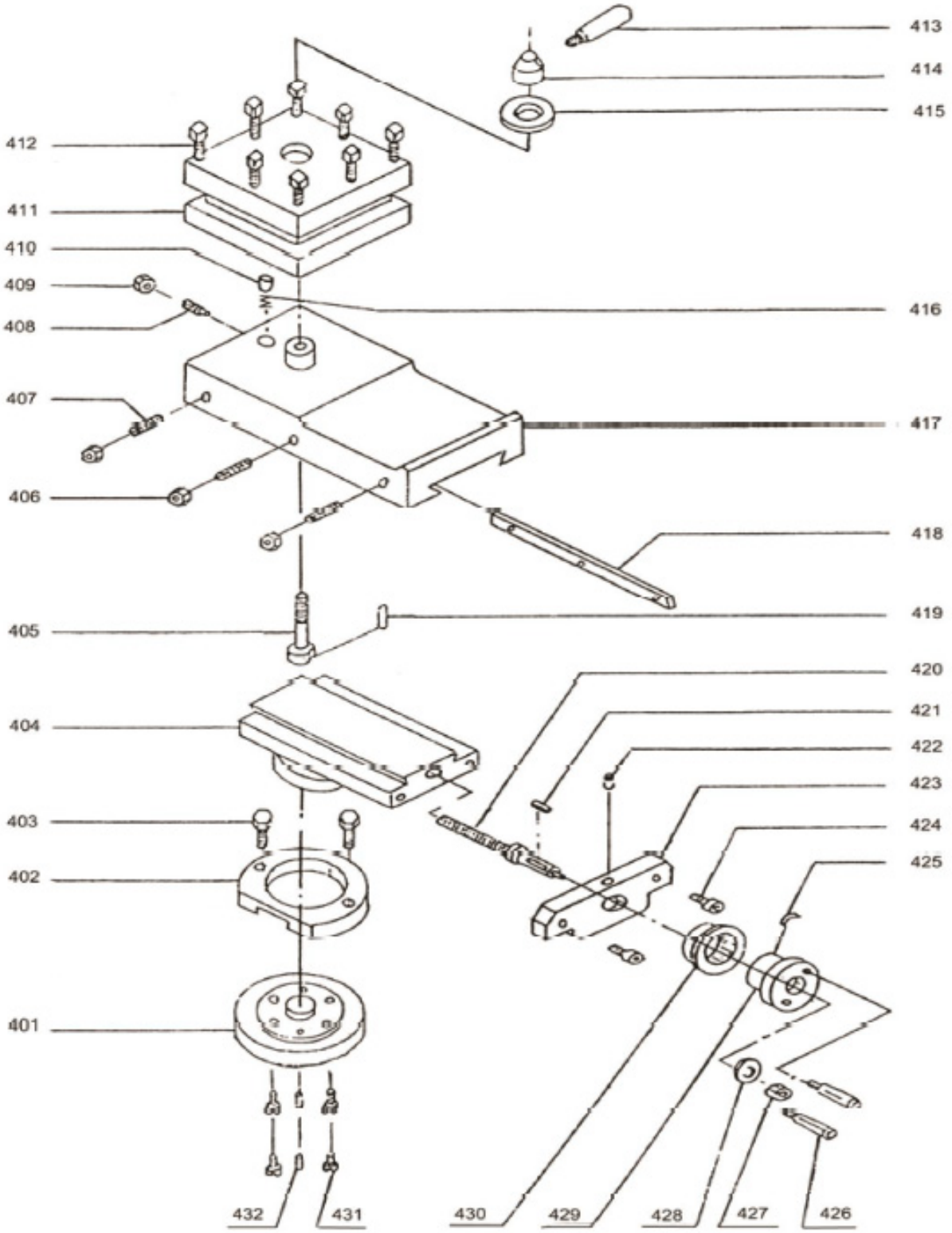
PBD-2555V Assembly Breakdown -6



PBD-2555V Parts List for Breakdown -6

Index No.	Part No.	Description	Size	Qty.
501	PBD2555V-6-501	HANDWHEEL		1
502	PBD2555V-66	BALL OILER	6	10
503	PBD2555V-67	FLAT KEY	4 x 12 mm	1
504	PBD2555V-6-504	ROUND NUT		1
505	PBD2555V-68	SCREW	M3×6	1
506	PBD2555V-6-506	SCRAPER		2
507	PBD2555V-69	HEXAGON SOCKET SCREW	M6×35	4
508	PBD2555V-6-508	CROSS SLIDE SPINDLE		1
509	PBD2555V-6-509	LATHE SADDLE		1
510	PBD2555V-70	HEXAGON SOCKET SCREW	M3×12	2
511	PBD2555V-6-511	SPINDLE NUT OF CROSS SLIDE		1
512	PBD2555V-71	SCREW		8
513	PBD2555V-72	NUT	M5	4
514	PBD2555V-73	HEXAGON SOCKET SCREW	M5×25	4
515	PBD2555V-6-515	GUIDE BEAD		1
516	PBD2555V-6-516	CROSS SLIDE		1
517	PBD2555V-74	HEXAGON SOCKET SCREW	M5×10	1
518	PBD2555V-6-518	WASHER		1
519	PBD2555V-75	HEXAGON SOCKET SCREW	M8×10	2
520	PBD2555V-6-520	GUIDE BEAD		1
521	PBD2555V-6-521	GUIDE RAIL		1
522	PBD2555V-76	HEXAGON SOCKET SCREW	M4×16	5
523	PBD2555V-77	HEXAGON SOCKET SCREW	M5×16	4
524	PBD2555V-78	NUT	M4	5
525	PBD2555V-79	SCREW	M8×20	1
526	PBD2555V-80	SCREW	M5x20	4
527	PBD2555V-6-527	SCRAPER		2
528	PBD2555V-6-528	METAL REINFORCEMENT		2
529	PBD2555V-6-529	METAL REINFORCEMENT		2
530	PBD2555V-6-530	FRONT SAFETY BLOCK		1
531	PBD2555V-6-531	SAFETY BLOCK		1
532	PBD2555V-6-532	GUIDE BEARING		1
533	PBD2555V-81	WASHER	8	2
534	PBD2555V-6-534	HAND SCREW		1
535	PBD2555V-82	SCREW	M6×20	2
536	PBD2555V-6-536	HANDLE		1
537	PBD2555V-6-537	ROLLING BEARING	51101	1
538	PBD2555V-83	SINOUS SPRING		1
539	PBD2555V-6-539	GRADUATED COLLAR		1

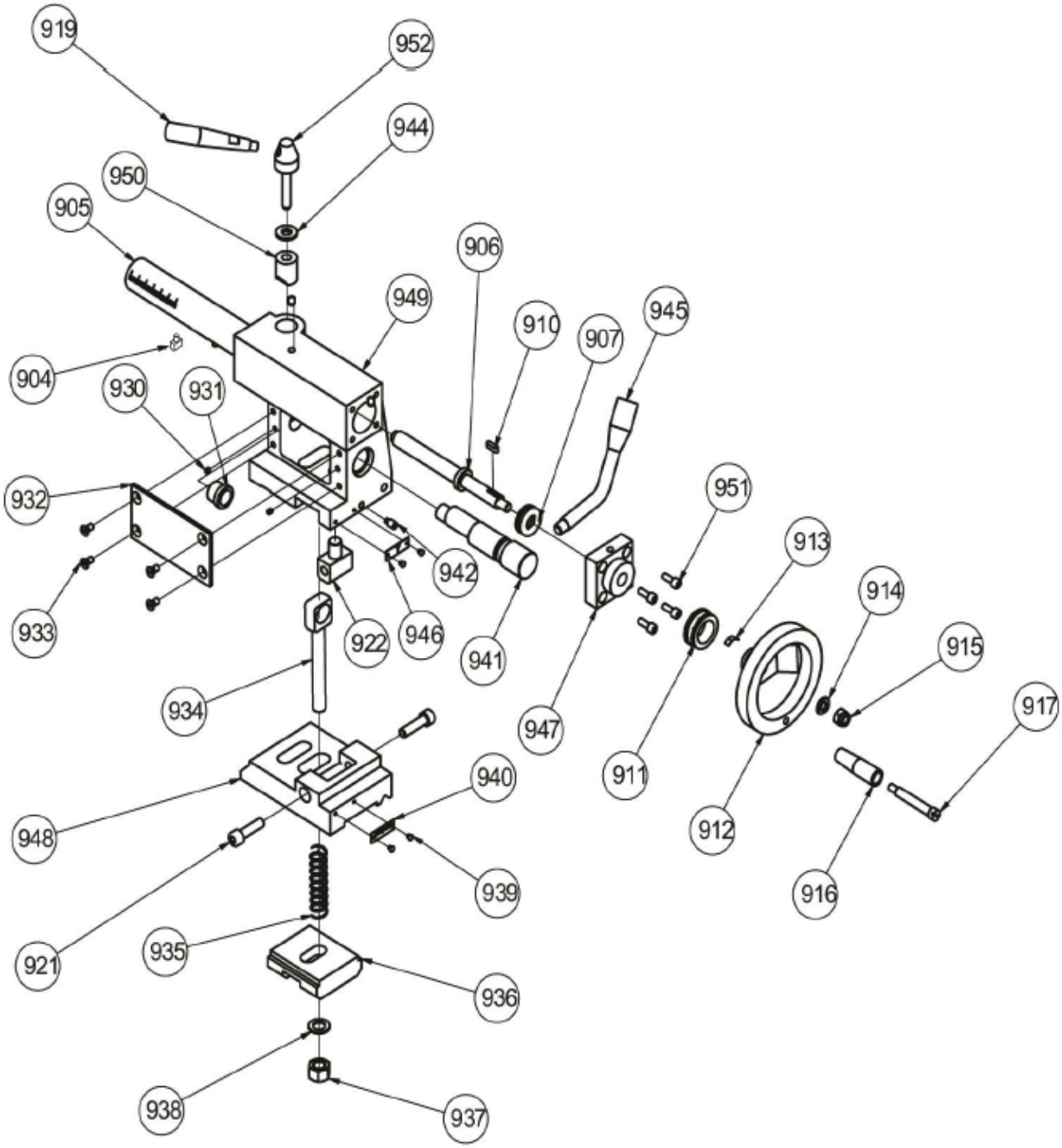
PBD-2555V Assembly Breakdown -7



PBD-2555V Parts List for Breakdown -7

Index No.	Part No.	Description	Size	Qty.
401	PBD2555V-7-401	GRADUATED DIAL		1
402	PBD2555V-7-402	INTERMEDIATE FLANGE		1
403	PBD2555V-84	HEXAGON SOCKET SCREW	M8×20	2
404	PBD2555V-7-404	SLIDE GUIDE WAY		1
405	PBD2555V-7-405	STRAINING SCREW		1
406	PBD2555V-85	NUT M4		3
407	PBD2555V-86	HEXAGON SOCKET SCREW	M4×40	3
408	PBD2555V-87	HEXAGON SOCKET SCREW	M4×12	1
409	PBD2555V-88	NUT	M4	1
410	PBD2555V-7-410	POSITIONING PIN		1
411	PBD2555V-7-411	LATHE TOOL HOLDER		1
412	PBD2555V-89	SQUARE-HEAD BOLT	M8×25	8
413	PBD2555V-7-413	HANDLE		1
414	PBD2555V-7-414	CLAMPING PIECE		1
415	PBD2555V-7-415	WASHER		1
416	PBD2555V-7-416	COMPRESSION SPRING	0.8X4X15	1
417	PBD2555V-7-417	TOP SLIDE		1
418	PBD2555V-7-418	GUIDE BEAD		1
419	PBD2555V-90	PARALLEL PIN	3×10	1
420	PBD2555V-7-420	TOP SLIDE SPINDLE		1
421	PBD2555V-91	FLAT KEY	3 x 12 mm	1
422	PBD2555V-92	BALL OILER	6	1
423	PBD2555V-7-423	BEARING PEDESTAL		1
424	PBD2555V-93	HEXAGON SOCKET SCREW	M4×16	2
425	PBD2555V-94	SINOUS SPRING		1
426	PBD2555V-7-426	HANDLE		2
427	PBD2555V-95	NUT	M8	1
428	PBD2555V-96	WASHER	8	1
429	PBD2555V-7-429	HANDWHEEL		1
430	PBD2555V-7-430	GRADUATED COLLAR		1
431	PBD2555V-97	HEXAGON SOCKET SCREW	M6×16	4
432	PBD2555V-98	PARALLEL PIN	4×16	2

PBD-2555V Assembly Breakdown -8

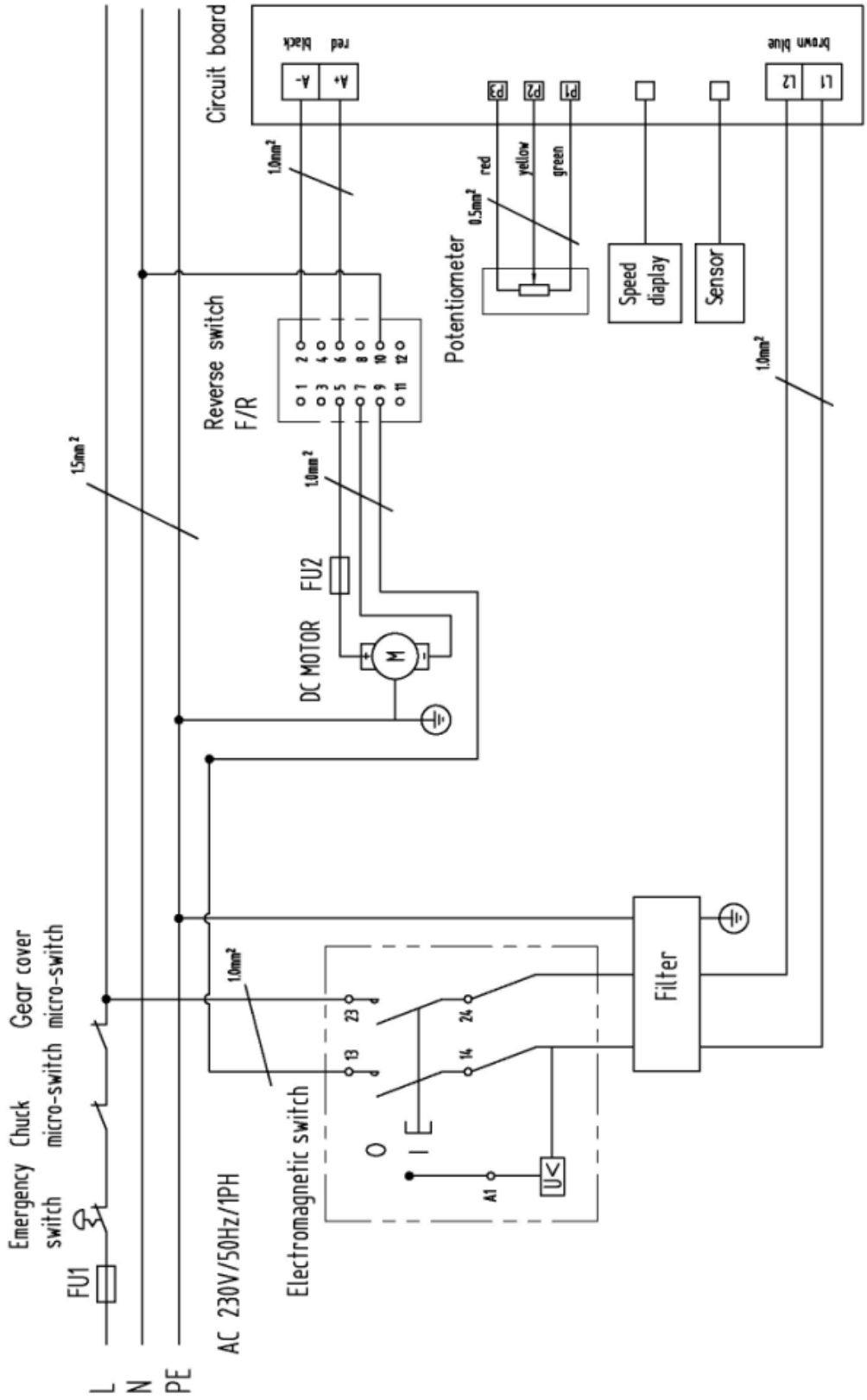


PBD-2555V Parts List for Breakdown -8

Index No.	Part No.	Description	Size	Qty.
904	PBD2555V-8-904	PIECE OF CENTERING OF SPINDLE SLEEVE		1
905	PBD2555V-8-905	SPINDLE SLEEVE		1
906	PBD2555V-8-906	SPINDLE		1
907	PBD2555V-8-907	AXIALLY GROOVED BALL BEARING	51101	1
910	PBD2555V-99	FLAT KEY	4 x 14 mm	1
911	PBD2555V-8-911	SCALES RING		1
912	PBD2555V-8-912	HAND WHEEL		1
913	PBD2555V-100	SPRING PLATE		1
914	PBD2555V-101	WASHER	ISO 7090 - 8	1
915	PBD2555V-102	HEXAGON NUT	DIN 6924 -M8	1
916	PBD2555V-8-916	CASE FOR HANDLE		1
917	PBD2555V-8-917	FIXING BOLT FOR CASE		1
919	PBD2555V-8-919	CLAMPING LEVER		1
921	PBD2555V-103	SOCKET HEAD SCREW	GB 70-85 - M8 x 30	2
922	PBD2555V-8-922	PIECE OF CENTERING OF SPINDLE SLEEVE		1
930	PBD2555V-104	THREADED PIN	ISO 4028 - M4 x 5	1
931	PBD2555V-8-931	GUIDE BUSH		1
932	PBD2555V-8-932	COVER		1
933	PBD2555V-105	COUNTERSUNK SCREW	ISO 2009 - M5 x 10	4
934	PBD2555V-8-934	TIGHTENING SCREW		1
935	PBD2555V-8-935	SPRING	1.2 x 13.2 x 40 mm	1
936	PBD2555V-8-936	CLAMPING PLATE		1
937	PBD2555V-106	HEXAGON NUT	ISO 4035 -M12	1
938	PBD2555V-107	WASHER		1
939	PBD2555V-108	RIVET		4
940	PBD2555V-8-940	SCALE		1
941	PBD2555V-8-941	ECCENTRIC CAM		1
942	PBD2555V-109	THREADED PIN	ISO 4028 -M6 x 12	1
944	PBD2555V-8-944	WASHER		1
945	PBD2555V-8-945	CLAMPING LEVER		1
946	PBD2555V-8-946	SCALE		1
947	PBD2555V-8-947	SADDLE		1
948	PBD2555V-8-948	BASE PLATE TAILSTOCK		1
949	PBD2555V-8-949	TAILSTOCK UPPER SECTION		1
950	PBD2555V-8-950	CLAMPING PART COLLAR		1
951	PBD2555V-110	SOCKET HEAD SCREW	GB 70-85 -M5 x 14	4
952	PBD2555V-8-952	HEAD CLAMPING LEVER		1

16.0 **Wiring Diagrams**

PBD-2555V ……..1~230V, PE, 50Hz



PBD-2555V Electrical Parts List

Designation	Model	Quantity	Note
Electromagnetic switch	KJD17GF	1	
Reverse Switch F/R	ZH-A	1	
EMC Filter		1	
Emergency stop	ZB2-BE102C	1	
Circuit board		1	
Potentiometer	WX14-12 4K7	1	
Speed display and sensor	JD011 5V	1	
DC Motor		1	
FU1，FU2		2	
Gear Guard Switch	QKS8	1	
Chuck Guard Switch	LXW5-11Q1	1	