BD-11G

OPERATING MANUAL LATHE

Original:

GB
Operating Instructions

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CE - Conformity Declaration
CE - Konformitätserklärung
Déclaration de Conformité CE

Product / Produkt / Produit:

BD-11G

Metal band saw / Metallbandsäge / Scie à ruban portable

Brand / Marke / Marque:

JET

Manufacturer / Hersteller / Fabricant:

JPW (Tool) AG
Ackerstrasse 45, CH-8610 Uster, 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 13898:2003+A1:2009

EN 60204-1 :2006/AC2010

EN 61000-6-2:2005

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

Responsible for the Documentation / Dokumentations-Verantwortung / Responsabilité de Documentation:

Head of Product-Mgmt. / Leiter Produkt-Mgmt. / Resp. Gestion des Produits

JPW (Tool) AG

2018-11-20 Christophe SAINT SULPICE, General Manager

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EN Operating Instructions (Original)

1.0 About this Manual

This manual is provided by JET, covering the safe operation and maintenance procedures for a **JET Model BD-11G 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.

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3.0 IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THIS DRILL PRESS.

– To reduce risk of injury:

1. Read and understand entire owner's manual before attempting assembly or operation of this drill press.
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 drill press, 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, JET 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, JET 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	BD-11G
Stock number	BD-11G

Motor and electricals:

Motor type	Induction motor
Motor power	1.1 kW
Power supply	1~230V, PE, 50 Hz
Protection class	IP 54
Listed load amps	6.4 A
Machine lamp	Halogen lamp 24V, 35 W
Coolant pump	40 W

Capacities:

Centre height	140 mm
Swing over bed	280 mm
Swing over cross slide	170 mm
Distance between Centres	700 mm

Spindle:

Spindle nose mounting	cylindrical mount (Ø125mm, Ø96mm, Ø108-3xØ9 & 4xØ9)
Spindle bore	26 mm
Spindle taper	MT4
Number of spindle speeds	6
Range of spindle speeds	150 ~ 2000 /min

Tailstock:

Tailstock ram travel	85 mm
Tailstock taper	MT2

Bed and Slides:

Bed width	180 mm
Cross slide travel	160 mm
Top slide travel	60 mm
Tool size max	12x12 mm
Lead screw pitch	3 mm
Longitudinal feeds	(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 according to EN ISO 11202, 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)	1380 x 700 x 650 (1285) mm
Shipping dimensions (W x D x H) (Separate packing)	1320 x 700 x 690mm & 820 x 680 x 430 mm
Shipping dimensions (W x D x H) (Whole packing)	1400 x 700 x 1470mm
Net weight (approximate)	280kg
Shipping weight (approximate)	320 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:**

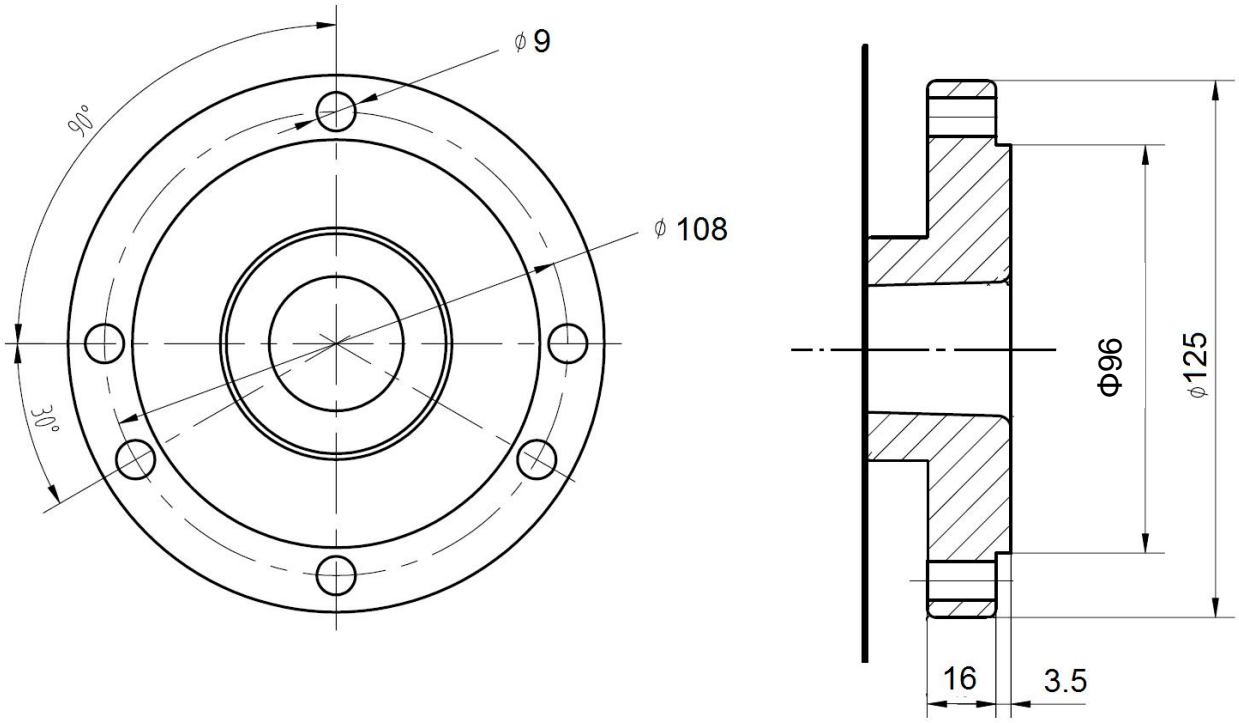


Figure 4-1: Spindle nose mounting

4.2 **Anchor bolt hole pattern:**

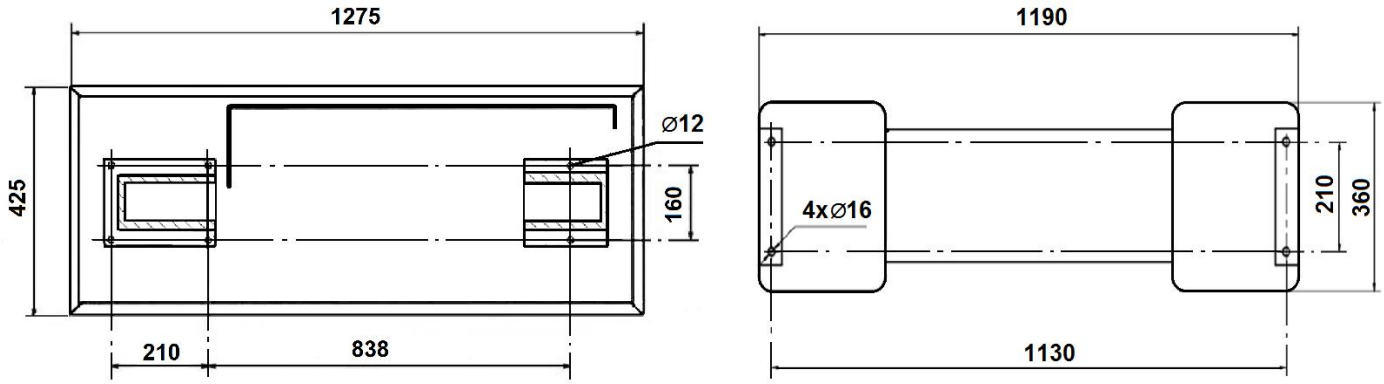


Figure 4-2: Lathe Bed (left) & Stand (right) anchor bolt pattern

WARNING:

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

5.0 **Machine Description**

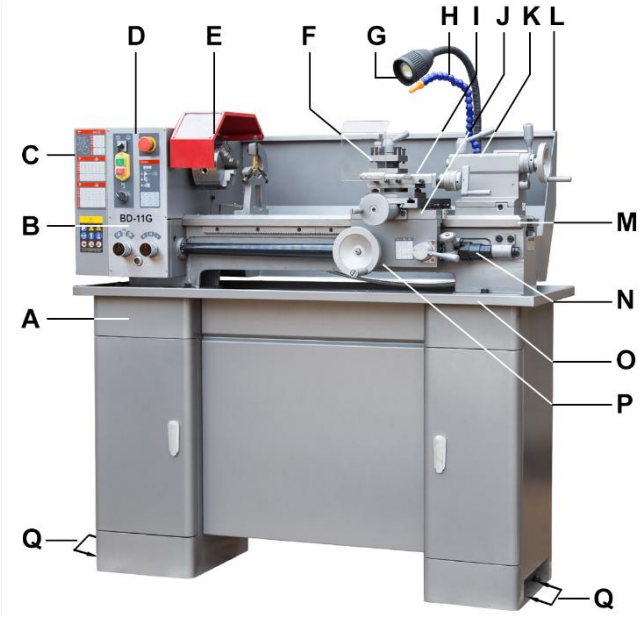


Figure 5-1: Machine description

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 bolt holes

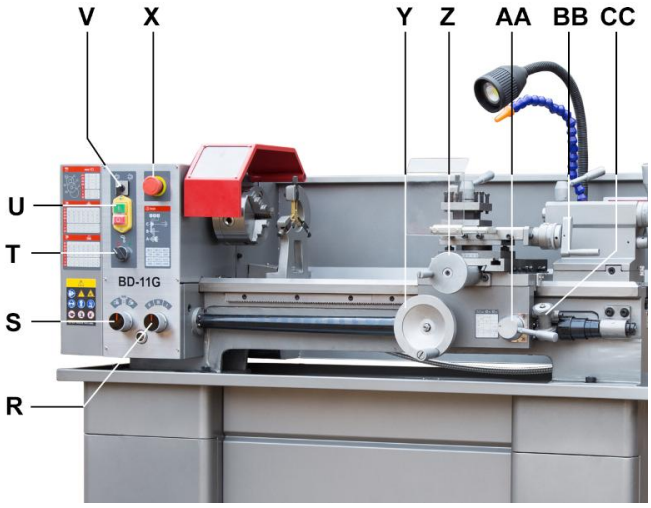


Figure 5-2: Machine description

R .....Feed speed select knob

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

T .....Coolant ON/OFF

U .....Spindle power ON/OFF

V .....Spindle forward/reverse

X ..... Emergency Stop

Y .....Apron hand wheel

Z .....Cross slide hand wheel

AA ..... Half nut lever

BB .....Top slide hand wheel

CC ..... Threading dial

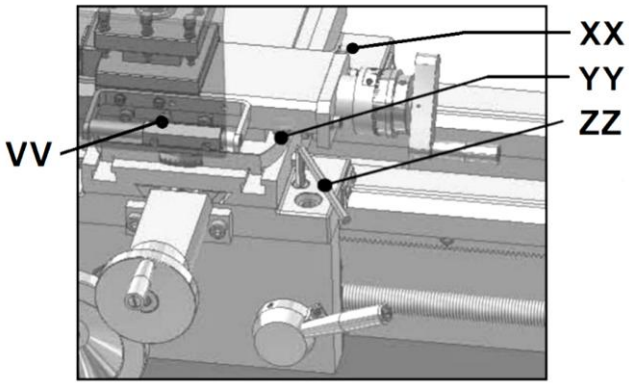


Figure 5-3 Machine description

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 drill press 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 (Optional, BD-11G-807)

1 Coolant facility (Optional, 59500112)

1 Machine lamp

1 125mm 3-jaw universal chuck (BD-11G-452)

1 125mm 4-jaw chuck (Optional, BD-11G-457)

1 265mm face plate (Optional, BD-11G-458)

1 Chuck guard

1 4-way tool post

1 Tool post guard

1 Set of change gears

1 Threading dial

1 MT4 fixed centre (BD-11G-267)

1 MT2 fixed centre (BD-11G-265)

1 MT2 live centre (BD-11G-266)

1 Steady rest (BD-11G-714)

1 Follow rest (Optional, BD-11G-715)

1 Operating tools in tool box

1 Lead screw guard

1 Thread dial

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 (320 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 BD-11G 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 2.3m 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.

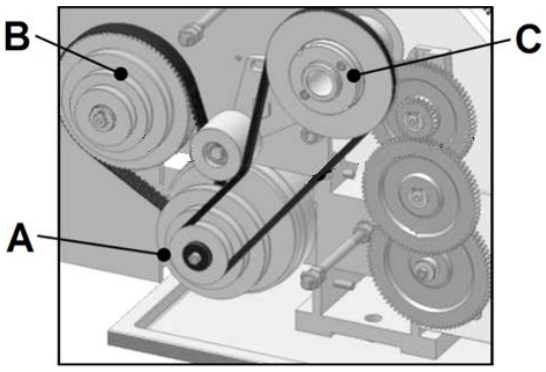
The total length of cord may not exceed 18 Meter

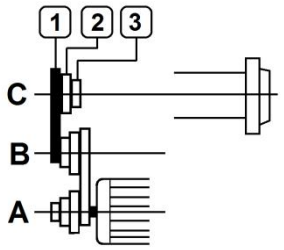
Extension cords and plugs must be free from defects.

8.0 Adjustments

8.1 Changing spindle speed

The speeds of the lathe are controlled by the position of the belt on the pulleys (Fig 8-1).





BC 1	BC 2	BC 3
150	**300**	**600**
AC 1	AC 2	AC 3
500	**1000**	**2000**

Figure 8-1: Spindle speed chart

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)

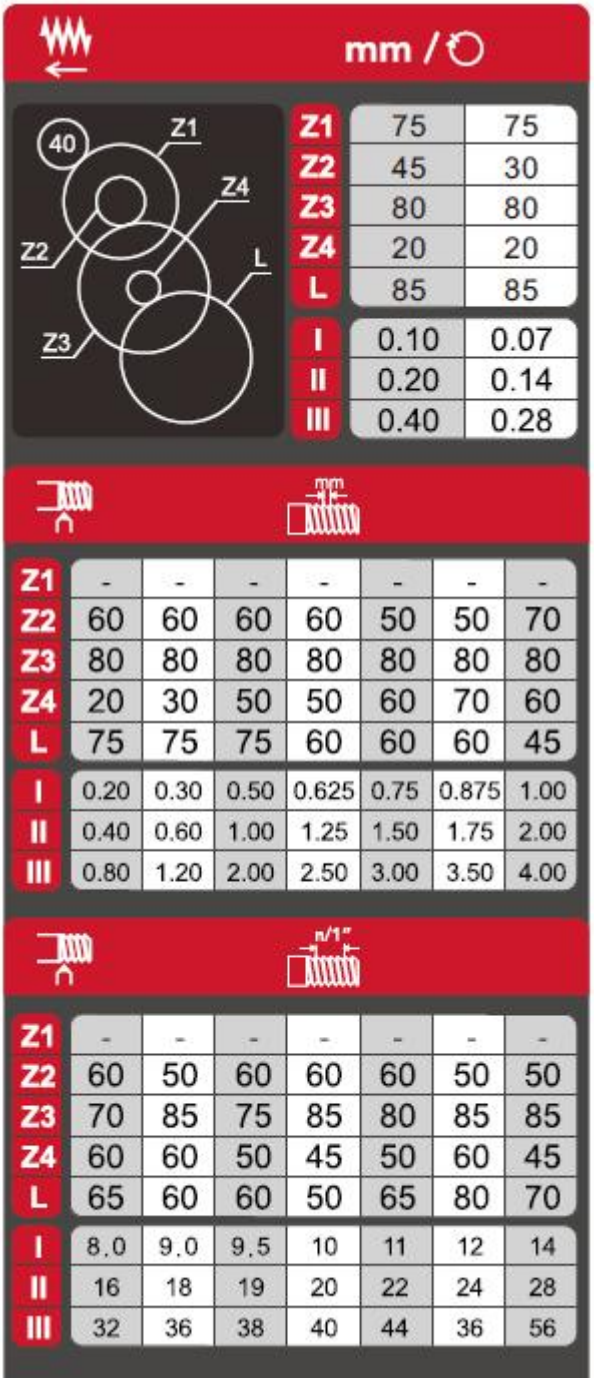


Figure 8-2: Change gear setup

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.

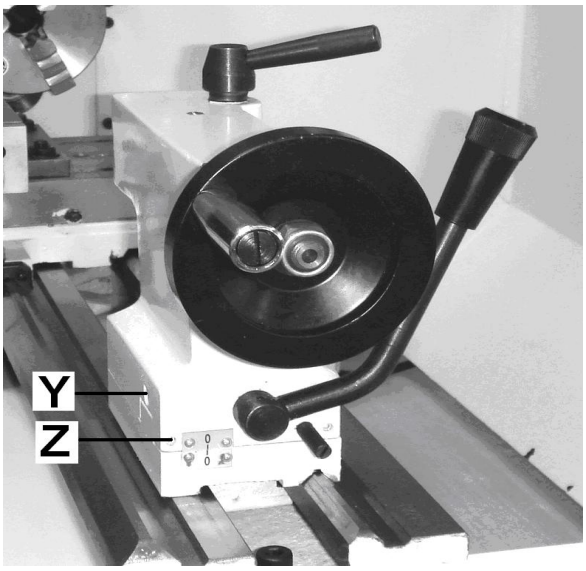


Figure 8-3: Taper turning between centres

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).

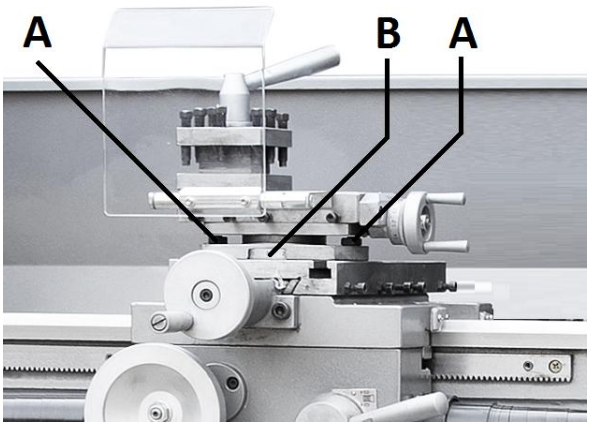


Figure 8-4: Taper turning with top slide

8.5 Three jaw universal chuck

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

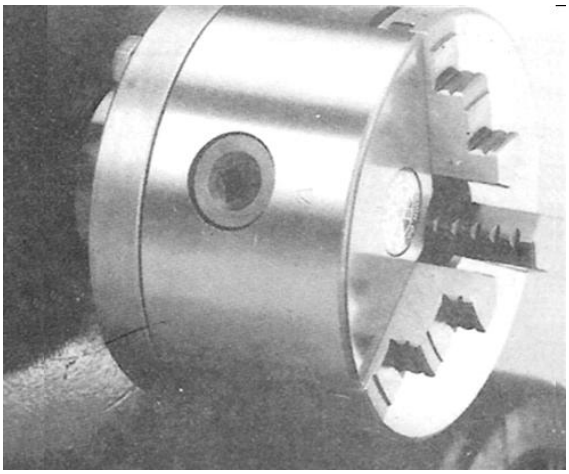


Figure 8-5: Three jaw universal chuck

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**

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

Its use is highly recommended for speeds above 500 RPM.

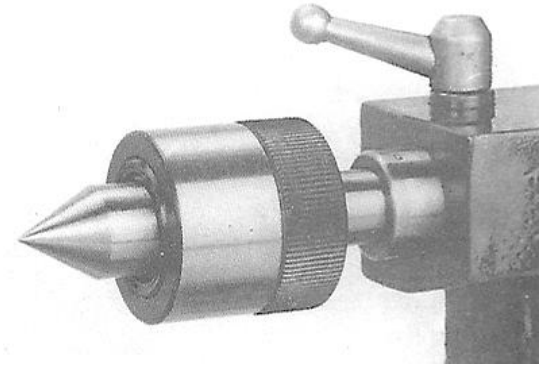


Figure 8-7: Live centre

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

8.8 **Steady rest and follow rest (Optional)**

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.

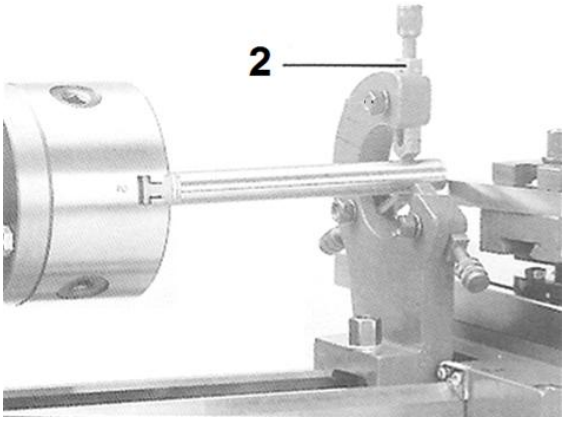


Figure 8-8: Steady rest

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

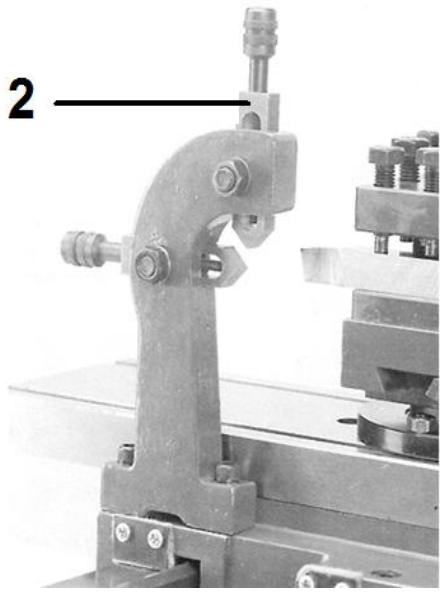


Figure 8-9: Follow rest

Note:

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

X ..... Emergency Stop

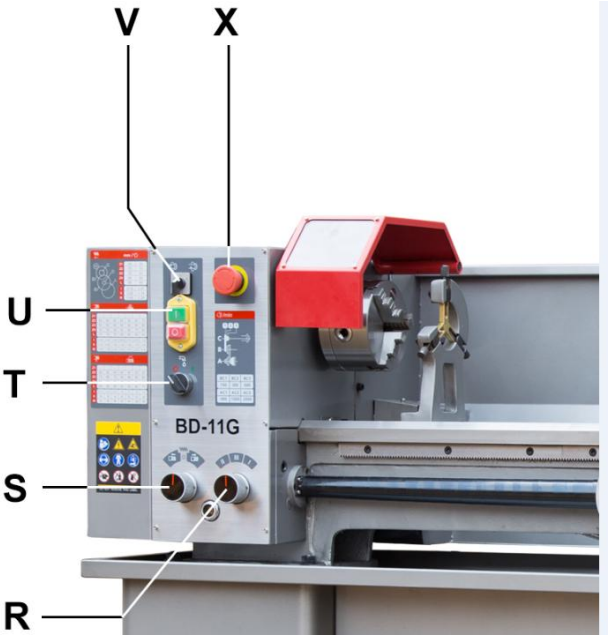


Figure 9-1: Operating Controls

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 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).

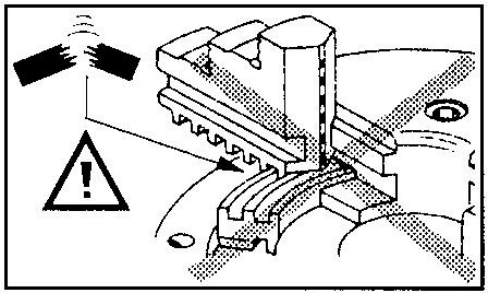


Figure 10-1: Poor jaw engagements

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

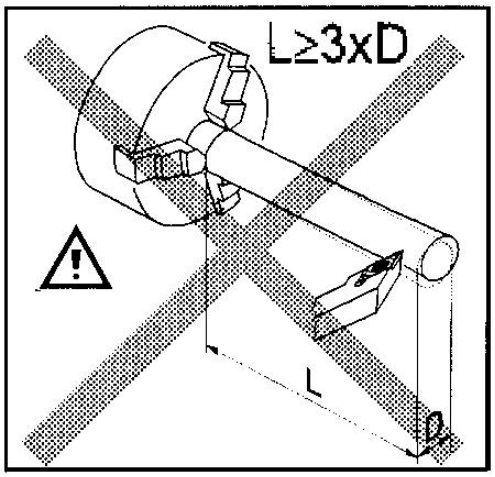


Figure 10-2: Workpiece too long

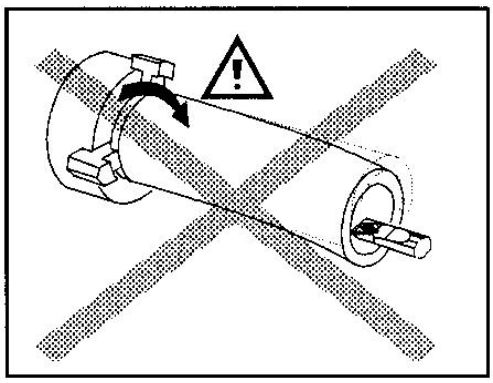


Figure 10-3: Workpiece too long

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

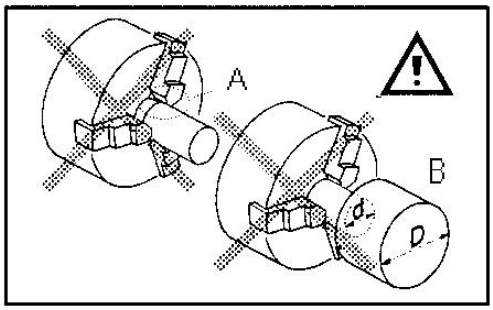


Figure 10-4: Poor clamping

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).

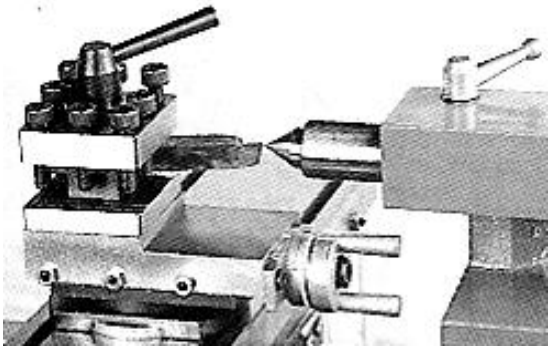


Figure 10-5: Cutting tool setup

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

Plastic: ..... 2000 /min

Aluminium:..... 2000 /min

Brass: ..... 1000 /min

Cast iron:..... 1000 /min

Mild steel:..... 800 /min

High carbon steel:..... 600 /min

Stainless steel:..... 300 /min

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 /min

With carbide tool..... 2000 /min

10.5 Manual turning

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

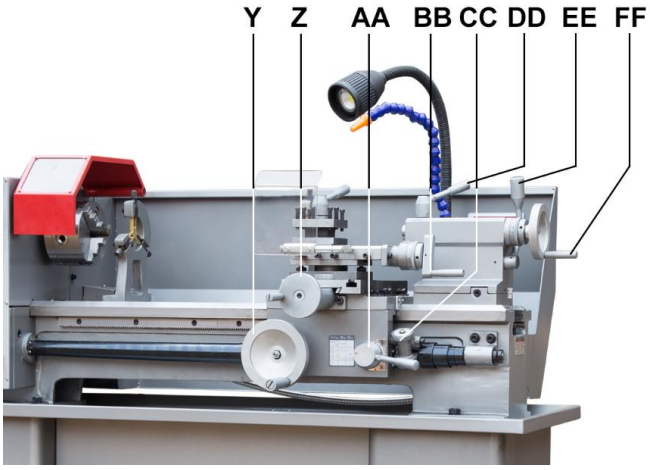


Figure 10-6: Machine controls

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 (AA, 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).

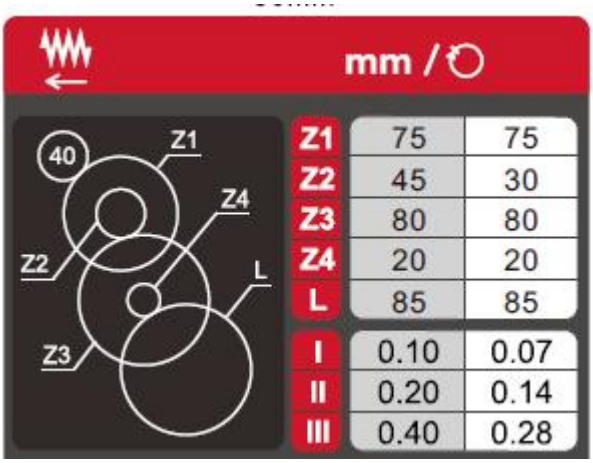


Figure 10-7: Available feed rates

For example:

Operation	**feed/rev**	**feed 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).

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) 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 (AA, 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) Cut metric threads with threading dial

On most metric threads the threading dial (CC, Fig 10-8) can be used.

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

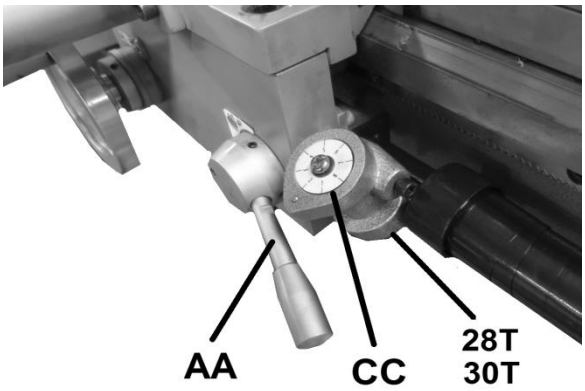


Figure 10-8: Threading Dial

Select threading dial gear 28T or 30T

The halve nut may only be engaged at the corresponding graduation match on the threading dial (Fig 10-9).

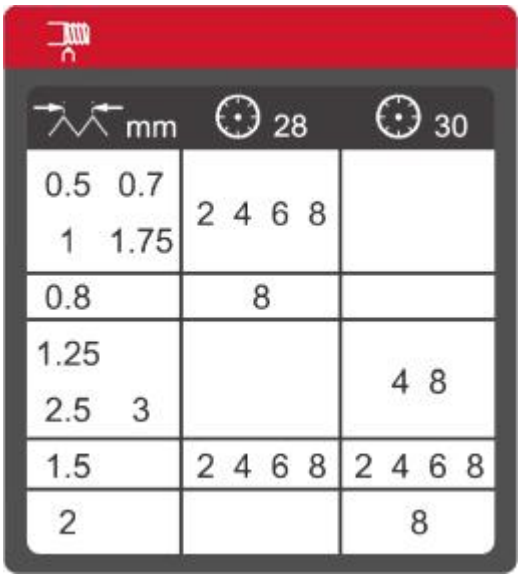


Figure 10-9: Threading dial setup

Note:

For thread pitches of 0,2/0,3/0,5/0,6/0,75/ 1,0/ 1,5/3 mm the half nut can be engaged at any point.

(lead screw pitch = 3 mm = can be divided by thread pitch).

10.8 Drilling operation

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

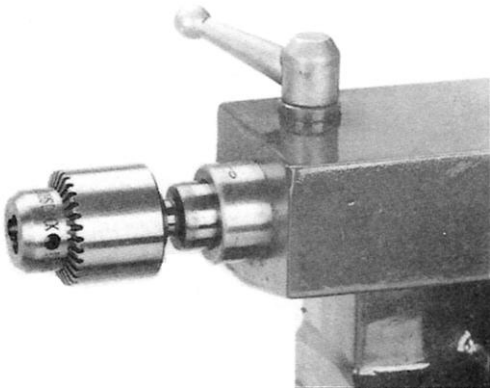


Figure 10-10: Drilling operation

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.

A) 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

B) 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 (L, Fig 11-1).

In case of need, fill oil by removing plug (M).

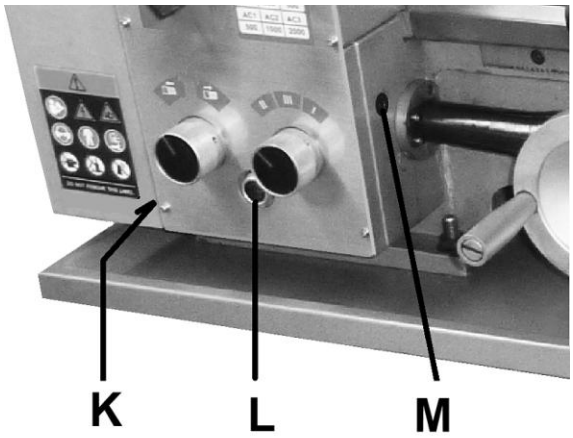


Figure 11-1: Gearbox oil fill-up

Change the oil in the gearbox every 1000 operating hours.

Drain oil by removing drain plug (K).

11.2 **Readjustments**

A) Bearing adjustment:

The main spindle taper roller bearings are adjusted at the factory.

If end play becomes evident after considerable use the bearings may be adjusted.

Loosen two hex socket cap screws (A, Fig 11-2). Tighten nut (B) until end play is taken up.

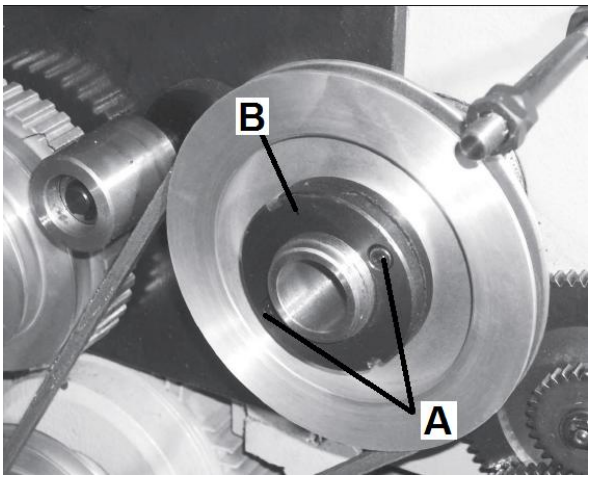


Figure 11-2: Bearing adjustment

Tighten nut carefully, the spindle should still revolve freely. Excessive preloading will damage the bearings.

Tighten the screws.

B) Cross slide and Top slide adjustment:

Each slide is fitted with a gib (C, Fig 11-3) and can be adjusted with screws (E) fitted with lock nuts (D).

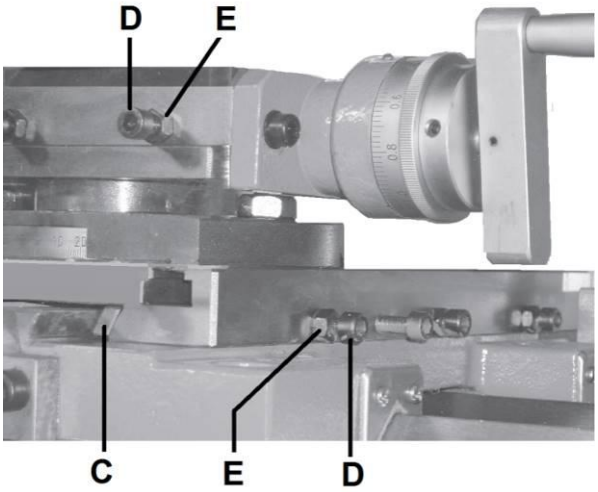


Figure 11-3: Slide adjustment

Adjust until slides move freely without play.

C) Cross slide spindle adjustment

Remove the top slide and adjust the grub screw (F, Fig 11-4) until the backlash between the spindle and the nut is eliminated.

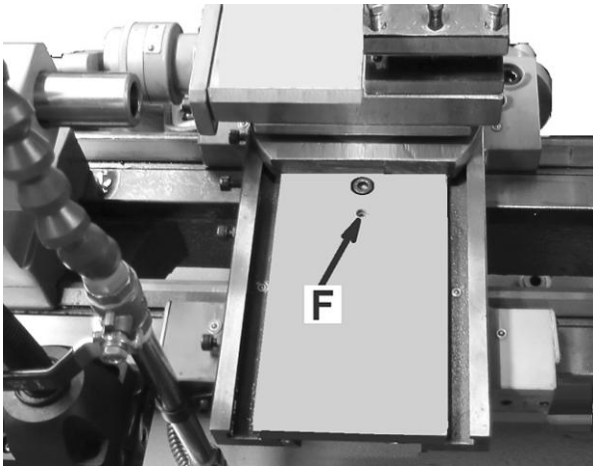


Figure 11-4: Cross slide spindle adjustment

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.

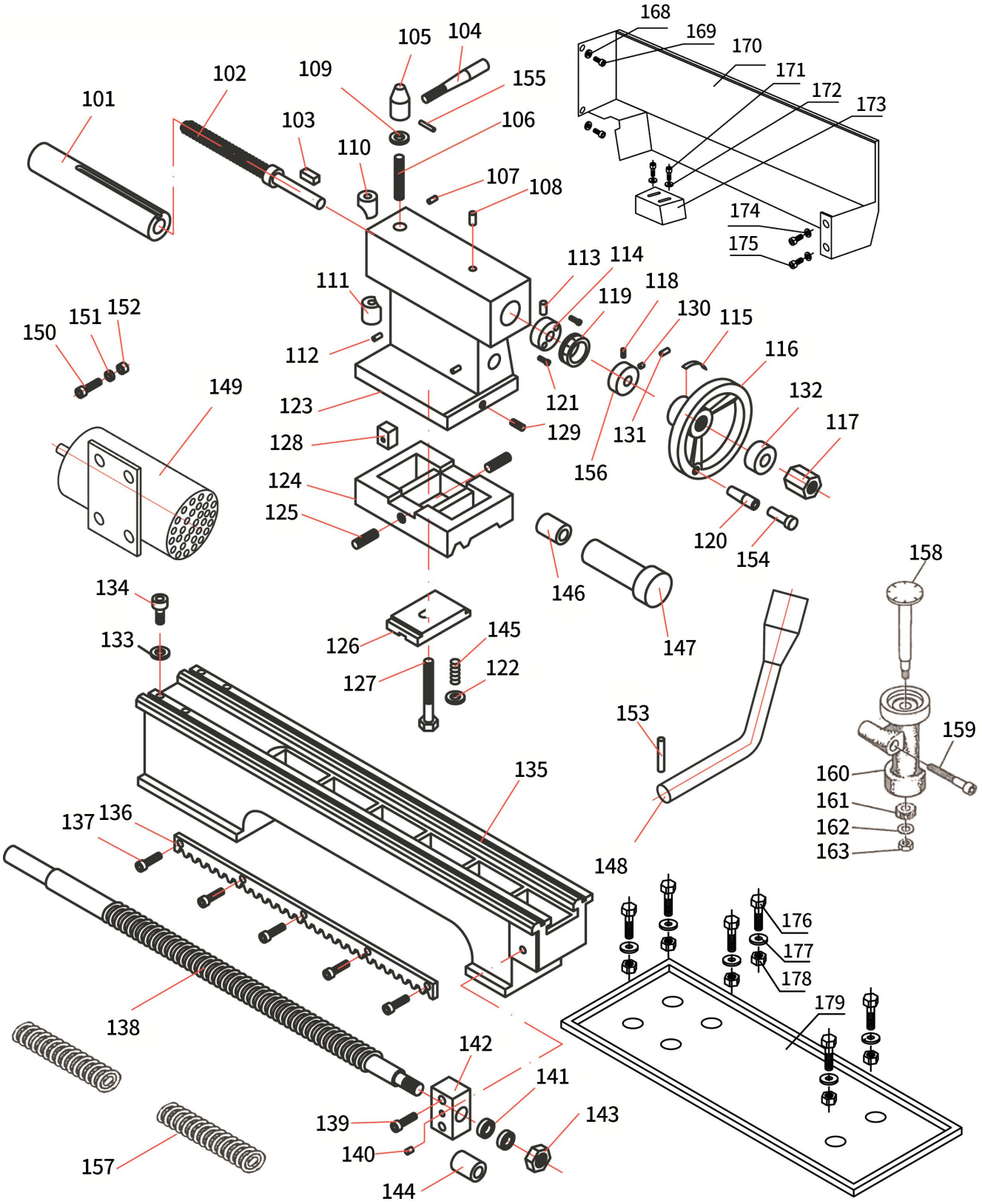
Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.

14.0 **Available Accessories**

Refer to the BD-11G price list.

15.0 **Replacement Parts**

BD-11G Assembly Breakdown -1



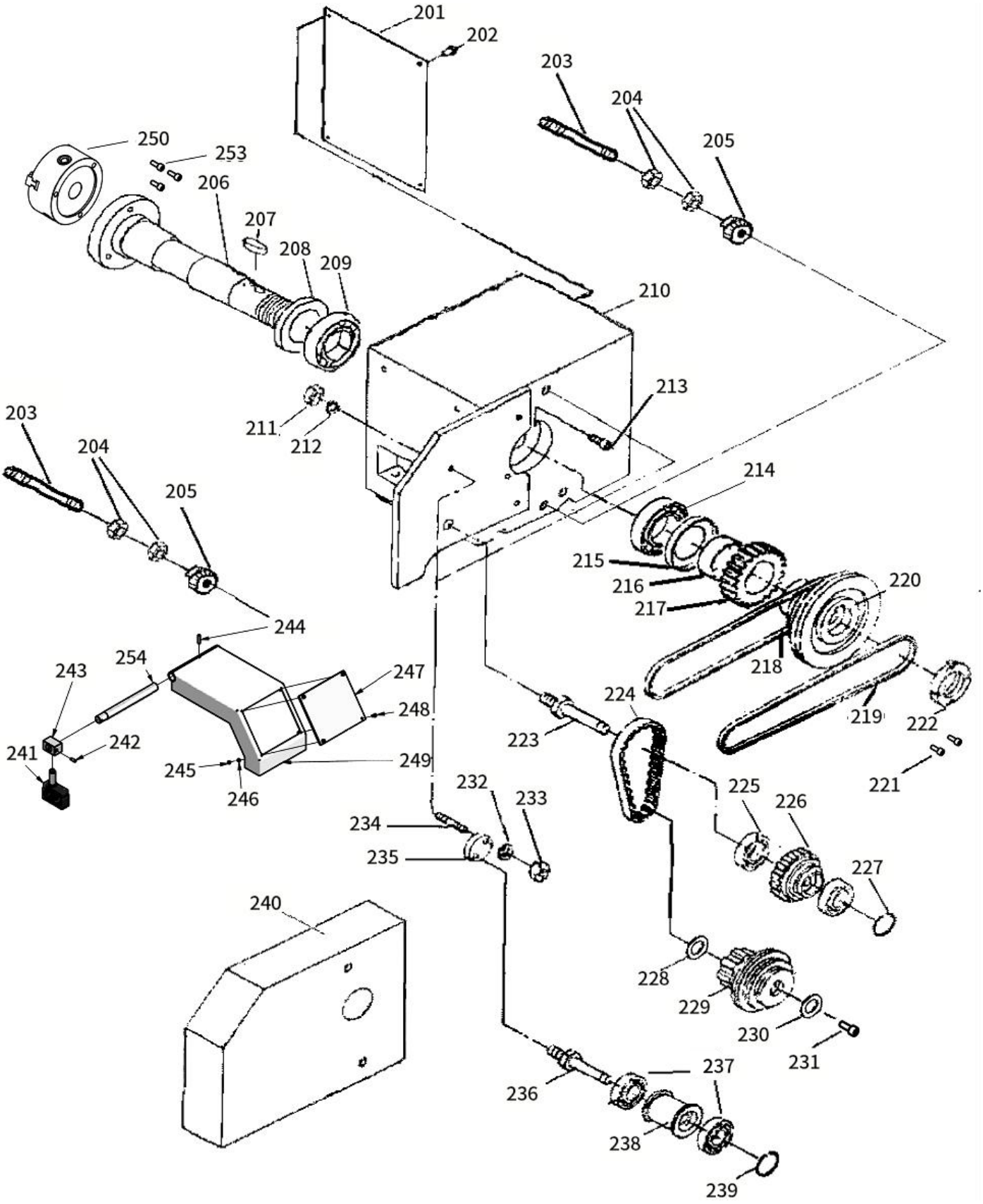
BD-11G Parts List for Breakdown -1

Index No.	Part No.	Description	Size	Qty.
101	BD-11G-1-101	QUILL		1
102	BD-11G-1-102	LEADSCREW		1
103	GB109679-3-10	FLAT KEY	3 x 10 mm	1
104	BD-11G-1-104	CLAMPING HANDLE		1
105	BD-11G-1-105	HANDLE SEAT		1
106	BD-11G-1-106	CLAMPING SCREW		1
107	GB7985-5-12	SET SCREW (CYLINDER END)	M5 x 12 mm	1
108	JBT7940495-6	BALL OILER	Φ6	1
109	BD-11G-1-109	WASHER		1
110	BD-11G-1-110	CLAMPING PIECE		1
111	BD-11G-1-111	CLAMPING PIECE		1
112	GB7985-5-12	SET SCREW (CYLINDER END)	M5 x 12 mm	2
113	JBT7940495-6	BALL OILER	Φ6	1
114	BD-11G-1-114	BRACKET		1
115	BD-11G-1-115	INDICATING DIAL		1
116	BD-11G-1-116	HAND WHEEL		1
117	GB617086-8	HEX NUT	M8	1
118	BD-11G-1-118	SPRING	0.5 x 5 x 15	1
119	BD-11G-1-119	SCALE RING		1
120	BD-11G-1-120	HANDLE		1
121	GB7085-5-16	SOCKET HD SCREW	M5 x 16 mm	2
122	GB5287-12	WASHER	12	1
123	BD-11G-1-123	TAILSTOCK		1
124	BD-11G-1-124	BASE		1
125	GB7985-8-45	SET SCREW (CYLINDER END)	M8 x 45 mm	2
126	BD-11G-1-126	CLAMPING PLATE		1
127	BD-11G-1-127	FASTEN BOLT		1
128	BD-11G-1-128	ADJUSTMENT BLOCK		1
129	GB7985-6-16	SET SCREW (CYLINDER END)	M6 x 16 mm	1
130	BD-11G-1-130	BRASS CLAMPING PIECE		3
131	GB7985-6-10	SET SCREW (CYLINDER END)	M6 x 10 mm	3
132	GB5287-8	WASHER	8	1
133	GB5287-10	WASHER	10	4
134	GB7085-10-35	SOCKET HD SCREW	M10 x 35 mm	4
135	BD-11G-1-135	LATHE BED		1
136	BD-11G-1-136	RACK		1
137	GB7085-6-16	SOCKET HD SCREW	M6 x 16 mm	6
138	BD-11G-1-138	LEADSCREW		1
139	GB7085-8-20	SOCKET HD SCREW	M8 x 20 mm	2
140	JBT7940495-6	BALL OILER	Φ6	1
141	TBB-51102	THRUST BALL BEARING	51102	2
142	BD-11G-1-142	BRACKET		1
143	BD-11G-1-143	ROUND NUT	M12 x 1.25	2
144	BD-11G-1-144	COLLAR		1
145	BD-11G-1-145	SPRING	0.8X14X40	1
146	BD-11G-1-146	SHAFT SLEEVE		1
147	BD-11G-1-147	ECCENTRIC SHAFT		1
148	BD-11G-1-148	CLAMPING LEVER		1
149	BD-11G-1-149	MAIN MOTOR (M1)	YLJ90L4-12A	1
150	BD-11G-1-150	SET SCREW		4
151	GB5287-8	WASHER	Φ8	4
152	GB617086-8	NUT…	M8	4
153	GB87986-4-24	ROLL PIN	4 x 24 mm	1
154	BD-11G-1-154	BOLT		1
155	GB87986-4-24	ROLL PIN	4 x 24 mm	1
156	BD-11G-1-156	COLLAR		1
157	BD-11G-1-157	LEAD SCREW GUARD		2

BD-11G Parts List for Breakdown -1

158	BD-11G-1-158	SHAFT		1
159	GB7085-6-70	HEX SOCKET SCREW⋯	M6 x 70 mm	1
160	BD-11G-1-160	DISORDERLY BUCKLE PLATE HOLDER		1
161	BD-11G-1-161	GEAR		1
162	GB5287-8	WASHER	8	1
163	GB617086-8	HEX NUT	M8	1
164	BD-11G-1-164	THREAD DIAL ASSEMBLY (#258-263)		1
165	BD-11G-1-165	MT2 FIXED CENTRE	not shown	1
166	BD-11G-1-166	MT2 LIVE CENTRE	not shown	1
167	BD-11G-1-167	MT4 FIXED CENTRE	not shown	1
168	GB97185-6	WASHER	6	2
169	GB7085-6-10	SOCKET HD SCREW	M6x10	2
170	BD-11G-1-170	SPLASH GUARD		1
171	GB7085-5-10	SOCKET HD SCREW	M5x10	2
172	GB97185-5	WASHER	5	2
173	BD-11G-1-173	BACK COVER		1
174	GB97185-6	WASHER	6	2
175	GB7085-6-10	SOCKET HD SCREW	M6x10	2
176	GB578186-12-40	HEX HD SCREW	M12x40	4
177	GB97185-12	WASHER	12	4
178	GB617086-12	HEX NUT		4
179	BD-11G-1-179	OIL PAN		1

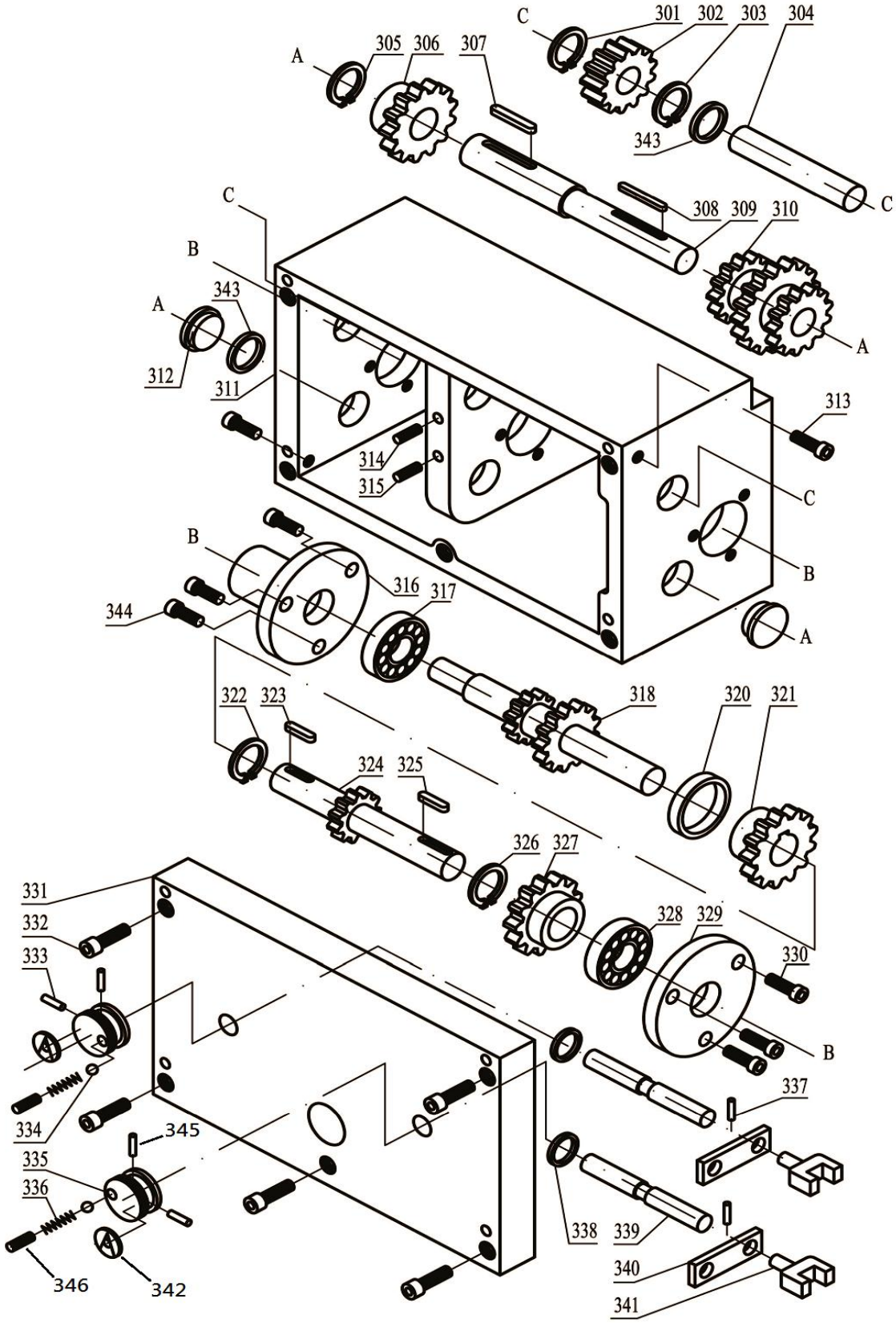
BD-11G Assembly Breakdown -2



BD-11G Parts List for Breakdown -2

Index No.	Part No.	Description	Size	Qty.
201	BD-11G-2-201	FRONT PANEL		1
202	GB702-4-10S	SOCKET BUTTON HD SCREW	M4 × 10 mm	4
203	BD-11G-2-203	LEADSCREW COVER		2
204	GB617286-10	HEX NUT (THIN)	M10	4
205	BD-11G-2-205	KNURLED NUT		2
206	BD-11G-2-206	SPINDLE		1
207	GB109679-8-45	FLAT KEY	8 × 45 mm	1
208	BD-11G-2-208	RING		1
209	TRB-32009	TAPERED ROLLER BEARING	32009	2
210	BD-11G-2-210	HEADSTOCK		1
211	GB617286-10	HEX NUT (THIN)	M10	2
212	GB5287-10	WASHER	10	2
213	GB7085-8-25	SOCKET HD SCREW	M8 × 25 mm	1
214	TRB-32009	TAPERED ROLLER BEARING	32009	1
215	BD-11G-2-215	RING		1
216	BD-11G-2-216	BUSH		1
217	BD-11G-2-217	GEAR		1
218	BD-11G-2-218	V-BELT	O-710	1
219	BD-11G-2-219	V-BELT	O-850	1
220	BD-11G-2-220	PULLEY		1
221	GB7085-5-12	SOCKET HD SCREW	M5 x 12 mm	2
222	BD-11G-2-222	ROUND NUT		1
223	BD-11G-2-223	SHAFT		1
224	BD-11G-2-224	SYNCHRONOUS BELT	240L075	1
225	BB-6001RZ	BALL BEARING	6001RZ	2
226	BD-11G-2-226	PULLEY		1
227	GB8941-12	CIRCLIP FOR SHAFT	Φ12	1
228	BD-11G-2-228	WASHER		2
229	BD-11G-2-229	PULLEY		1
230	BD-11G-2-230	WASHER		1
231	GB7085-6-20	SOCKET HD SCREW	M6 × 20 mm	1
232	GB5287-8	WASHER	Φ8	1
233	GB617286-8	HEX NUT (THIN)	M8	1
234	BD-11G-2-234	ALLEN SCREWS	自制件	1
235	BD-11G-2-235	ECCENTRIC PLATE		1
236	BD-11G-2-236	SHAFT		1
237	BB-6001RZ	BALL BEARING	6001RZ	2
238	BD-11G-2-238	PULLEY		1
239	GB8941-12	CIRCLIP FOR SHAFT	Φ12	1
240	BD-11G-2-240	COVER		1
241	BD7VS-151	MICRO SWITCH (SQ2)		1
242	GB7085-5-12	SOCKET HD SCREW	M5 × 12 mm	1
243	BD-11G-2-243	BRACKET		1
244	GB87986-3-20	ROLL PIN	3 × 20 mm	1
245	GB617286-4	HEX NUT (THIN)	M4	4
246	GB97185-4	WASHER	4	4
247	BD-11G-2-247	ARCRYLIC GLASS		1
248	GB7085-4-10	SOCKET HD SCREW	M4 × 10 mm	4
249	BD-11G-2-249	CHUCK GUARD		1
250	BD-11G-2-250	3-JAW CHUCK 125mm		1
251	BD-11G-2-251	4-JAW CHUCK 125mm	not shown	1
252	BD-11G-2-252	FACE PLATE 265mm	not shown	1
253	GB7085-8-35	SOCKET HD SCREW	M8 × 35 mm	3
254	BD-11G-2-254	SHAFT		1

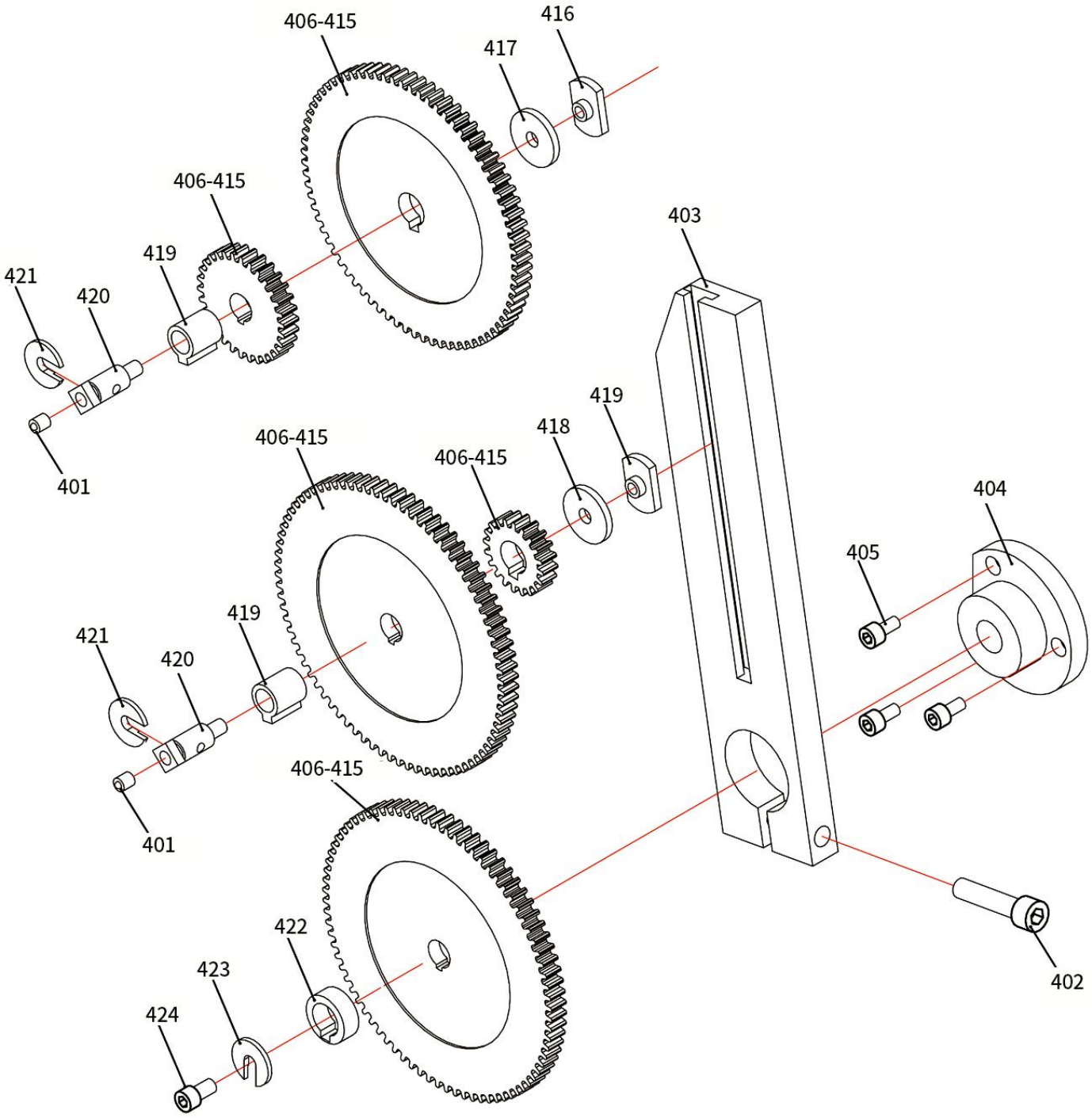
BD-11G Assembly Breakdown -3



BD-11G Parts List for Breakdown -3

Index No.	Part No.	Description	Size	Qty.
301	GB8941-12	CIRCLIP FOR SHAFT	12	1
302	BD-11G-3-302	GEAR		1
303	GB8941-12	CIRCLIP FOR SHAFT	12	1
304	BD-11G-3-304	SHAFT C		1
305	GB8941-16	CIRCLIP FOR SHAFT	Φ16	1
306	BD-11G-3-306	GEAR		1
307	GB109679-4-30	FLAT KEY	4 × 30 mm	1
308	GB109679-4-60	FLAT KEY	4 × 60 mm	1
309	BD-11G-3-309	SHAFT A		1
310	BD-11G-3-310	GEAR SET		1
311	BD-11G-3-311	GEARBOX		1
312	BD-11G-3-312	PLUG		4
313	BD-11G-3-313	HEX SOCKET PLUG	R3/8	2
314	GB7085-6-8	SOCKET HD SCREW	M6 x 8 mm	1
315	GB7085-6-10	SOCKET HD SCREW	M6 x 10 mm	1
316	BD-11G-3-316	FLANGE		1
317	BB-6202RZ	BALL BEARING	6202RZ	1
318	BD-11G-3-318	GEAR SHAFT		1
320	BD-11G-3-320	RING		1
321	BD-11G-3-321	GEAR		1
322	GB8941-15	CIRCLIP FOR SHAFT	15	1
323	GB109679-4-14	FLAT KEY	4 × 14 mm	1
324	BD-11G-3-324	GEAR SHAFT		1
325	GB109679-4-10	FLAT KEY	4 × 10 mm	1
326	GB8941-15	CIRCLIP FOR SHAFT	15	1
327	BD-11G-3-327	GEAR		1
328	BB-6202RZ	BALL BEARING	6202RZ	1
329	BD-11G-3-329	FLANGE COVER OF LEADSCREW		1
330	GB7085-6-12	SOCKET HD SCREW	M6 × 12 mm	3
331	BD-11G-3-331	FRONT PLATE		1
332	GB7085-6-20	SOCKET HD SCREW	M6 × 20 mm	5
333	GB87986-5-30	ROLL PIN	5 × 30 mm	2
334	GB30889-5	STEEL BALL	5	2
335	BD-11G-3-335	KNOB		2
336	BD-11G-3-336	SPRING	0.8 × 45 × 11 mm	2
337	GB87986-5-20	ROLL PIN	5 × 20 mm	2
338	GB34521-14-2	O-RING	14 x 2.65	2
339	BD-11G-3-339	SHAFT		2
340	BD-11G-3-340	PLATE		2
341	BD-11G-3-341	GEAR FORK		2
342	BD-11G-3-342	KNOB LABEL		2
343	GB34521-14-2	O-RING	14 x 2.65	4
344	GB7085-5-12	SOCKET HD SCREW	M5 × 12 mm	3
345	GB7885-6-10	SET SCREW (CYLINDER END)	M6 x 10	2
346	GB7985-6-10	SET SCREW (CONE END)	M6X10	2

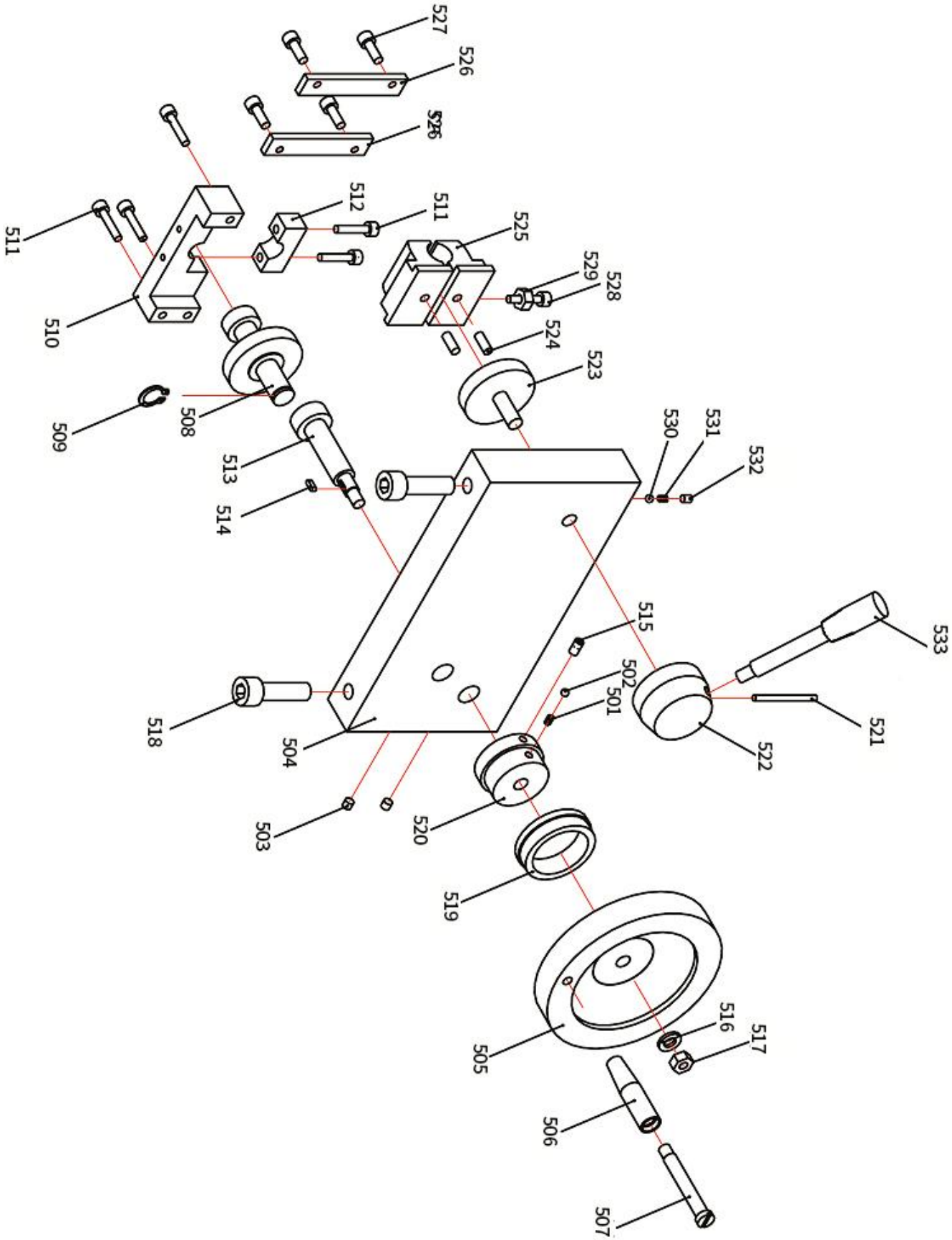
BD-11G Assembly Breakdown -4



BD-11G Parts List for Breakdown -4

Index No.	Part No.	Description	Size	Qty.
401	JBT7940495-6	BALL OILER	Φ6	2
402	GB7085-8-35	SOCKET HD SCREW	M8 × 35 mm	1
403	BD-11G-4-403	RAIL⋯		1
404	BD-11G-4-404	BRACKET		1
405	GB7085-5-10	SOCKET HD SCREW	M5 × 10 mm	3
406	BD-11G-4-406	GEAR	85	1
407	BD-11G-4-407	GEAR	80	1
408	BD-11G-4-408	GEAR	75	1
409	BD-11G-4-409	GEAR	70	1
410	BD-11G-4-410	GEAR	65	1
411	BD-11G-4-411	GEAR	60	2
412	BD-11G-4-412	GEAR	50	1
413	BD-11G-4-413	GEAR	45	1
414	BD-11G-4-414	GEAR	30	1
415	BD-11G-4-415	GEAR	20	1
416	BD-11G-4-416	T-NUT	M5	2
417	BD-11G-4-417	SPACER	1.5 mm	1
418	BD-11G-4-418	SPACER	3 mm	1
419	BD-11G-4-419	KEY SLEEVE		2
420	BD-11G-4-420	THREADED SHAFT		2
421	BD-11G-4-421	C-WASHER		2
422	BD-11G-4-422	COLLAR		1
423	BD-11G-4-423	C-WASHER		1
424	GB7085-6-10	SOCKET HD SCREW	M6 × 10 mm	1

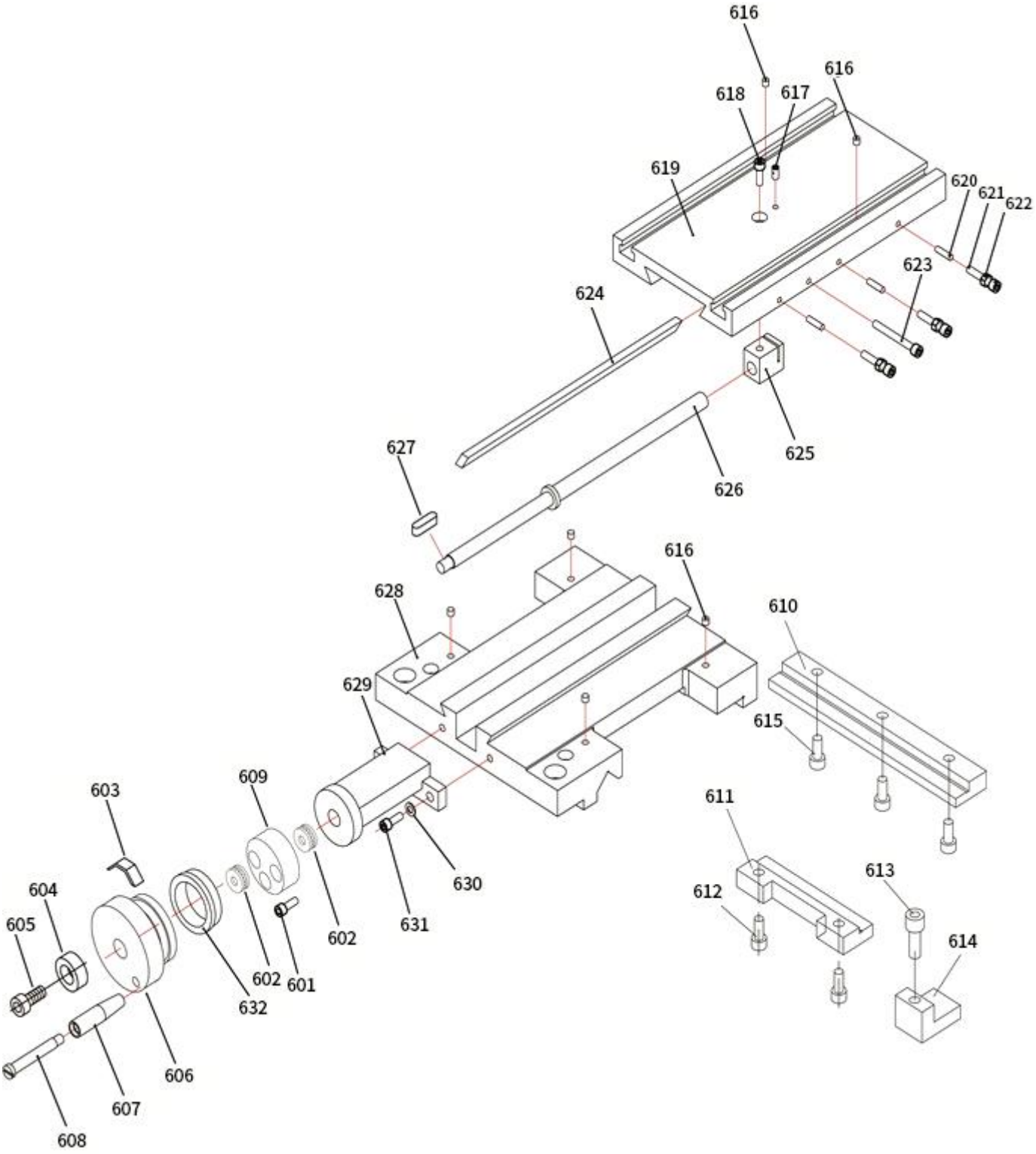
BD-11G Assembly Breakdown -5



BD-11G Parts List for Breakdown -5

Index No.	Part No.	Description	Size	Qty.
501	BD-11G-5-501	SPRING	0.8 x 5 x 15 mm	1
502	GB30889-5	STEEL BALL	5	1
503	JBT7940495-6	BALL OILER	6	2
504	BD-11G-5-504	APRON		1
505	BD-11G-5-505	HANDWHEEL	M5 × 10 mm	1
506	BD-11G-5-506	HANDLE		1
507	BD-11G-5-507	CLAMPING BOLT		1
508	BD-11G-5-508	GEAR SHAFT		1
509	GB8941-15	CIRCLIP FOR SHAFT	Φ15	1
510	BD-11G-5-510	BRACKET		1
511	GB7085-5-511	SOCKET HD SCREW	M5 × 25 mm	5
512	BD-11G-5-512	HOLDER		1
513	BD-11G-5-513	SHAFT		1
514	GB109679-3-10	FLAT KEY	3 x 10 mm	1
515	GB7985-6-8	SET SCREW (CYLINDER END)	M6 x 8 mm	1
516	GB5287-8	WASHER	8	1
517	GB617086-8	HEX NUT	M8	1
518	GB7085-12-40	SOCKET HD SCREW	M12 × 40 mm	2
519	BD-11G-5-519	SCALE RING		1
520	BD-11G-5-520	COLLAR		1
521	GB87986-4-50	ROLL PIN	4 × 50 mm	1
522	BD-11G-5-522	SEAT		1
523	BD-11G-5-523	CAM		1
524	BD-11G-5-524	PIVOT		2
525	BD-11G-5-525	LOCK NUT		1
526	BD-11G-5-526	GUIDE RAIL		2
527	GB7085-6-16	SOCKET HD SCREW	M6 × 16 mm	4
528	GB7085-5-528	SOCKET HD SCREW	M5 × 40 mm	1
529	GB617086-5	HEX NUT	M5	1
530	GB30889-5	STEEL BALL	5	1
531	BD-11G-5-531	SPRING	0.8 x 5 x 15 mm	1
532	GB7985-6-6	SET SCREW (CYLINDER END)	M6 × 6 mm	1
533	BD-11G-5-533	LEVER		1

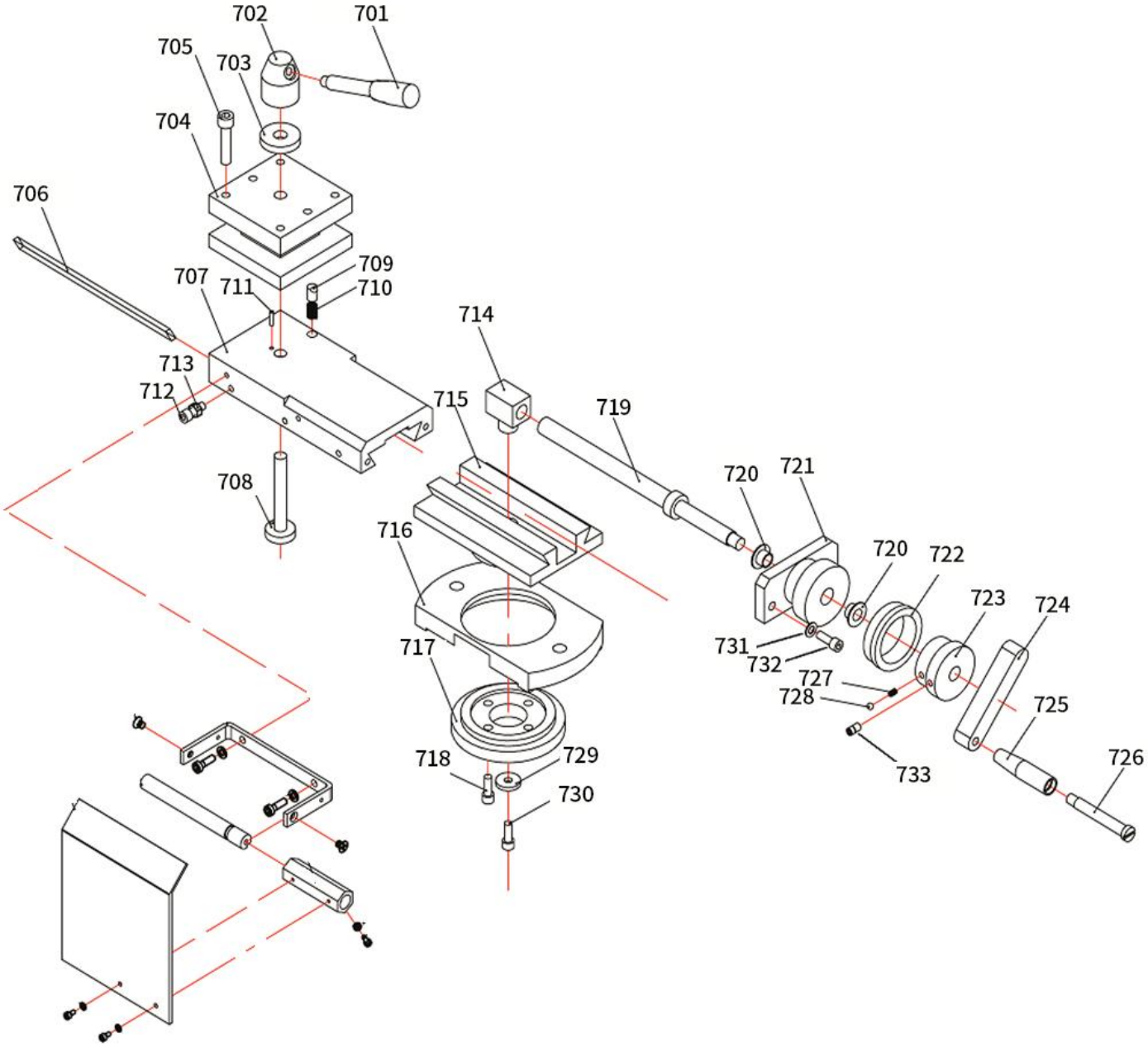
BD-11G Assembly Breakdown -6



BD-11G Parts List for Breakdown -6

Index No.	Part No.	Description	Size	Qty.
601	GB7085-5-20	SOCKET HD SCREW	M5 × 20 mm	3
602	TBB-51101	THRUST BALL BEARING	51101	2
603	BD-11G-6-603	SPRING	6	1
604	BD-11G-6-604	WASHER		1
605	GB7085-5-10	SOCKET HD SCREW	M5 × 10 mm	1
606	BD-11G-6-606	WHEEL		1
607	BD-11G-6-607	HANDLE		1
608	BD-11G-6-608	CLAMPING BOLT		1
609	BD-11G-6-609	COLLAR		1
610	BD-11G-6-610	BACK CLAMP		1
611	BD-11G-6-611	FRONT CLAMP		1
612	GB7085-8-30	SOCKET HD SCREW	M8 x 30 mm	2
613	GB7085-8-40	SOCKET HD SCREW	M8 x 40 mm	1
614	BD-11G-6-614	BRAKE CLAMP		1
615	GB7085-8-30	SOCKET HD SCREW	M8 x 30 mm	3
616	JBT7940495-6	BALL OILER	6	6
617	GB7885-6-10	SET SCREW (CONE END)	M6 × 10 mm	1
618	GB7085-8-10	SOCKET HD SCREW	M8 x 10 mm	1
619	BD-11G-6-619	CROSS SLIDE		1
620	BD-11G-6-620	BRUSH PIN		3
621	GB7085-6-40	SOCKET HD SCREW	M6 × 40 mm	3
622	GB617086-6	HEX NUT	M6	3
623	GB7085-6-40	SOCKET HD SCREW	M6 × 40 mm	1
624	BD-11G-6-624	GIB⋯		1
625	BD-11G-6-625	NUT⋯		1
626	BD-11G-6-626	LEADSCREW		1
627	GB109679-4-12	FLAT KEY	4 × 12 mm	1
628	BD-11G-6-628	SADDLE		1
629	BD-11G-6-629	BRACKET		1
630	GB5287-8	WASHER	5	2
631	GB7085-8-20	SOCKET HD SCREW	8	2
632	BD-11G-6-632	SCALE RING	M8 × 20 mm	1

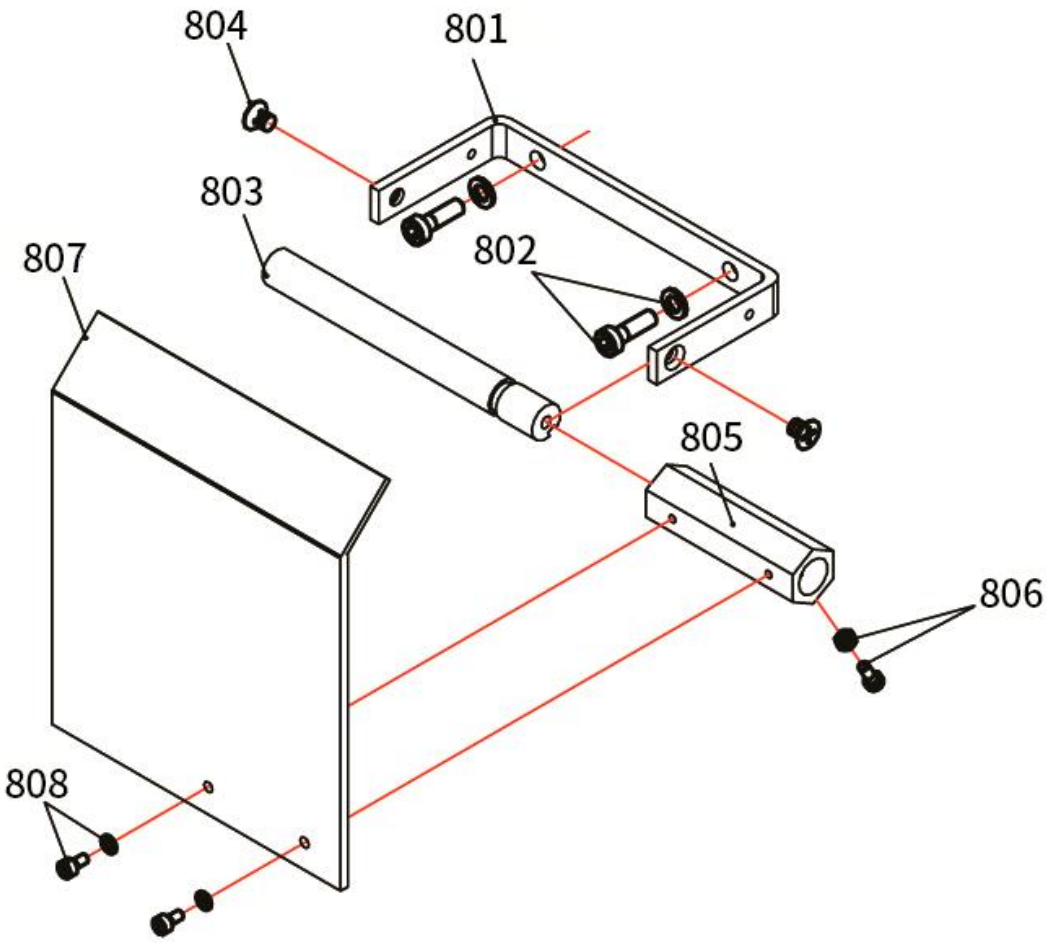
BD-11G Assembly Breakdown -7



BD-11G Parts List for Breakdown -7

Index No.	Part No.	Description	Size	Qty.
701	BD-11G-7-701	HANDLE		1
702	BD-11G-7-702	HANDLE SEAT		1
703	BD-11G-7-703	WASHER		1
704	BD-11G-7-704	QUADRUPLE TOOL HOLDER		1
705	GB7085-8-35	SOCKET HD SCREW	M8 × 35 mm	8
706	BD-11G-7-706	GIB⋯		1
707	BD-11G-7-707	TOP SLIDE		1
708	BD-11G-7-708	BOLT		1
709	BD-11G-7-709	STOP PIN		1
710	BD-11G-7-710	SPRING	0.8 x 5 x 15 mm	1
711	BD-11G-7-711	FIXING PIN		1
712	GB7085-6-16	SOCKET HD SCREW	M6 × 16 mm	3
713	GB617086-6	HEX NUT	M6	3
714	BD-11G-7-714	NUT⋯		1
715	BD-11G-7-715	GUIDEWAY		1
716	BD-11G-7-716	CLAMPING COLLAR		1
717	BD-11G-7-717	SCALE COLLAR		1
718	GB7085-6-16	SOCKET HD SCREW	M6 × 16 mm	1
719	BD-11G-7-719	LEADSCREW		1
720	BD-11G-7-720	SLIDE BEARING		2
721	BD-11G-7-721	BRACKET		1
722	BD-11G-7-722	SCALE RING		1
723	BD-11G-7-723	HANDLE WHEEL		1
724	BD-11G-7-724	LEVER		1
725	BD-11G-7-725	HANDLE		1
726	BD-11G-7-726	CLAMPING BOLT		1
727	BD-11G-7-727	SPRING	0.8 x 5 x 15 mm	1
728	GB30889-8	STEEL BALL	Φ5	1
729	GB97185-6	WASHER	Φ6	1
730	GB7085-6-25	SOCKET HD SCREW	M6 × 25 mm	1
731	GB97185-6	WASHER	6	2
732	GB7085-6-20	SOCKET HD SCREW	M6 × 20 mm	2
733	GB7785-6-10	SET SCREW (FLAT END)	M6 × 10 mm	3

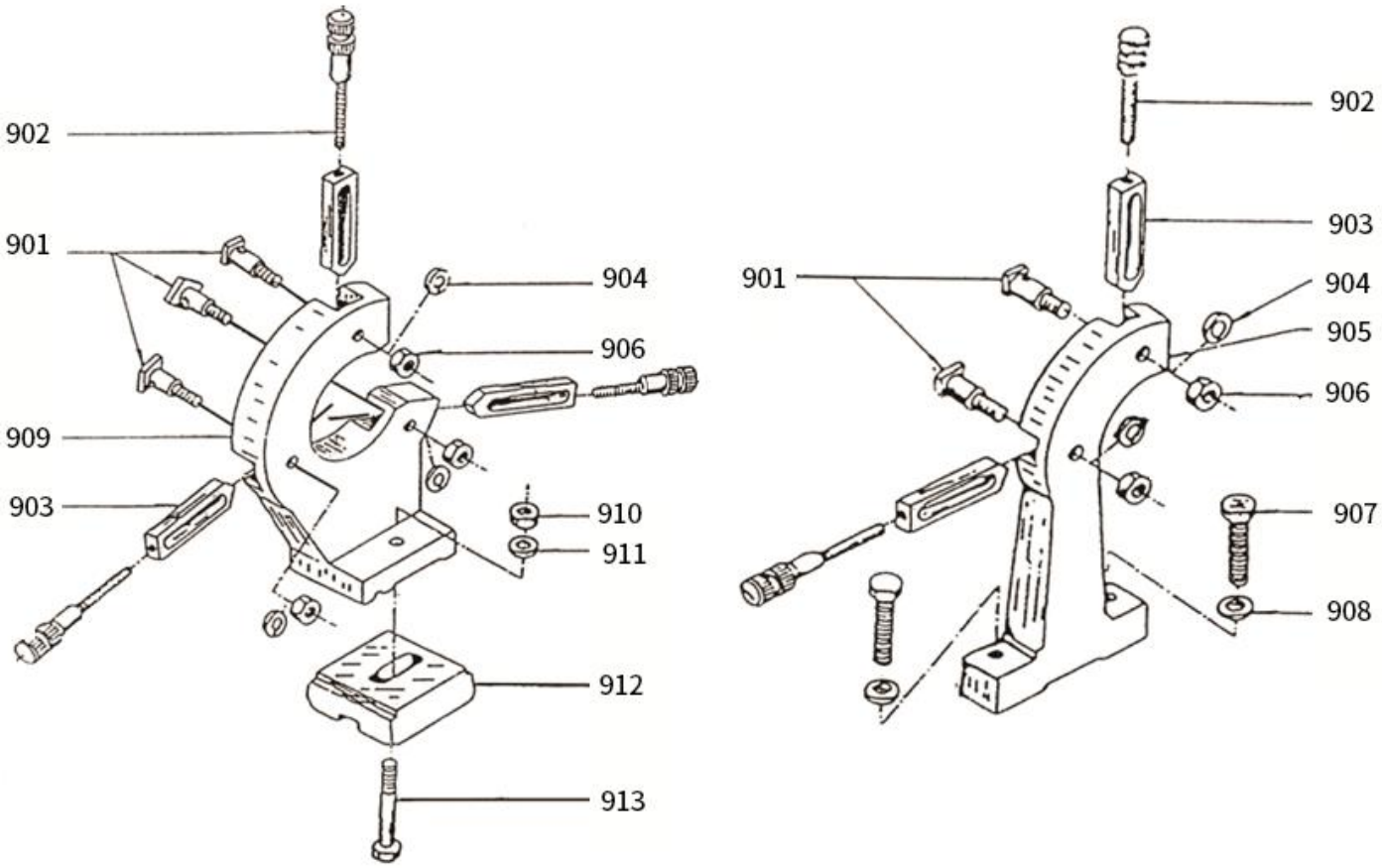
BD-11G Assembly Breakdown -8



BD-11G Parts List for Breakdown -8

Index No.	Part No.	Description	Size	Qty.
801	BD7VS-601	SUPPORT		1
802	GB7085-5-12	SOCKET HD SCREW	M5 × 12 mm	2
803	BD7VS-603	SHAFT		1
804	GB81985-5-6	CROSS RECESSED FLAT HD SCREW	M5 × 6 mm	2
805	BD7VS-605	HEX SLEEVE		1
806	GB7085-3-8	SOCKET HD SCREW	M3 × 8 mm	1
807	BD7VS-607	CHIP SHIELD		1
808	GB7085-3-6	SOCKET HD SCREW	M3 × 6 mm	2
809	BD7VS-609	TOOL POST GUARD KIT (#601-608)		1

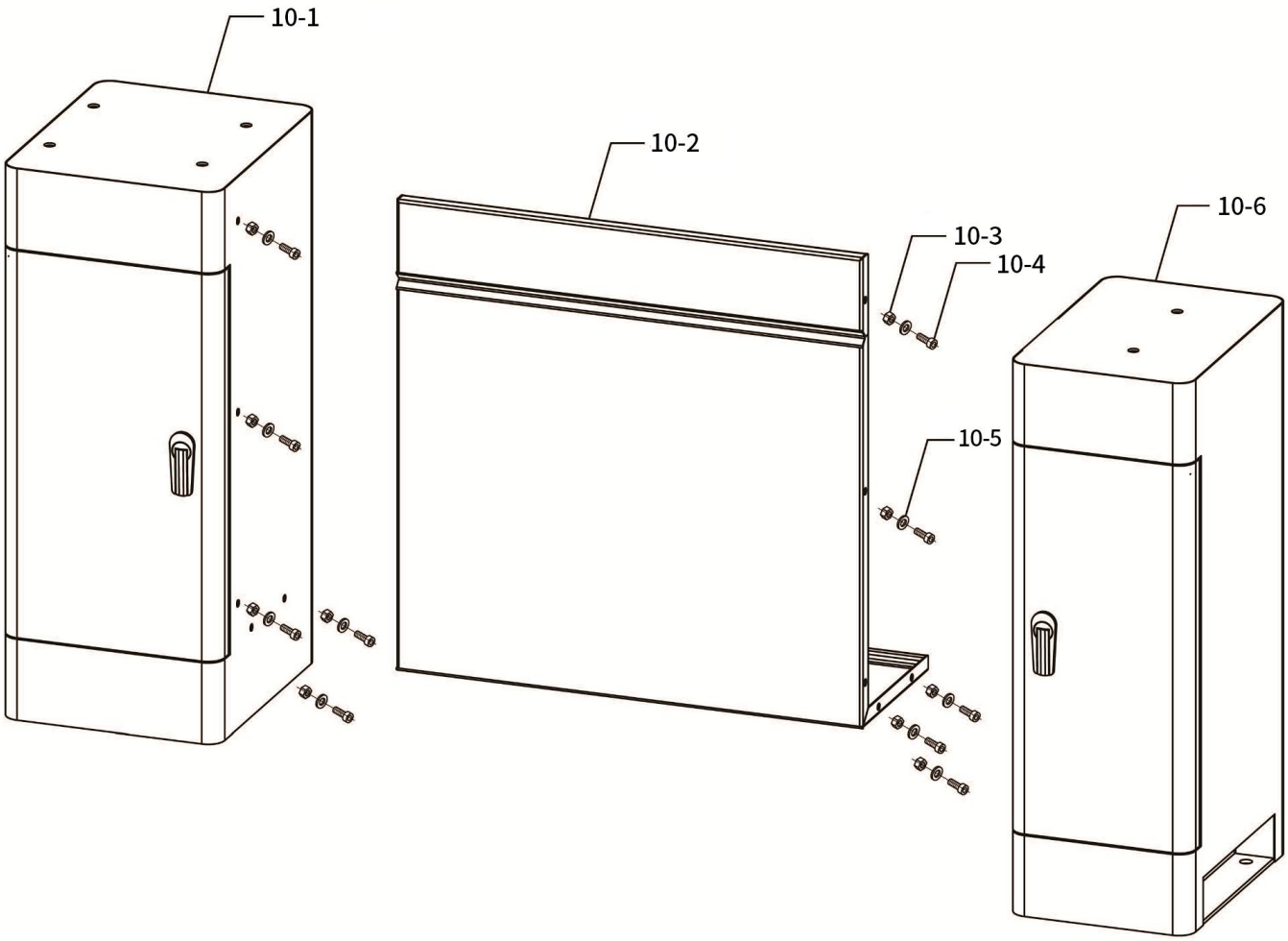
BD-11G Assembly Breakdown -9



BD-11G Parts List for Breakdown -9

Index No.	Part No.	Description	Size	Qty.
901	BD-11G-9-901	SCREW		5
902	BD-11G-9-902	TIGHTENING SCREW		5
903	BD-11G-9-903	SLIDE JAW		5
904	PBD2555V-904	SPRING WASHER (STD)	10	5
905	BD-11G-9-905	FOLLOW REST		1
906	GB617086-10	HEX NUT	M10	5
907	GB578186-8-30	HEX HD SCREW	M8 × 30 mm	2
908	GB97185-8	WASHER	8	2
909	BD-11G-9-909	STEADY REST		1
910	GB617086-12	HEX NUT	M12	1
911	GB97185-12	WASHER	12	1
912	BD-11G-9-912	CLAMPING PLATE		1
913	GB578186-12-70	HEX HD SCREW	M12 × 70 mm	1
914	BD-11G-9-914	STEADY REST KIT (#701-704, 706, 709-713)		1
915	BD-11G-9-915	FOLLOW REST KIT (#701-708)		1

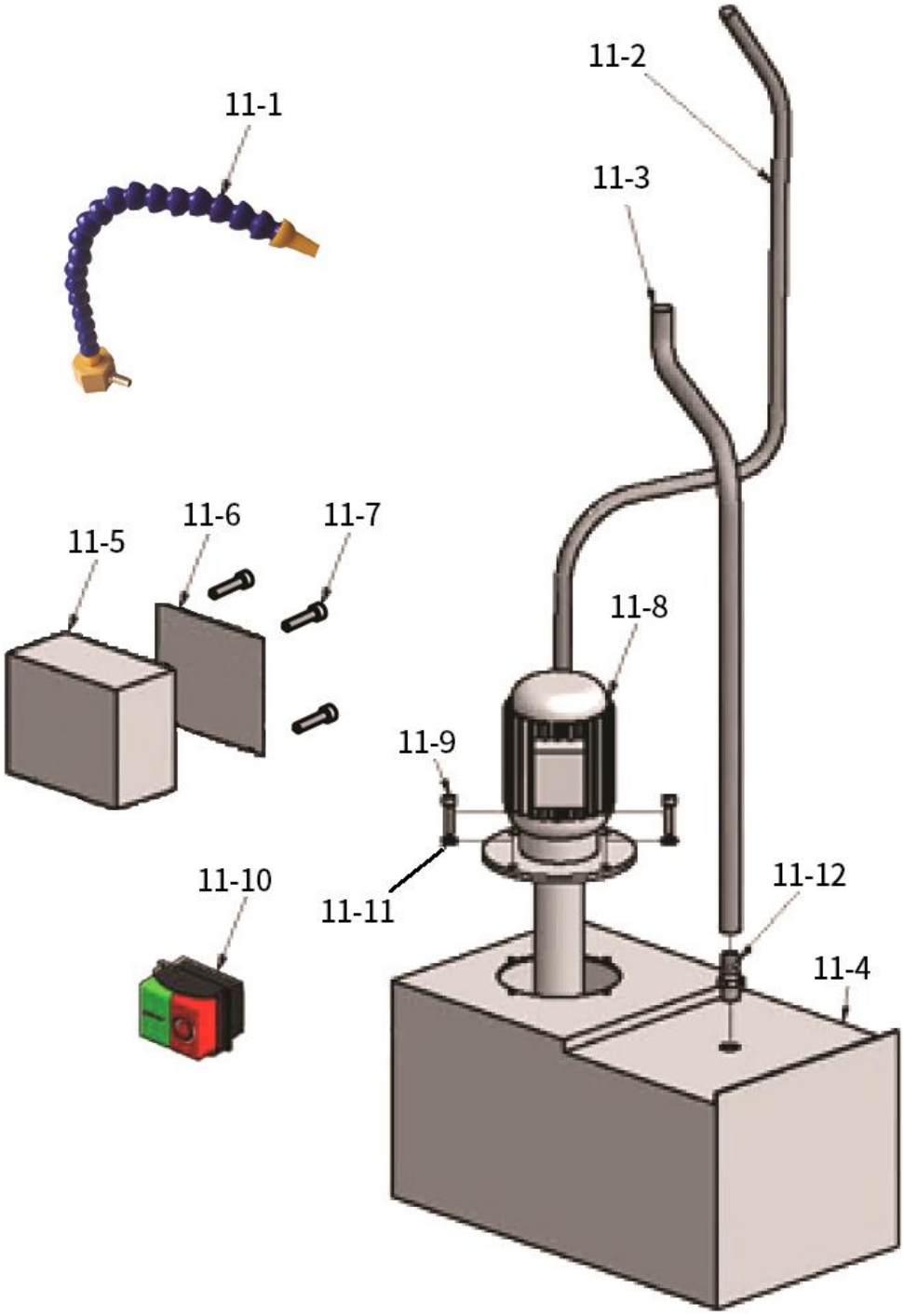
BD-11G Assembly Breakdown -10



BD-11G Parts List for Breakdown -10

Index No.	Part No.	Description	Size	Qty.
10-1	BD-11G-10-10-1	LEFT STAND		1
10-2	BD-11G-10-10-2	CONNECTING PLATE		1
10-3	GB617086-8	HEX NUT	M8	10
10-4	GB7085-8-16	SOCKET HD SCREW	M8 x 16 mm	10
10-5	GB97185-8	WASHER	8	10
10-6	BD-11G-10-10-6	RIGHT STAND		1
10-7	BD-11G-10-10-7	STAND KIT (#801-806)		1

BD-11G Assembly Breakdown -11

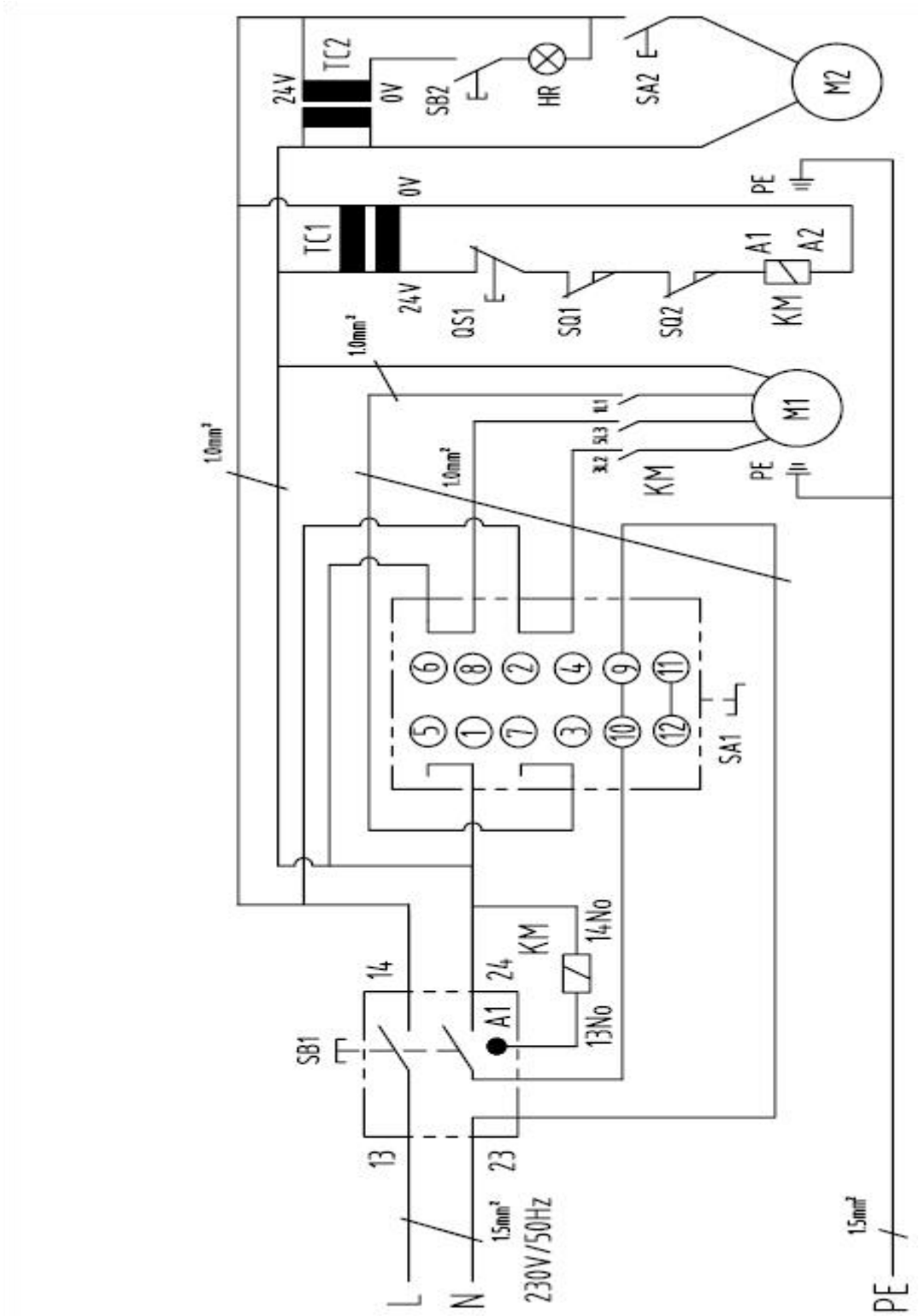


BD-11G Parts List for Breakdown -11

Index No.	Part No.	Description	Size	Qty.
11-1	BD7VS-901	NOZZLE		1
11-2	BD7VS-902	OUTLET PIPE		1
11-3	BD7VS-903	RETURNING PIPE		1
11-4	BD7VS-904	WATER TANK		1
11-5	BD7VS-905	ELECTRICAL BOX		1
11-6	BD7VS-906	ELECTRICAL BOX COVER		1
11-7	GB7085-5-30	SOCKET HD SCREW	M5 x 30 mm	4
11-8	BD7VS-908	COOLANT PUMP (M2)		1
11-9	GB7085-5-12	SOCKET HD SCREW	M5 x 12 mm	4
11-10	BD7VS-910	SWITCH	KJD17B	1
11-11	GB97185-5	WASHER	5	4
11-12	BD7VS-912	HOSE CLIP		1
11-13	59500112	COOLANT PUMP KIT (#901-912)		1

12.0 Wiring Diagrams

BD-11G …….1~230V, PE, 50Hz



BD-11G Electrical Parts List

DESCRIPTION	TYPE	SPECIFICATION	Qty.	Part No.
Magnetic Contactor	KJD17GF	IP-55 AC-1 18A Ue250V AC-3 15A CE	1	BD-11GV-E1
Fwd/0/Rev - Switch	ZH-A	Ue 250V IEN 12A 5E4 CE	1	BD-11GV-E2
Contactor	LC1K0910	UI 690V IEN 20A CE	1	BD-11GV-E3
Transformer	230V/24V/20VA	20VA 230VAC CE	1	BD-11GV-E4
Transformer (Optional)	230V-24V/20VA	20VA 230VAC CE	1	BD-11GV-E5
Emergency stop	LAY5	AE-15 240V IEN 10A CE	1	BD-11GV-E6
Gear Guard Switch	QKS8	AC-15 14A 250V IP54 CE	1	BD-11GV-E7
Chuck Guard Switch	LXW5-11Q1	AC-15 3A IP62 Ue380V CE	1	BD7VS-151
Light Switch (Optional)	KCD1-101	6A AC250V CE	1	BD-11GV-E9
Work light	24V	5W AC12-24V CE	1	BD-11GV-E10
Pump Switch (Optional)	LAY5-BE101	Ue220V IEN3.3A AC-15 CE	1	BD7VS-910
Main Motor	YLJ90L4-12A	1.1Kw AC230V 6.4A IP54 CE	1	MS9024
Pump (Optional)	DB-12A	40W AV230V 0.9A IP54 CE	1	BD7VS-908

Standard Accessories List for BD-11G

Part NO.	Name	Specification	Qty
1	oil gun		1
2	hexagon wrench	3/4/5/6/8	5
3	double end spanner	8-10/12-14/17-19	3
4	chuck spanner		1
5	steady center	MT2	1
6	follow center	MT4	1
7	reverse chuck 3 jaws	Φ125mm	3
8	painting can		2
9	handle		2
10	change gears	45/50/60/60/65/70T	8
11	synchronized counter puuley	240L075(on lathe)	1
12	V-belt	O-710	1
13	V-belt	O-850	1
14	T allen key	6mm	1
15	gross screwdriver	3"	1
16	straight screwdriver	3"	1
17	quadruple tool holder spanner	8mm	1
18	threading dial gear	30T	1

Environmental protection

Protect the environment.

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

This symbol indicates separate collection for electrical and electronic equipment required under the WEEE Directive (Directive 2012/19/EC) and is effective only within the European Union.

Umweltschutz

Schützen Sie die Umwelt!

Ihr Gerät enthält mehrere unterschiedliche, wiederverwertbare Werkstoffe. Bitte entsorgen Sie es nur an einer spezialisierten Entsorgungsstelle.

Dieses Symbol verweist auf die getrennte Sammlung von Elektro- und Elektronikgeräten, gemäß Forderung der WEEE-Richtlinie (2012/19/EU). Diese Richtlinie ist nur innerhalb der Europäischen Union wirksam.

Protection de l'environnement

Protégez l'environnement !

Votre appareil comprend plusieurs matières premières différentes et recyclables. Pour éliminer l'appareil usagé, veuillez l'apporter dans un centre spécialisé de recyclage des appareils électriques.

Ce symbole indique une collecte séparée des équipements électriques et électroniques conformément à la directive DEEE (2012/19/UE). Cette directive n'est efficace que dans l'Union européenne.