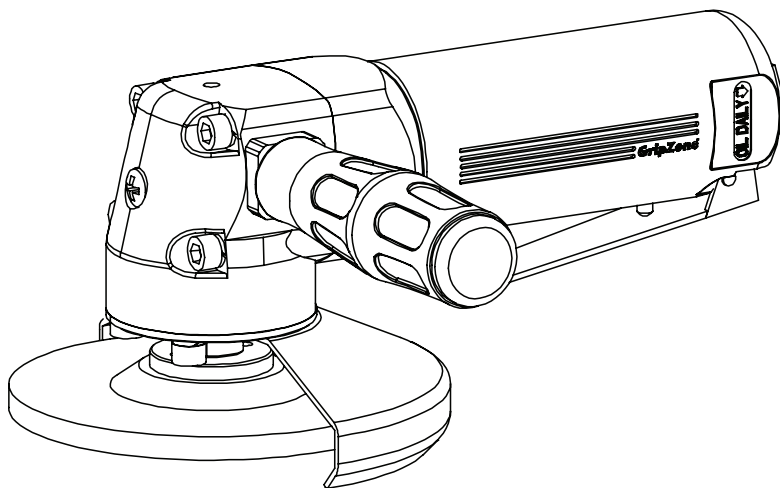


RYOBI®

RA-AG100-B

AIR ANGLE GRINDER OPERATOR'S MANUAL ORIGINAL INSTRUCTIONS



Important!

It is essential that you read the instructions in this manual before operating this machine.

Subject to technical modifications.

DESCRIPTION

1. Auxiliary handle
2. Grinding wheel
3. Clamp nut

4. Guard
5. Trigger
6. Nitto style coupler

7. Straight wrench
8. Pin wrench

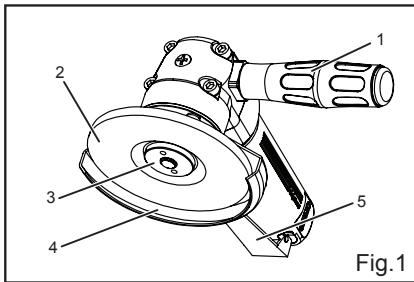


Fig.1

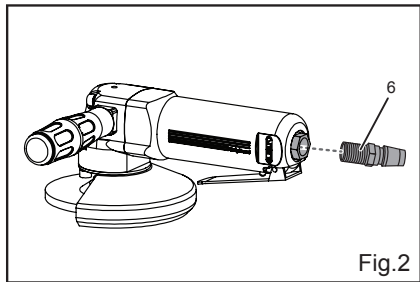


Fig.2

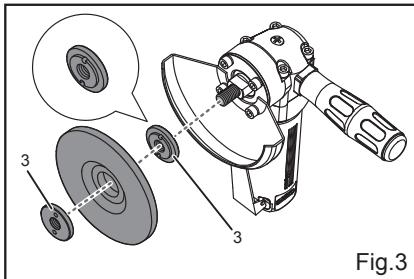


Fig.3

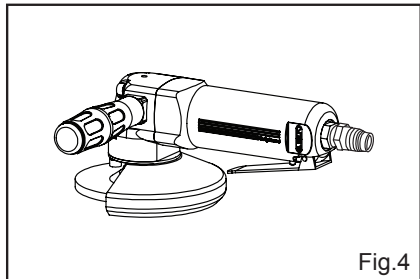


Fig.4

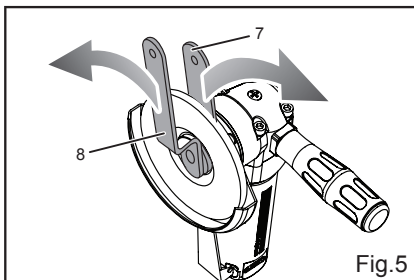


Fig.5

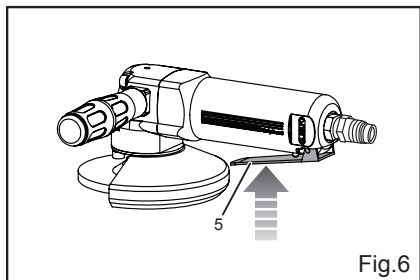


Fig.6

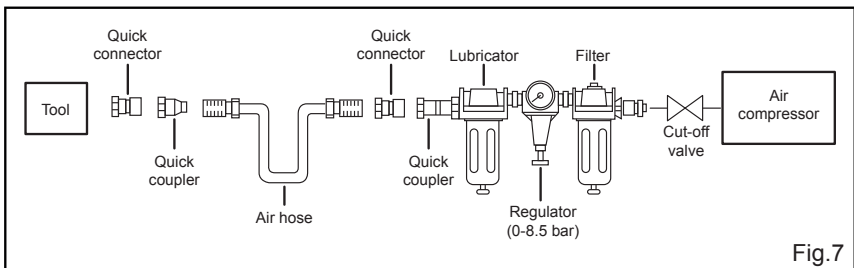


Fig.7

GENERAL SAFETY RULES

- For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near, the grinder. Failure to do so can result in serious bodily injury.
- Only qualified and trained operators should install, adjust or use the grinder.
- Do not modify this grinder. Modifications can reduce the effectiveness of safety measures and increase the risks to the operator.
- Do not discard the safety instructions; give them to the operator.
- Do not use the grinder if it has been damaged.
- Tools shall be inspected periodically to verify that the ratings and markings required by this part of ISO 11148 are legibly marked on the tool. The employer/user shall contact the manufacturer to obtain replacement marking labels when necessary.

PROJECTILE HAZARDS

- Be aware that the failure of the work piece or accessories, or even of the inserted tool itself, can generate high-velocity projectiles.
- Always wear impact-resistant eye protection during the operation of the grinder. The grade of protection required should be assessed for each use.
- Ensure that the work piece is securely fixed.
- Ensure safe clamping of the abrasive product to the grinder.
- Check that maximum operating speed of the abrasive product, converted to revolutions per minute, is equal to, or greater than, the rated speed of the spindle.
- Ensure that the guard is in place, is in good condition and is correctly mounted; ensure that the guard is regularly inspected.
- Check regularly that the speed of the grinder is not higher than that marked on it. These speed checks shall be carried out without the abrasive product mounted and in accordance with the instructions given by the manufacturer.
- Check that the flanges, as specified by the manufacturer, are used and are in good condition, e.g. free from cracks and burrs, and are plane.
- Check that the spindle and spindle threads are not damaged or worn.
- Ensure that sparks and debris resulting from use do not create a hazard.
- Disconnect the grinder from the energy supply before changing abrasive product and servicing.

ENTANGLEMENT HAZARDS

Choking, scalping and/or lacerations can occur if loose clothing, personal jewelry, neck wear, hair or gloves are not kept away from the tool and accessories.

OPERATING HAZARDS

- **Avoid contact with the rotating spindle and mounted wheel to prevent cutting of hands and other body parts.** Use of the tool can expose the operator's hands to hazards, including cuts, abrasions and heat. Wear suitable gloves to protect hands.
- Operators and maintenance personnel shall be physically able to handle the bulk, mass and power of the tool.
- Hold the tool correctly; be ready to counteract normal or sudden movements and have both hands available.
- Maintain a balanced body position and secure footing.
- Release the start-and-stop device in the case of an interruption of the energy supply.
- Use only lubricants recommended by the manufacturer.
- Personal protective safety glasses shall be used; suitable gloves and protective clothing are recommended.
- For overhead work, wear a safety helmet.
- The stopping time, if longer than 5 s, shall be stated, and it shall be recommended that the grinder be placed in a stable position.
- When cutting off, the work piece shall be supported such that the slot is kept at constant or increasing width during the complete operation.
- If the abrasive product becomes jammed in a cut slot, shut off the grinder and ease the wheel free. Check that the wheel is still correctly secured and not damaged before continuing the operation.
- Grinding wheels and cutting-off wheels shall not be used for side grinding. (Exception: grinding wheels designed for side grinding.) Grinders shall not be used over the maximum peripheral speed of an abrasive product.
- The operator shall pay attention that no bystanders are in the vicinity.
- Personal protective equipment, such as suitable gloves, an apron and a helmet, shall be used.
- Grinding sparks can ignite clothing and cause severe burns. Ensure sparks do not land on clothing. Wear fire-retardant clothing and have a bucket of water nearby.

REPETITIVE MOTIONS HAZARDS

- When using a grinder to perform work-related activities, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.

- When using a grinder, the operator should adopt a comfortable posture while maintaining secure footing and avoiding awkward or off-balanced postures. The operator should change posture during extended tasks; this can help avoid discomfort and fatigue.
- If the operator experiences symptoms, such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warning signs should not be ignored. The operator should tell the employer and consult a qualified health professional.

ACCESSORY HAZARDS

- Disconnect the grinder from the energy supply before fitting or changing the inserted tool or accessory.
- Only use sizes and types of accessories and consumables that are recommended by the grinder manufacturer; do not use other types or sizes of accessories or consumables.
- Ensure that the dimensions of the abrasive product are compatible with the grinder and that the abrasive product fits the spindle.
- Ensure that the thread type and size of the abrasive product exactly match the thread type and size of the spindle.
- Inspect the abrasive product before use. Do not use abrasive products which can (possibly) have been dropped or which are chipped, cracked or otherwise defective.
- Ensure that the abrasive product is correctly mounted and tightened before use and run the grinder at no-load speed for at least 1 min in a safe position; stop immediately if considerable vibration or other defects are detected and determine the cause of these defects.
- Prevent the spindle end from touching the bottom of the hole of cups, cones or plugs with threaded holes, intended to be mounted on machine spindles, by checking their dimensions and other relevant data.
- Where abrasive products are supplied or used with reducing adaptors or bushings, the user shall ensure that the adaptor or bushing does not contact the face of the flange and that the clamping force provides sufficient rotational driving action to prevent the abrasive product from slipping.
- In cases where flanges are supplied for several types or sizes of abrasive, always fit the correct flange(s) for the abrasive being used.
- Avoid direct contact with the inserted tool during and after use as it can be hot or sharp.
- Store and handle the abrasive product with care in accordance with manufacturer's instructions.

WORKPLACE HAZARDS

- Slips, trips and falls are major causes of workplace injury. Be aware of slippery surfaces caused by use of the tool and also of trip hazards caused by the air line

or hydraulic hose.

- Proceed with care in unfamiliar surroundings. There can be hidden hazards, such as electricity or other utility lines.
- This grinder is not intended for use in potentially explosive atmospheres and is not insulated from coming into contact with electric power.
- Ensure that there are no electrical cables, gas pipes, etc., which can cause a hazard if damaged by use of the tool.

DUST AND FUME HAZARDS

- Dusts and fumes generated while using grinders can cause ill health (for example cancer, birth defects, asthma and/or dermatitis); risk assessment of these hazards and implementation of appropriate controls for these hazards are essential.
- Risk assessment should include dust created by the use of the tool and the potential for disturbing existing dust.
- Operate and maintain the grinder as recommended in these instructions, to minimize dust or fume emissions.
- Direct the exhaust so as to minimize disturbance of dust in a dust-filled environment.
- Where dust or fumes are created, the priority shall be to control them at the point of emission.
- All integral features or accessories for the collection, extraction or suppression of airborne dust or fumes should be correctly used and maintained in accordance with the manufacturer's instructions.
- Select, maintain and replace the consumable/inserted tool as recommended in the instructions, to prevent an unnecessary increase in dust or fumes.
- Use respiratory protection in accordance with the employer's instructions and as required by occupational health and safety regulations.
- Working with certain materials creates emissions of dust and fumes, causing a potentially explosive environment.

NOISE HAZARDS

- Exposure to high noise levels can cause permanent, disabling hearing loss and other problems, such as tinnitus (ringing, buzzing, whistling or humming in the ears). Therefore, a risk assessment and the implementation of appropriate controls for these hazards are essential.
- Appropriate controls to reduce the risk may include actions, such as damping materials, to prevent workpieces from "ringing".
- Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
- Operate and maintain the grinder as recommended in the instructions handbook to prevent an unnecessary

increase in noise.

- If the grinder has a silencer, always ensure that it is in place and in good working order whenever the grinder is being operated.
- Select, maintain and replace the consumable/inserted tool as recommended in the instructions handbook to prevent an unnecessary increase in noise.

VIBRATION HAZARDS

The information for use shall draw attention to vibration hazards that have not been eliminated by design and construction and remain as a residual vibration risk. It shall enable employers to identify the circumstances in which the operator is likely to be at risk from vibration exposure. If the vibration emission value obtained using ISO 28927-1 for angle and vertical grinders, ISO 28927-4 for straight grinders or ISO 20643 does not adequately represent the vibration emission in the intended uses (and foreseeable misuses) of the machine, additional information and/or warnings shall be supplied to enable the risks arising from vibration to be assessed and managed.

- Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms.
- Wear warm clothing whenever working in cold conditions and keep your hands warm and dry.
- If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the grinder, tell your employer and consult a physician.
- Operate and maintain the grinder as recommended in the instructions handbook to prevent an unnecessary increase in vibration levels.
- Do not allow the inserted tool to chatter on the work piece as this is likely to cause a substantial increase in vibration.
- Select, maintain and replace the consumable/inserted tool as recommended in the instructions handbook to prevent an unnecessary increase in vibration levels.
- Support the mass of the tool in a stand, tensioner or balancer, if possible.
- Hold the tool with a light but safe grip, taking account of the required hand reaction forces because the risk arising from vibration is generally greater where the grip force is higher.
- Use blotters where they are provided with the bonded abrasive product.

ADDITIONAL SAFETY INSTRUCTIONS FOR PNEUMATIC POWER TOOLS

- Air under pressure can cause severe injury.
- Always shut off air supply, drain hose of air pressure and disconnect tool from air supply whenever not in use, before changing accessories or where making repairs.
- Never direct air at yourself or anyone else.

- Whipping hoses can cause severe injury. Always check for damaged or loose hoses and fittings.
- Whenever universal twist couplings (claw couplings) are used, lock-pins shall be installed and whip check safety cables shall be used to safeguard against possible hose-to-tool and hose-to-hose connection failure.
- Do not exceed the maximum air pressure stated on the tool.
- Never carry an air tool by the hose.
- The spare parts should be not changed by the user.
- Regularly check the spindle and wheel fixation for wear.

SYMBOLS



Safety alert



CE conformity



Please read and understand all instructions before operating the product, follow all warnings and safety instructions.



Please read the instructions carefully before starting the product.



Wear eye protection.



Wear ear protection.



Lubricate with air tool oil daily.



Rotation direction

SPECIFICATIONS

Grinding wheel	100 mm (4")
No-load speed	10,000 /min
Average air consumption	229 L/min (8.1 cfm)
Operating pressure	90 psi (6.3 bar)
Air inlet size	6.35 mm (1/4")

Air hose (ID)	9.52 mm (3/8")
Weight	1.3 kg (2.86 lb.)
A-Weighted sound pressure level	79 dB(A), k=3 dB
Sound power level	90 dB(A), k=3 dB
Vibration value	2.4 m/s ²
Uncertainty	0.79 m/s ²

Noise emission values are in accordance with EN ISO 15744.

Vibration emission value is in accordance with EN 12096 and ISO 28927-1.

APPLICATIONS

The product is ideal for smoothing concrete, removing burrs from metal and for finishing weld seams. It features a rugged die-cast aluminum body and an ergonomic rubber grip. It has built-in regulator for positive speed control, screened inlet to prevent dirt particles from entering air intake. Any other use is forbidden.

RESIDUAL RISKS

Even if you are operating this product in accordance with all the safety requirements, potential risks of injury and damage remain. The following dangers can arise in connection with the structure and design of this product:

1. Health defects resulting from vibration and noise emission if the product is being used over long periods of time or not adequately managed and properly maintained.
2. Injuries and damage to property due to broken cutting attachments or the sudden impact of hidden objects during use.
3. Danger of injury and property damage caused by flying objects.

AIR SUPPLY AND OPERATION

- Ensure air valve (or trigger) is in the "off" position before connecting to the air supply.
- Connect the product to the air hose.
- Press the trigger to operate the product.
- Do not apply additional force on the product.
- Do not allow the product to free run for an extended period of time as this will shorten its life.
- Release the start and stop device in the case of an interruption of the energy supply.
- Disconnect the product from the air supply before changing accessories or making adjustments.
- Required air pressure of 6.3 bar (90 psi), and an air flow according to specifications.
- To mount the grinding wheel, insert a clamp nut then

the grinding wheel on the spindle before fitting the other one.

- Use the straight wrench and the pin wrench to tighten the clamp nut for securing the disc.
- Apply straight wrench on the inside "D" shape of the spindle shaft.
- Apply the pin wrench to tighten or loosen.
- Before operation, ensure the inserted accessory is fixed in the product.

⚠ WARNING

Ensure the air supply is clean and does not exceed 6.3 bar (90 psi) while operating the product. Too high an air pressure and unclean air will shorten the product's life due to excessive wear, and may be dangerous causing damage and/or personal injury.

LUBRICATION

An automatic in-line filter-regulator-lubricator is recommended (Fig. 7) as it increases product life and keeps the product in sustained operation. The in-line lubricator should be regularly checked and filled with air tool oil.

Proper adjustment of the in-line lubricator is performed by placing a sheet of paper next to the exhaust ports and holding the throttle open for approximately 30 seconds. The lubricator is properly set when a light stain of oil collects on the paper. Excessive amounts of oil should be avoided.

If it becomes necessary to store the product for an extended period of time (overnight, weekend, etc.), it should receive a generous amount of lubrication at that time. The product should be run for approximately 30 seconds to ensure oil has been evenly distributed throughout the product. The product should be stored in a clean and dry environment.

- It is most important that the product be properly lubricated by keeping the air line lubricator filled and correctly adjusted. Without proper lubrication the product will not work properly and parts will wear prematurely.
- Use correct lubricant in the air line lubricator. The lubricator should be of low air flow or changing air flow type, and should be kept filled to the correct level. Use only recommended lubricants, specially made for pneumatic applications. Substitutes may harm the rubber compounds in the product's O-rings and other rubber parts.

IMPORTANT!

See Figure 7.

If a filter/regulator/lubricator is not installed on the air system, air operated tools should be lubricated at least once a day or after 2 hours of work with 2 - 6 drops of oil, depending on the work environment, directly through the male fitting in the tool housing.

LOADING AND OPERATION

WARNING

Drain the air tank daily. Water in the air line will damage the tool.

- Air tools should not be used in a potentially explosive environment.
- Only accessories recommended by the manufacturer of the product are used.
- Clean the air inlet filter weekly.
- Line pressure should be increased to compensate for unusually long air hoses (over 8 metres). The minimum hose diameter should be 6.35 mm (1/4") I.D. and the fittings must have the same inside dimensions.
- Keep hose away from heat, oil and sharp edges. Check hose for wear, and make sure that all connections are secure.
- Use the tool only for its intended purpose.

WARNING

Cutting off tools shall not be used.

MAINTENANCE

- Keep the product safe by regular maintenance.
- Check that the maximum operating speed of the accessories is higher than the rated speed of the tool.
- Personal protective safety glasses shall be used; gloves and protective clothing are recommended.
- Personal protection and dust collection device shall be chosen with regard to the material being worked upon.
- Release the start and stop device in case of energy supply failure.
- No spare parts are to be used when these affect the health and safety of operators.
- Always keep your air tool clean and lubricated. Daily lubrication is essential to avoid internal corrosion and possible failure.
- Lubricate the tool daily with a few drops of air tool oil dripped into the air inlet.

- Maintenance shall be performed weekly.
- Drain the air tank daily. Water in the air line will damage the product.
- If the product cannot be used anymore, make sure to dispose of it so as not to impose hazards on people and the environment.
- Air tool white oil is recommended for lubrication.
- Only lubricants recommended by the manufacturer should be used.
- Loss of power or erratic action may be due to the following:
 - Excessive drain on the air line. Moisture or restriction in the air pipe. Incorrect size or type of hose connectors. To remedy check the air supply.
 - Grit or gum deposits in the tool may also reduce performance. If your model has an air strainer (located in the area of the air inlet), remove the strainer and clean it.
- When not in use, disconnect from air supply, clean tool and store in a safe, dry, childproof location. If the tool cannot be used anymore, make sure to dispose of it so as not to impose hazards to people and the environment.
- Check the speed after each service in relevant cases.

TROUBLESHOOTING

WARNING

If any of the following symptoms appears during operation, stop using the tool immediately, or serious personal injury could result. Only qualified persons or an authorised service centre can perform repairs or replacement of the tool.

Disconnect tool from the air supply before attempting repair or adjustment. When replacing O-rings or cylinder, lubricate with air tool oil before assembly.

PROBLEM: Tool runs at normal speed but fails under load.

POSSIBLE CAUSES

- Motor parts are worn.
- Cam clutch (where fitted) is worn or sticking due to lack of lubricant.

REMEDIES

- Lubricate clutch housing.
- Check for excess clutch oil. Clutch cases need only be half full. Overfilling can cause drag on high speed clutch parts, i.e. a typical oiled/lubricated tool requires 14.20 ml (1/2 ounce) of oil.

Grease lubrication

NOTE: Heat usually indicates insufficient grease in

chamber. Severe operating conditions may require more frequent lubrication.

PROBLEM: Tool runs slowly. Air flows slightly from exhaust.

POSSIBLE CAUSES

- Motor parts are jammed with dirt particles.
- Air regulator is in closed position.
- Air flow is blocked by dirt.

REMEDIES

- Check air inlet filter for blockage.
- Pour air tool lubricating oil into air inlet as per instructions.
- Operate tool in short bursts quickly reversing rotation back and forth where applicable.
- Repeat above as needed.

PROBLEM: Tool will not run. Air flows freely from exhaust.

POSSIBLE CAUSE

One or more motor vanes are stuck due to material build up.

REMEDIES

- Pour air tool lubricating oil into air inlet.
- Operate tool in short bursts of forward and/or reverse rotation where applicable.
- Tap motor housing gently with a plastic mallet.
- Disconnect the air supply. Free the motor by rotating drive shank manually where applicable.
- If the product remains jammed, return to the service centre.

PROBLEM: Tool will not shut off.

POSSIBLE CAUSE

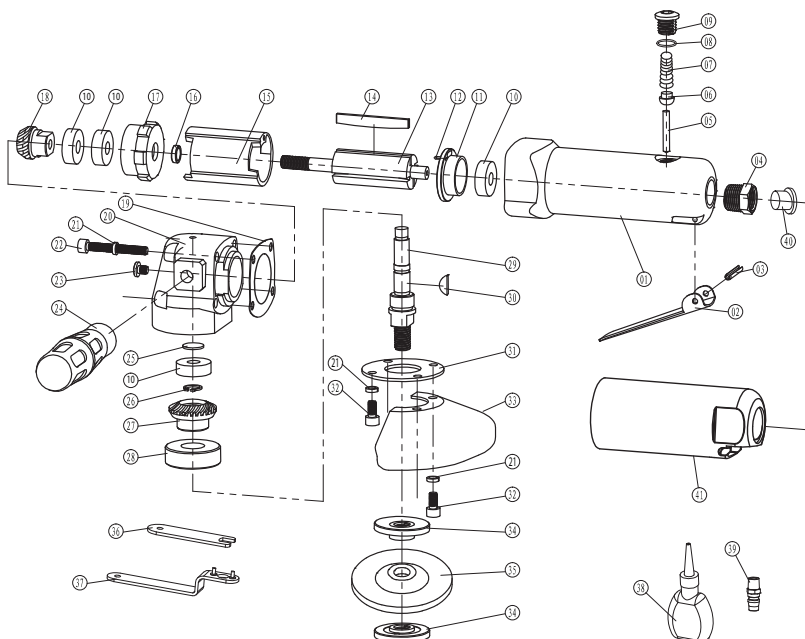
'O' rings throttle valve is dislodged from seat inlet valve.

REMEDY

Replace the 'O' ring.

NOTE: Repairs should be carried out by a qualified person.

PARTS LIST



No.	Description	No.	Description	No.	Description	No.	Description
01	Grinder body	12	Steel ball Dw=3	23	Bolt M5*6	34	Clamp nut
02	Trigger	13	Rotor	24	Auxiliary handle	35	Grinding wheel
03	Pin 3 x 24	14	Rotor blades	25	Washer	36	Straight wrench
04	Air inlet	15	Cylinder	26	Retainer washer 10	37	Pin wrench
05	Pin	16	Rotor washer	27	Transmission gears	38	Oil pot
06	Pin knob	17	Front plate	28	Ball bearing 6202Z	39	Quick coupler
07	Compressed spring	18	Positive curved gears	29	Spindle	40	Anti-dust cap
08	O-ring 11.2 x 1.5	19	Seal washer	30	Semicircular key 3 x 5 x 13	41	Rubber grip
09	Nut	20	Head cap	31	Washer		
10	Ball bearing 608Z	21	Spring washer 5	32	Hex bolt M5 x 12		
11	End plate	22	Hex bolt M5*40	33	Protecting guard		

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