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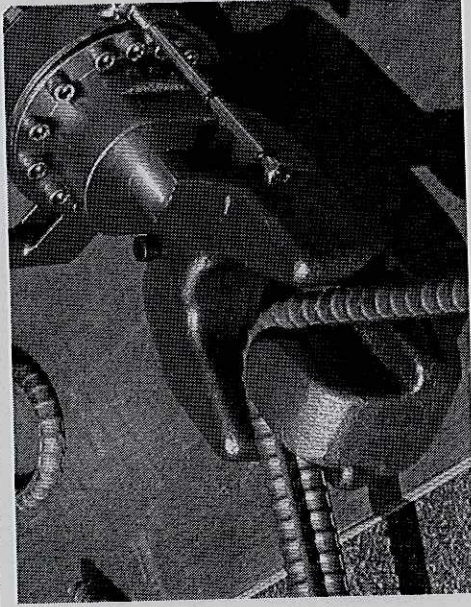
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# DIAMOND<sup>®</sup>

OPERATING/SAFETY ORIGINAL INSTRUCTIONS

HB-16W

ELECTRO-HYDRAULIC HANDY BENDER



TO REDUCE THE RISK OF INJURY, YOU MUST READ AND  
UNDERSTAND THIS INSTRUCTIONS

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- **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

- **Avoid accidental starting. Ensure the switch is in the off-position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.

- **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

- **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

- **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.

- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** User of these devices can reduce dust-related hazards.

- **Keep handles dry, clean and free from oil and grease.** Slippery hands cannot safely control the power tool.

#### POWER TOOL USE AND CARE

- **Do not force the power tool. Use the correct power tools for your application.**

The correct power tool will do the job better and safer at the rate for which it was designed.

- **Do not use the power tool if the switch does not turn in on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

- **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

- **Do not cover air vents or operate the tool on dirt.** Use a plywood base under the tool to keep armature and fan clean. If the vents are covered, the motor will overheat and may burn out.

- **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.**

Power tools are dangerous in the hands of untrained users.

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**GROUNDING**

**WARNING:** Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the cord or plug is damaged. If damaged, have it repaired by a **DIAMOND service facility** before use. If the plug will not fit the outlet, have a proper outlet installed by a **qualified electrician**.

**Grounded Tools (Single Insulated Tool):**

- Tools with Three Prong Plugs Tools have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal. Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances.

**Double Insulated Tools:**

- Tools with Two Plugs. Tool marked "Double Insulated" do not require grounding. They have a special double insulation system.

**EXTENSION CORDS**

- Grounded tools require a three wire extension cord. Double insulation tools can use either a two or three wire extension cord. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting loss of power and possible tool damage. Refer to the table shown to determine the required minimum wire size.

**Recommended Minimum Wire Gauge for Extension Cords**

	110 / 115V (50/60Hz)	230V (50/60Hz)
Cable length	Cable size (AWG)	Nominal diameter
Up to 10 m (25 ft.)	16	1.0mm <sup>2</sup>
Up to 15 m (50 ft.)	14	1.25mm <sup>2</sup>
Up to 30 m (100 ft.)	10	1.5mm <sup>2</sup>

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## **BASIC BENDING INSTRUCTIONS**

**Important:** Always read, understand and obey the safety instructions included with your new HB-16W Handy Bender before operating this tool or any other power tool.

### **WARNING: RESTRICT USE TO DESIGNATE MATERIALS**

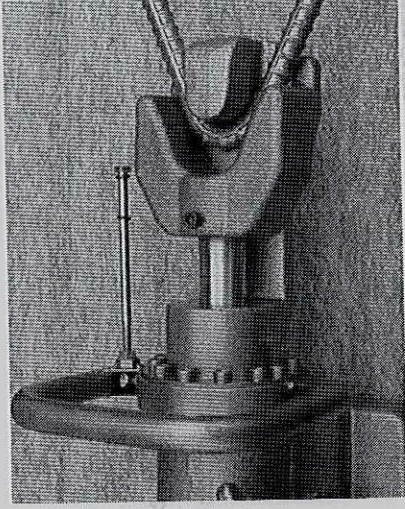
This tool is rated for 16mm Max. Tensile strength 490 N/mm<sup>2</sup> Rebar Only. There is always a chance that the end of material may break and shoot out, especially if the material is harder than those specified. Exceeding designated material specifications greatly increase this risk and will also damage the tool. Do not attempt to use the tool for rebars harder, thicker or thinner than those specified.

### **PRE-SUE CHECKS**

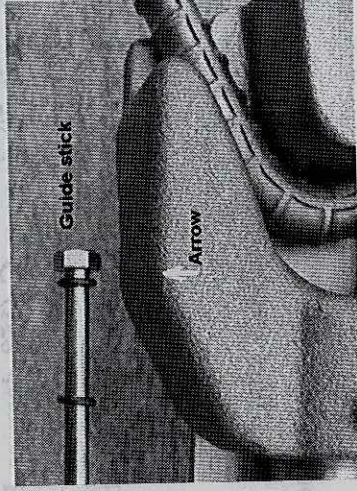
1. **WARNING:** Do not expose the tool to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
2. **WARNING:** Wear safety goggles, safety glasses with side shields or a face shield when using these tools.
3. Check that the power source is appropriate to the tool.  
**CARE:** If voltage is too high, the motor will burn out. If voltage is too low, insufficient power will be generated. Never use DC current.
4. **WARNING:** Avoid accidental starting. Ensure the switch is in the off-position before plugging in.
5. Check that cord is undamaged and that plug is not loose.  
**CAUTION:** Cut or abraded covering could result in a short and electric shock to operator.
6. Check and keep work area clean and enough work space.
7. Check condition of bending shoe and tightness shoe bolt. - CHECK FOR CRACKS  
**OR DAMAGE, LOOSEN BOLTS**
8. **CAUTION:** Using loose bending shoe may result in injury to operator as well as damage to the tool.

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**CAUTION:** Pull the switch "ON" until the piston/shoe cannot extend any farther, one the rebar is bend 135 degree; do not continue to keep the switch in the "ON" position and the motor running because this will cause internal tool damage.

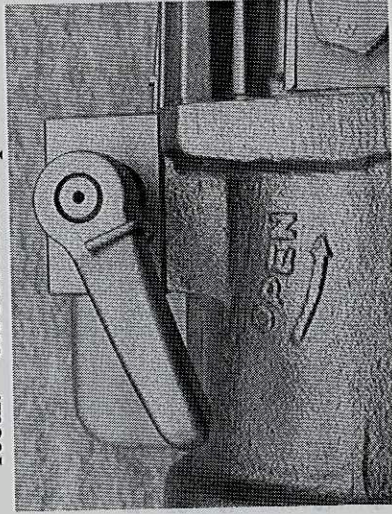


7. The O-rings of the guide stick is convenient to bend the same angle more than twice.



#### **RELEASE VALVE**

8. After bend is complete, switch "OFF" and push the release valve in the direction of the arrow (OPEN) in order to bring the shoe back to the start position, (Do not push trigger (switch "ON") at the same time as using the release valve.) remove bent rebar. **CAUTION: Keep hands away from moving parts while operating.**



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least 15 minutes and consult a physician. In case of skin contact, wash thoroughly with soap and water. In case of ingestion, consult a physician immediately. Do not induce vomiting.

1. Oil should be warm but not hot.
2. If piston is still moving, run the piston out to full extension.
3. Unplug tool power source.
4. Remove oil-plug and seal-washer (packing).
5. **CAUTION:** Never remove oil-plug when unit is hot or oil will spurt out. Check that oil is level with bottom of plug hole (i.e. that pump case is full to the brim). If oil level is low, top up with fresh hydraulic oil with anti-foam and anti-abrasion properties (ISO viscosity grade VG46, e.g. Tellus46 (Shell), DTE-25 (Mobil) or Uni-Power VG46 (Esso).
6. After topping up, extract air from system. Gently tilt tool lengthwise and return it to a level position. Top up again and tilt in the opposite direction. Repeat this process until all air has been extracted.

**CARE:** Tool cannot function properly if oil contains air bubbles.

7. Replace oil-plug. The operation is now complete.

8. **If oil level is too low,** Push the release valve to return piston (OPEN).

9. The piston is completely retracted in the start position. Then the oil overflows with air (bubbles).

10. Gently tilt tool lengthwise and return it to a level position. Slowly fill the tool with fresh oil again. Replace the plug and lightly tighten. Connect the tool to the power source and advance the piston a few millimeters. Unplug the tool and remove the oil-plug. Top up oil-level and replace the plug.

11. Repeat this process until completely extension piston.

Then check that oil is level with bottom of plug hole. This is full level of oil.

**CARE:** Tool cannot function properly if oil contains air bubbles.

12. Replace the oil plug and tighten it.

13. The operation is now complete.

**NOTE:** Dispose of hydraulic oil in accordance with local regulations. Do not pour into the sea, a river, a lake or drains.

### **BOLT TIGHTNESS**

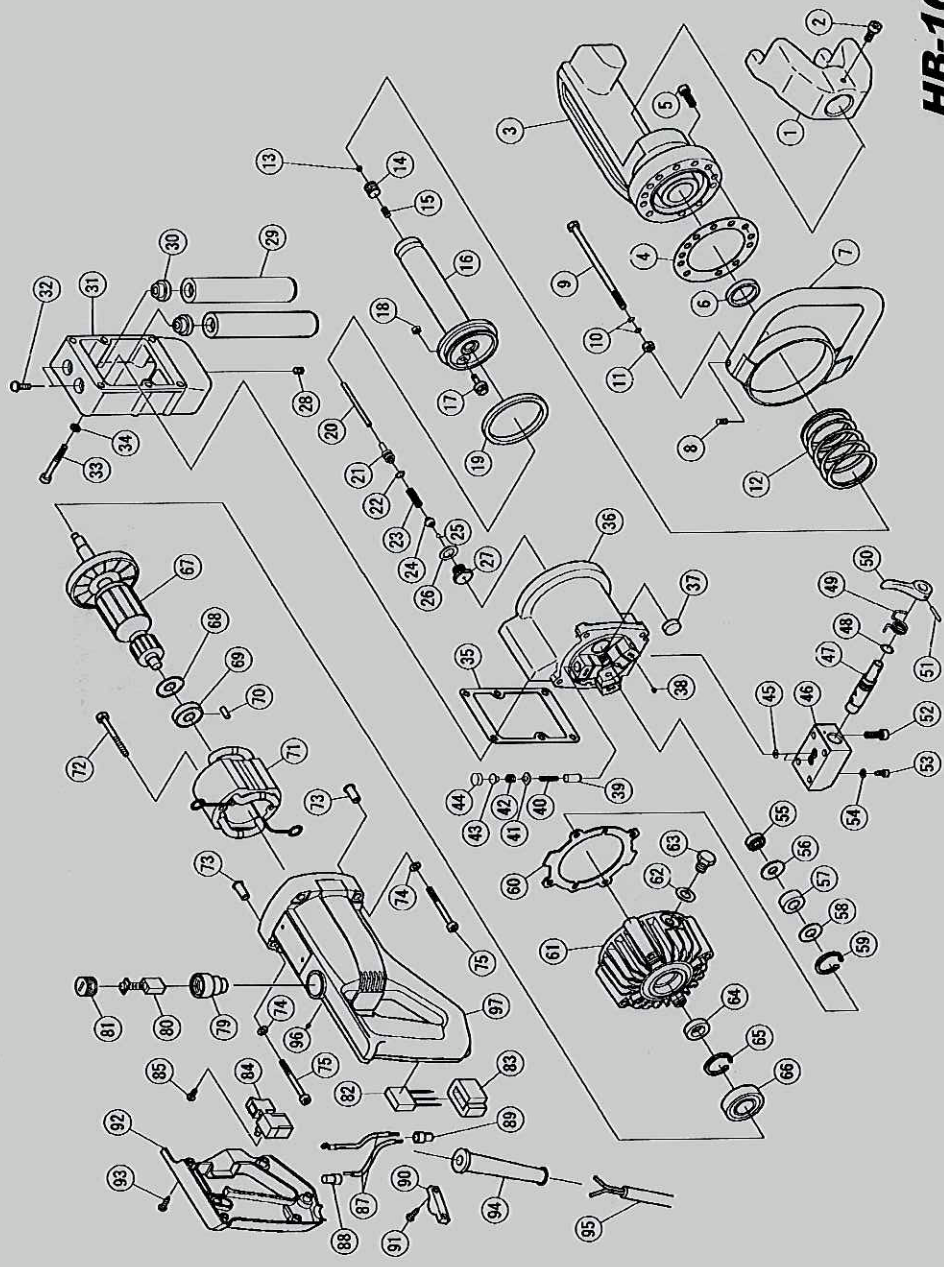
Once a week, or after every 500 cuts, check the tightness of all bolts. Especially, those bolt which fixing bending shoe and securing the housing to the cylinder. Loose bolts will damage part(s) can break easily or could cause injury.

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**DIAMOND**

HB-16W ELECTRO-HYDRAULIC HANDY BENDER

2009.11.13



**HB-16W**

**HB-16W-Z (230V)**

No. Part No.	Description	Unit	No. Part No.	Description	Unit	No. Part No.	Description	Unit
1	1HB16041 BENDING SHOE	1	33	7CB06050 H. CAP BOLT 6 x 50	6	65	7SRH026 SNAP RING 26	1
2	1HB421600 HOOK BOLT	1	34	7SW006 SPRING WASHER 6	6	66	76002VV BEARING 6002VV	1
3	1HB1603A HOUSING	1	35	1HB208 AIR BAG COVER PACKING	1	67	7HTK360274EB ARMATURE W/CAM 230V (4V0001B)	1
4	1HB2611 CYLINDER PACKING	1	36	1HB201B CYLINDER	1	68	7HTK956387B DUST SEAL A (4V0001J)	1
5	7CB06030 H. CAP BOLT 6 x 30	12	37	3P1044 MAGNET FILTER 18 x 8	3	69	7608VV BEARING 608VV	1
6	3P1031 SEAL PACKING UPI28-35.9-5	1	38	7SS04004 SET SCREW 4X4	6	70	7HTK94662B BEARING LOCK (4V0001G)	1
7	1DBR29481 HANDLE	1	39	1C1327 RAM	3	71	7HTK981610GB STATOR COLL. 230V (2V0001G AV0001C 1C166D)	1
8	7SS06015 SET SCREW 6X15	1	40	1C1330 RAM RETURN SPRING	3	72	7NT05060 TAPPING SCREW 5 x 60	2
9	7B06120 BOLT 6 x 120	1	41	1C13281 DELIVERY VALVE	3	73	7HTK305472B SLEEVE (4V0001K)	4
10	7ORP5 O RING P5	2	42	1C1331 DELIVERY VALVE SPRING	3	74	7PW005 PLATE WASHER 5	4
11	7NU06 NUT 6	1	43	1C13352 SPRING GUIDE	3	75	7CB05080 H. CAP BOLT 5 x 80	4
12	1HB205 RETURN SPRING	1	44	1C13292 PUMP HEAD SEAL	3	79	7HTK981588B BRUSH HOLDER	2
13	1HB1620 RUBBER PLUG	1	45	7ORP6 O RING P6	2	80	7HTK999073B CARBON BRUSH AUTOSTOP 220-240V	1
14	7PT1/8S2 H.PLUG 1/8S2	1	46	1DBR2925 VALVE CASE	1	81	7HTK961781B BRUSH CAP	2
15	7SS06015 SET SCREW 6X15	1	47	1DBR2921 ROTARY VALVE	1	82	7HTK317491B CONDENSER 230V (4V0001P)	1
16	1HB16012 PISTON	1	48	1DBR2946 O RING P10A	1	83	7HTK930153B SUPPORT(B) (4V0001Q)	1
17	1HB2032 RETURN VALVE	1	49	1DBR2923 VALVE LEVER SPRING	1	84	7HTK963756ZB TRIGGER SWITCH SET 230V	1
18	7NU005 U NUT 5	1	50	1DBR2922 VALVE LEVER	1	85	7WB035006 SCREW	2
19	1C1318 SEAL PACKING OS165-55-6	1	51	7SP03020W W. SPRING PIN 3X20	1	87	7HTK986277B LEAD WIRE 220-240V (4V0001T)	1
20	1HB16051 ADJUST ROD	1	52	7CB06030 H. CAP BOLT 6 x 30	4	88	7HTK989141B CONNECTOR 230V (10 PSC/SET)	1
21	1DBR2939 SPRING GUIDE	1	53	1DBR5012 BOLT	1	89	7HTK959140B CONNECTOR (4V0001U)	1
22	7ORP7 O RING P7	1	54	7WF05 SEAL WASHER WF5	1	90	7HTK960266B CORD CLIP (4V0001R)	1
23	1DBR2942 SAFETY VALVE SPRING	1	55	7698 BEARING 698	1	91	7HTK984750B TAPPING SCREW 4X16.9	2
#	1DBR2938 VALVE SET	1	56	1C1325 BEARING GUIDE	1	92	7HTK002065E SWITCH COVER (ORANGE)	5
#	7SBTA5/5 STEEL BALL 5/32	1	57	712NQ2410 NEEDLE BEARING 12NQ2410A	1	93	7NT04020 TAPPING SCREW 4 x 20	1
#	7WF12 SEAL WASHER WF12	1	58	1C1325 BEARING GUIDE	1	94	7HTK958045B CORD ARMER D8.2 958045	1
#	1DBR2941 SAFETY VALVE SEAT	1	59	7SRH027 SNAP RING 27	1	95	7HTK500247Z CORD 230V X132A /X133	1
#	7PT1/8 PLUG 1/8	1	60	1C1615A PUMP CASE PACKING	1	96	7SS04005 SET SCREW 4X5	2
#	1C2570 AIR BAG	2	61	7HTK305474 MOTOR HOUSING (ORANGE)	1	97	7HTK305474B MOTOR HOUSING (ORANGE)	1
#	1CM2027 AIR BAG NUT	1	62	7WF10 SEAL WASHER WF10(C1305)	1	YOU CAN CHOOSE :-		
#	1HB207A AIR BAG COVER	2	63	7B10015 BOLT 10 x 15	1	7HTK999043B CARBON BRUSH SET(1C1661A)	1	
32	1CL006 AIR BAG SET BOLT	2	64	7SC15257 OIL SEAL	1	1HB3107500 BENDING SHOULDER (LARGE)	1	

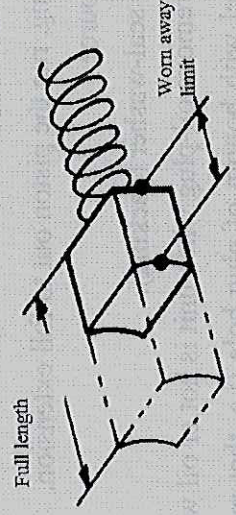
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### CARBON BRUSHES

Inspect the two carbon brushes at least once every two months. (Nominal brush life is 200 hours).



**CARE:** Worn brushes will result in power loss; cause the motor to run hot and irreparably damage the armature.

1. Disconnect tool from electrical outlet.
2. Unscrew both brush caps and pull out carbon brushes.
3. Replace brushes if less than 6mm in length.  
(We recommend the automatic stop carbon brush for replace.)  
Automatic stop carbon brush    Parts #.7HTK999073B  
Standard carbon brush            Parts #.7HTK999043B

### OVERHAUL

Return the unit to an authorized distributor for overhaul at least once every two years, sooner if subject to heavy use.

Ignorance of proper operating procedures can lead to accidents. If you have any other questions about any procedures, please contact the nearest authorized distributor.

\*Specifications are subject to change without prior notice.

### ROLL REVERSERS

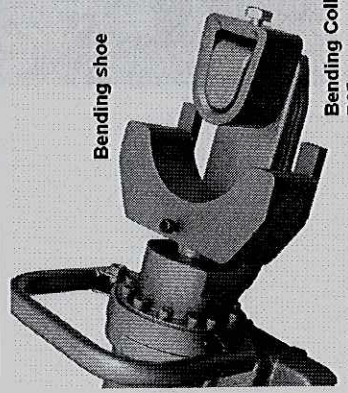
Once a week or after every 200 cuts, check the tightness of all bolts. Especially those bolt which fixing heading shoe and securing the housing to the cylinder. Loose bolts will damage parts and break easily or could cause injury.

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9. Disconnect tool from outlet when not in use and before cleaning, adjusting or servicing. Do not disconnect plug from outlet by pulling the cord. Always check that the switch OFF before plugging in.

**Optional Bending shoe and Bending head collar 25R.**



Bending shoe

Bending Collar R25

This 90 degree bending shoe and head collar 25R will minimize breakage on grade 60 rebar (U.S.A).

**POINTS OF ATTENTION**

1. If hydraulic oil exceeds 70 degrees C (158 degrees F) in temperature, power will drop. Allow tool to cool before resuming operation.
2. If a drop in power is observed and motor is unusually hot, check carbon-brush.

**CLEANING**

Clean your tool every day, preferably immediately after use.

**WARNING:** To avoid accidents always disconnect the tool from the power supply before cleaning or performing any maintenance.

**CAUTION:** Wear gloves to protect hands from metal splinters.

Do not use an air gun: blasting with air can cause metal filings and/or dust to get into eyes and respiratory system. Disconnect the unit. Wipe or brush away all dirt and metal filings. Pay particular attention to the lower half of the piston, where dirt is more easily accumulated.

**OIL-LEVEL CHECK (ADD OIL)**

As the tool is hydraulically operated, the oil-level must be checked at preferably once a year. Failure to maintain the oil at the proper level results in a drop in pressure and loss of power. If there is no oil leak and oil level is too low, it is thought that there is the damage or shrieved of the Air bag. Replace new air bag.

**CAUTION:** Hydraulic oil is highly flammable. Keep away from sparks and naked flame. Do not smoke. Hydraulic oil may cause inflammation of the eyes and skin. If ingested, it could cause diarrhea and vomiting. In case of eye contact, rinse in clean water for at

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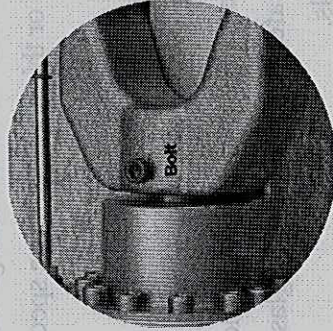
**BENDING REBAR (Max.16mm & Tensile strength 490 N/mm<sup>2</sup>)**

**WARNING:** Do not try to bend larger in size or rebar harder than Tensile strength 490 N/mm<sup>2</sup> or you will cause tool damage or machine failure or break rebar and shoot out.

**OPERATING INSTRUCTIONS**

**BENDING SHOE**

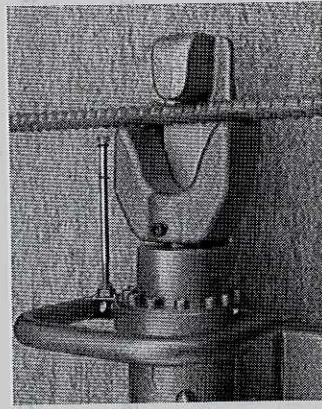
1. Using loose bending shoe may result in injury to operator as well as damage to the tool.



2. Make sure the unit is plugged into the proper outlet 115V/230V 50/60Hz, (Please check the voltage of your HB-16W.)

**WARM UP**

3. In cold weather, you should warm up the tool for 30-60 seconds so that the hydraulic oil reaches the proper viscosity. Pull trigger-switch (ON) to move bending shoe then release the switch (OFF) and open release valve lever when it has reached its full stroke. Repeat 3-5 times without rebar.



**BENDING**

4. Place the rebar between the bending shoe and head where you want to make your bend.
5. When positioning the rebar between the bending shoe and head, make sure that the rebar lies flat on the unit's surface. If the rebar is not flat on the surface, the action of the bending shoe may cause

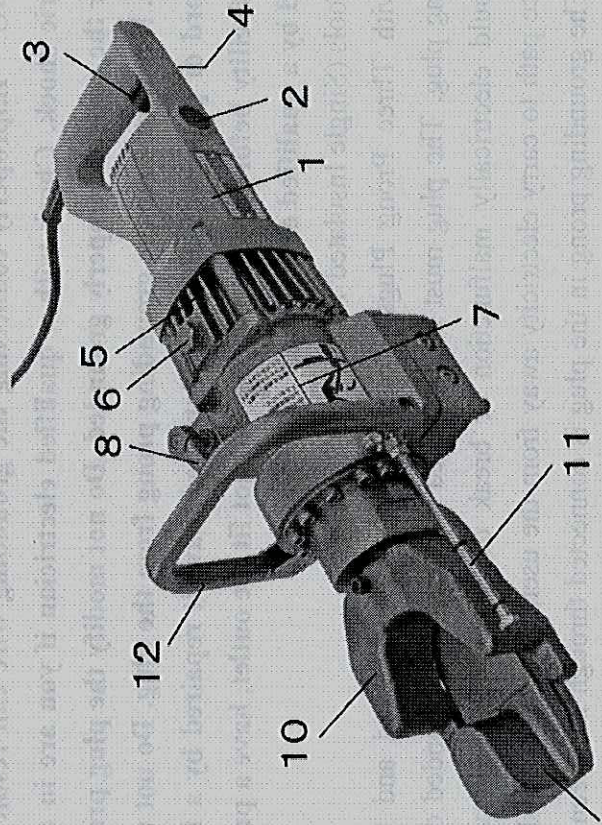
the rebar to fly out.

6. Press the safety switch lock (white button). Pull the trigger-switch and keep depressed while the bending shoe moves and bend rebar. (If the switch is released "OFF" at an intermediate point, the bending shoe will stop.)

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**PARTS NAME**



**DBC-16H**

- 1. Motor
- 2. Carbon Brush / Brush cap
- 3. Switch
- 4. Lock pin
- 5. Pump case
- 6. Oil plug
- 7. Cylinder
- 8. Valve lever
- 9. Bending head
- 10. Bending shoe
- 11. Angle guide
- 12. Front handle

**SPECIFICATIONS**

MODEL	HB-16W
Power Supply	Single phase mains electricity /Generator
Voltage	100V/115V/230V
Power Input	1050 W
Motor	Double Insulated motor
Max. rebar	16mm (diameter)
Max. tensile strength	490 N/mm <sup>2</sup>
Dimensions	585x195x205 mm (LxWxH)
Weight	15 Kg
Bend Speed	135 degree bend in 9 sec.
Max. bending	135 degree
Bending head radius	15R

- **Maintain power tools. Check for misalignment or binding or moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

**SERVICE**

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

**SPECIFIC SAFETY RULES**

- **Hold power tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.** Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.
- **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Never leave the trigger locked "ON".** Before plugging the tool in, check that the trigger lock is "OFF". Accidental start-ups could cause injury.
- **Keep hand away from cutting area and moving parts.**
- **Do not use dull or damaged blades, cutter blocks and rollers.** Damaged part(s) can break easily or could cause injury.
- **Maintain labels and nameplates.**

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**GENERAL SAFETY RULES**

**WARNING:** READ AND UNDERSTAND ALL INSTRUCTIONS.

**Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.** The term "power tool" in all of the warnings listed below refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

**WORK AREA SAFETY**

- **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

**ELECTRICAL SAFETY**

- **Power tools plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- **Do not use AC only rated tools with a DC power supply.**

**PERSONAL SAFETY**

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.

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Reo Bender up to 16mm.

**RB-16**

**ELECTRIC REBAR BENDER**

**HANDLING INSTRUCTIONS**

**READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO USE. Ignorance of proper operating procedures can lead to accidents. If in doubt about any procedure, contact your nearest authorized distributor.**

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Carbon brushes

## GENERAL SAFETY PRECAUTIONS

### USAGE

Use RB-16 rebar bender on concrete re-inforcing bars only.

### RESRICT USE TO DESIGNATED MATERIALS

Don't use the machine to bend very hard rebar. The hard rebar may break and will also damage the tool. Do not attempt to bend rebars. Harder, thicker or thinner than those specified (see page 5).

### USE EYE PROTECTION

Wear safety goggles, safety glasses with side shields or a face shield while using bender.

### PROVIDE SAFETY BARRIERS

Erect safety screens to protect co-workers from possible flying ends. Place safety screen under the rebar when working in high places.

### GUARD AGAINST ELECTRIC SHOCK

To avoid possible electric shock, do not handle bender with wet hands or use bender in the rain or damp places. Be aware of all power lines, electric circuits and other hazards that may be contacted, especially those that are below the surface or otherwise hidden from view.

### UNPLUG TOOL

Disconnect bender from outlet while not in use and before cleaning, adjusting or servicing. Do not disconnect plug from outlet by pulling the cord. Always check that the switch lock is OFF before plugging in.

### BEWARE OF ENVIRONMENT

Do not use bender in the presence of flammable materials ( e . G . Paint, thinner, petroleum products , adhesives ) .  
Do not use bender in a possibly lighted and clear of obstructions. Operator should at all times have an unobstructed view of the cutter, rebar and surrounding area.

### WEAR PROPER APPAREL

Do not wear loose clothes, dangling objects or jewellery. Restrain long hair.  
The use of a safety-helmet and rubber soled boots is recommended. If safety gloves are worn, be especially careful that gloves does not get caught in moving parts

### KEEP VISITORS AWAY

Keep all visitors at a safe distance from the work area for their own protection  
And to prevent distraction of the operator.

### MAINTAIN BENDER WITH CARE

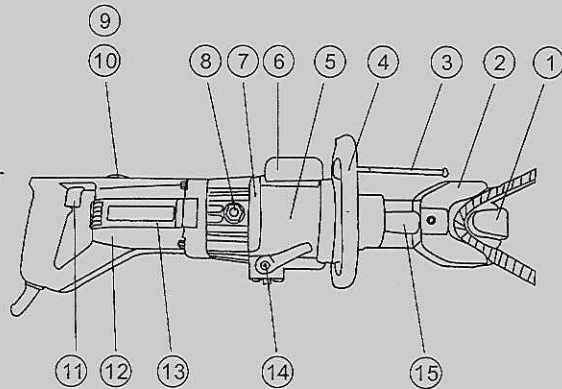
Inspect bender before each application. Keep handle dry, clean and free from oil and/or grease. Keep housing and piston free of dirt and iron filings. Check that no screws or bolts are loose or missing. Following instructions for maintenance. Inspect switch, cord, Plug and any extension cable at regular intervals.

### STORE CAREFULLY

When not in use, store bender and accessories in a dry place where they can't be accessed by unauthorized persons.

## PARTS AND SPECIFICATIONS

- 1.Head
- 2.Bend blocks
- 3.Adjustable stopper
- 4.Side handle (detachable)
- 5.Cylinder
- 6.Oil case
- 7.Pump case
- 8.Oil-plug
- 9.Carbon brush holder
- 10.Carbon brush
- 11.Switch
- 12.Plastic house
- 13.Motor
- 14.Switch
15. bending piston



### Main Parameters

Model	RB-16
Voltage + 5%	<input type="checkbox"/> 100/115V <input type="checkbox"/> 230V AC only
Wattage	<input type="checkbox"/> 800 W <input type="checkbox"/> 750 W
Dimensions	600*170*200 mm
Weight	15 Kg
Max.rebar diameter	16mm
Min.rebar diameter	4mm
Max.rebar hardness	Tensile strength 650N/mm <sup>2</sup>
Bending speed	5.0 secretary.

## OPERATING INSTRUCTIONS

**! CAUTION:** Indicates hazard that could result in minor personal injury and/or product damage.

**CARE:** Indicates hazard that will result in product damage.

### PRE-USE CHECKS

Check oil level.

Check condition of bender blocks and tightness of bender block bolts.

Check that the power source is appropriate to the bender

**CARE:** if voltage is too high, the motor will burn out. If the voltage is too low, insufficient power will be generated. Never use DC power.

Check that power supply is properly earthed.

**! CAUTION:** Failure to earth power supply may result in electric shock to operator.

Check that cord is undamaged and that plug is not loose.

If an extension cable is to be used, make sure that it is undamaged and that it is the proper thickness for the length. See table below.

Cable length	110/115V	230V
	Cable size (AWG)	Nominal diameter
Up to 10m (33 ft)	16	1.0mm <sup>2</sup>
Up to 15m (50 ft)	14	1.25mm <sup>2</sup>
Up to 30m (100 ft)	10	1.5mm <sup>2</sup>

6. Before plugging in, make sure that the switch lock is OFF.

## WARM-UP

In cold weather, warm up unit for 30~60 seconds so that the hydraulic oil reaches the proper viscosity. Pull trigger-switch to extend piston and release when it has reached its full stroke. Repeat 15~20 times.

## POINTS OF ATTENTION

1. Do not cover air vents.

CARE: If events are covered, motor will overheat and may burn out.

2. If hydraulic oil exceeds 70.(158.F) in temperature, power will drop. Allow unit to cool before resuming operation. (Be particularly careful in summer, when the aluminium pump case heats up quicker.)

3. If a drop in power is observed and motor is unusually hot, check carbon-brushes.

4. Pull the # 14 part valve to make the bending piston return back to tally after each bending.

## MAINTENANCE

### CLEARING

Cleaning bender every day, preferably immediately after use.

**!CAUTION:** Wear gloves to protect hands from metal splinters. Do not use an air-gun: blasting with air can cause metal filings and /or dust to get into eyes and respiratory system.

### Disconnect unit.

Wipe or brush away all dirt and metal filings. Pay particular attention to the lower half of the piston, where dirt is more easily accumulated.

## OIL-LEVEL CHECK

As the bender is hydraulically operated, the oil-level must be checked at frequent intervals, preferably every day. Failure to maintain the oil at the proper level results in a drop in pressure and loss of bending power

**!CAUTION:** Hydraulic oil is highly flammable. Keep away from sparks and naked flame. Do not smoke.

**!CAUTION:** Hydraulic oil may cause inflammation of the eyes and skin.

If ingested, it will cause diarrhoea and vomiting.

In case of eye contact, rinse in clean water for at least 15 minutes

And consult a physician.

In case of skin contact, wash thoroughly with soap and water.

In case of ingestion, consult a physician immediately. Do not Deliberately induce vomiting.

1. Oil should be warm but not hot. Warm up unit if cold.

2. Adjust stopper and make three or four cuts, noting exactly at what point the Rebar is actually breaking.

3. Pinch a short piece of rebar, stopping just before it breaks off. Unplug unit From power source.

4. With partially severed rebar in place, turn unit over so that oil-plug is uppermost. ( If unit is hot, allow to cool down.)

5. Remove oil-plug and seal-washer (packing).

**!CAUTION:** Never remove oil-plug when unit is hot or oil will spurt out.

6. Check that oil is level with bottom of plug hole (i.e. that pump case is full to the brim). If oil level is too low, top up with 20-weight hydraulic oil with Anti-foam and anti-abrasion properties (ISO viscosity grade VG46, e.g. Shell Oil Tellus 46, Mobil oil DTE-25 or Esso Uni power SQ46 ).

7. After topping up, extract air from system. Gently tilt cutter lengthwise

m: 691 **SCANNED**

06101

Reo Bender up to

16mm

# Instruction Manual

ELECTRIC REBAR BENDER

MODEL: RB-25 RB-32

## 1. Safety

### 1. 1 SAFETY RULES

#### 1. 1. 1.GENERAL SAFETY RULES



### **WARNING**

Do not attempt to operate until you have read thoroughly and understand completely all instructions, rules, etc. contained in this manual. Failure to comply can result in accidents involving fire, electric shock, or serious

personal injury. Keep owners manual and review frequently for continuous safe operation.

#### 1. KNOW YOUR MACHINE.

For your own safety, read the owner's manual carefully. Learn its application and limitations as well as specific potential hazards pertinent to this machine.

#### 2. KEEP WORK AREA CLEAN.

Disorder area and working table will cause accident.

#### 3. DO NOT USE IN DANGEROUS ENVIRONMENTS.

Do not use power tools in damp or wet locations, or expose them to rain. Keeps work area well illuminated.

#### 4. KEEP NON-PROFESSIONAL PEOPLE AWAY.

All visitors should be kept at a safe distance from work area.

#### 5. USE THE SUITABLE TOOLS, DO NOT FORCE THE MACHINE.

It will do the job better and be safer at the rate for which it was designed.

#### 6. WEAR PROPER APPAREL.

Avoid loose clothing, gloves ,neckties, rings, bracelets, or jewelry, which could be caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.

#### 7. THE MACHINE SETTING

Bender should be on flat and steady ground before starting.

Any shaking may cause imprecise work.To avoid the safety accident, please make sure the machine is not shaking before working.

#### 8. OPERATION IS OFF, MAINTAIN THE MACHINE

Keep the machine clean and safe. After operation, clean and remove dust and scrap iron in the main gear and body

#### 9. USE RECOMMENDED ACCESSORIES.

Before the service, replaces the fitting, or perhaps the assembly and assembles the motor, must cut-off machine's power source from the power source place (the note: Carries on the operation by the specialists).

#### 10.POWER SUPPLY

①.The power source ,please connect with the single-phase 220V power source to uses

②.when connects to the power source RB-25 must use 3.5 ~ 5.5sq (cv) the power line, RB-32 must use 4 ~ 6.5sq (cv) the power line. The power line is must maintain can below 30~40m to assure operation normally

※ Reference-----in situation of use extend line

This product is set in the situation of far distance from the power to use the extend line to

connect, according to the thickness of line and the different of current capacity , so must use the above provisions. Extension line. Use line is too long or too thin will make the loss of electric current and overload of the voltage, lead to edge of the wiring insulation rapid turn heat,then insulating ability to reduce ,finally to leak electric poaer or fire.besides will weaken the motor output force, internal electrical circuit easy to failure .

to began using the Line from the power line connect point must suit to the provisions of the above extension line, also do not mean operation near the electric power supply is good, in situation of long distance operation,please refer to the table to using appropriate degree of power line according to distance.

(wire) max. length	RB-25	RB-32
	Diameter of wire / wire size	Diameter of wire/ wire size
15m	2.0sq X 3C	3.5sq X 3C
25m	3.5sq X 3C	4.5sq X 3C
40m	5.5sq X 3C	6.5sq X 3C

### 1.1.2 Additional safety rules

- ①. When the machine is running, don't clean or remove scraps
- ②. Do not remove or modify the warning signs even not replace or any may cause confusion of marks.
- ③. Carefully reading the mannel before operating the machine.
- ④. The machine on ground correctly, to avoid hazard shock.
- ⑤. Not away till the machine is off.
- ⑥. Before replace the module the machine should stop completely .
- ⑦. before starting, confirm. determine the correct, bending Angle.
- ⑧. Do not to put any tools on platform before starting work, to avoid accidents .
- ⑨. Use appropriate tools to adjust machine.


### 1.2. Warning signs:


This machine has warning symbols attached on it as shown below to ensure proper and safe operation.

These symbols are used on the machine to indicate points or instance of specific danger to operating personnel.

Do not remove safety symbols from the machine.

The safety have two grade that are  Danger and  Attention in this manual:

 Dangerous—Means the dangerous by the wrong operating and lead death and GBH.

 Attention—Means the dangerous by the wrong operating and lead the hard damage of common or venial harm. Attention can help the user to know the result of ignore the warning and recognize the dangerous and avoid the dangerous.



#### 1. Avoid the damage

##### Danger

Don't put your hand or head inside the guard fence, if not will harm yourself.  
Don't touch the button with wet hand, if not will get the electric shock.  
Every work include the installation, test and inspection & maintenance need to be done by the professional technician.

#### 2. Transit and Installation

##### Attention

Please use the proper rise and fall tools to transit the equipment when transit the equipment to avoid the damage and accident.  
Flow the operation manual to install the equipment.  
Check and confirm the installation place and the position of the slitting rewriter.  
Don't let the machine get the violent strike or hit when transit the machine.  
Don't lift or hang the motor when transit as by this will damage the motor.  
Don't test the machine if there is lack of or damage any electricelement.

#### 3. Setting Line

##### Danger

Don't connect the chief power supply to the fan-out of creepage protection button.  
Please cut off the power supply and confirm by checking when setting the line or inspect.  
Setting the line after installation, if not will lead accident.  
Don't press or clamp the cable, not damage or refute arbitrarily, either. Unless will lead the electric shock.

#### 4. Attempt Running

##### Attention

Check the whole machine and confirm the suddenly start-up can not damage the equipment.  
Adjust the three phase relatives between the control tank and each motors to confirm the turning position of each motor is right.

#### 5. Operation

##### Attention

Don't touch the running part of the slitting folder by your hand in the period of early testing to avoid the hurt.  
Don't do any modification for the equipment unless have the technician's help from BS. If not BS will not bear any duty of the result.

#### 6. Other Attention Item

### ⚠ Attention

The completely inspection and attempt running are needed before using after leave unused for a long time.

It is not allowed to operating or maintain the machine when the operator is not clear-headed by drink or tired.

Please use the spare parts from BS for the maintenance and part change. BS will not guarantee to keep it in good repair if the customer damage the machine by using the spare parts from other company

## 2.means of operation

### 2.1 Using methods

① When the power line connection to the 220V power source and the power indicator light shone on namely mean of the machine operation preparation finishes may go on the normal work.

② The fixed idler wheel, the move idler wheel and the steel bar adjustment block's spacing needs to make the corresponding adjustment according to the specification of the steel bar.

③ The foot switch connection to point1,2 will make more convenient to go on work .

Point 1, connect to work - angle set by is point 1, press the START switch or point1 foot pedal switch control to operation.

Point 2,connect to work, The angle setby is point 2, through the foot switch control operation, this time the point1 angle set by handle must establish with point 2 in the same level angle or is bigger than the point 1 angle . while also after the angle handle setting must fix well the handle nut or when the machine operation will become loose.

④ Adjust the angle that you need by through move Left or right, after angle adjustment is set accurately, assure that angle setting handle is fixed .

⑤The operator must stand outside of the rebar bender operation's direction.

⑥ when press the starting switch or the foot switch will bend the rebar to the angle which you have set

⑦when you find some abnormal during the operation you must press down emergency stopped to closes down the machine'operation.

⑧sure to remember, when bending processing, the angle of point 1 must be bigger than point 2, otherwise the machine cannot the normal operation.

⑨ under situation of use foot switch beyond control machine'operation when please through press nearby power light's hand switch test machine whether to revolve judges the foot switch whether to present the breakdown.

Note: ① when press the emergency switch to run the machine,the move idler wheel will return to its position.

② under the work situation of point 2 bending, the point 1 handle'position must be keep the same level angle with point 2 or to set smaller in the angle 5 degrees than the point 1 and then fix the angle handle, so that not to occure the electrical or the machine misoperation.

### ※matching of different wheel (RB-25) :

Rebar specification	Fixed idler wheel	Gyre idler wheel	Contemporary bending capacity
Ø22- Ø25	Ø78	Ø94	1 pcs
Ø16- Ø20	Ø78	Ø94	1-2 pcs
Ø10- Ø13	Ø78	Ø94	4-5 pcs
Ø6- Ø13	module	Ø94	3-6 pcs
Special situation	Possible customize	Possible customize	

### ※matching of different wheel (RB-32) :

Rebar specification	Fixed idler wheel	Gyre idler wheel	Contemporary bending capacity
Ø10- Ø13	module	Ø148	5-6 pcs
Ø16- Ø22	Ø78	Ø148	2-3 pcs
Ø25- Ø32	Ø109	Ø99	1 pcs

### 2.2.attention items

① Must according to Contemporary bending capacity to use this products, surpasses easily to cause this product breakdown.

② when go on steel bar bending work, special attention to avoid injure the finger and so on safety incident.

③ according to the different hardness of reinforced material ,special attention should be paid to avoid the fracture which may lead to safety incidents such as wounding.

④.please do not operate untill you confirm no person and object in the reinforced bending radius.

⑤.the product is electric functional machinery.as encountered by rain or watter lead to leakage,it must be coverd with waterproof membrane after use.

⑥ assure the stationary ring bolt is fixed when transit or move the machine.

⑦,when operating under point 2,fix angle of point 2 same as or no larger than point 1 of 5 degree,to ensure that under the condition when exterior shock attacks the machine itself

will not move to left and right to operate the machine.

⑧ make sure the stationary ring bolt is fixed when transit or move the bender. chains must be inserted into the safety pin to pretend the bender from shaking or waving in transit. when move the bender by fixing handle, 4 bolts can not loose, then move the bender together by 4 handles.

⑨ prohibit to use idler wheel items

If marks according to below (X) the method operation troughing of belt hoop will burst easily. Records the proper operation sincerely!

### 3. Environment:

Please use it under these kinds of the environment conditions.

Environment	Environment temperature	-10°C~45°C (does not ice up)
	Environment humidity	Below 90%RH (does not congeal dew)
	Storage temperature	-20°C~+65°C
	Environment	In room (non-corrosiveness gas, flammable gas, oil mist and so on)
	Altitude above sea level	Below elevation 1000m

## 4. Operation

### 4.1 Operation position

After installed the equipment, the operator can operate the equipment stand on the about 0.5m before operation panel

Notice

- Do not use your hand to touch all the running parts when the equipment is running in case to accident to happened.
- After adjust the quantity to remember lock the nut.
- If have abnormal during the running should to stop the working.

When the container is big the diameter of the filling mouth should not too small in case to protect the filling mouth from damage when filling the pressure is too big.

### 4.2 Emergency Stop

This machine install one emergency stop button so once you press it the machine will stop wholly. When there are emergency things happen please press this button.

### 4.3 Power

220V single phase power supply only.

Use 3.5 ~ 5.5sq(CV) wire only. Wire should be no longer than 30-40m in order to keep bender work normally.

Avoid putting bender on wet ground

※For reference--- In case of using longer wire, When power supply is far away from bender, please use standard extended wire according to the diameter and capacitance. Overlong extended wire will cause running out of electrical current and overloading of voltage, and the insulating coat may become hot, which will weaken the insulating capability and finally lead to fire. Moreover, any faulty using of the wire may cause reduction of output energy of the bender and conk out of inner electric loop. Pls use standard extended wire from position of power supply. Distance between the power supply and bender is shorter, not means the machine works better. Pls refer to the following form to use the standard wire.

(Wire) Max. Length	Wire size
15m	2.0sq X 3C
25m	3.5sq X 3C
40m	5.5sq X 3C

### 4.4 Control panel

1 indicating light: when connecting the power supply, the light should be on.

2 manual switch: if the foot switch could not control the machine operation, replace foot switch 1 by the manual switch near the power light.

3 foot switch 1: press foot switch 1 to complete the operation of angle 1 settled by the "1 point" angle adjustor.

4 foot switch 2: press foot switch 2 to complete the operation of angle 2 settled by the "2 point" angle adjustor.

5 emergency stop switch: during the operation, if there is any trouble, release the button and stop all actions.

6. angle 1: adjust the bended angle by the "1 point" adjustor ( corresponding with foot switch 1)

7. angle 2: adjust the bended angle by the "2 point" adjustor ( corresponding with foot switch 2)

8. Before bending, please note the angle setting of "1 point" must be bigger than the "2 point", or the machine can't work, please see the below picture.



## CORRECT ANGLE SETTING

### 4.4 operate process

- 1).please connect the power wire to 220V electric and see the indicator light lights up.It means the bender is ready to work.
- 2).please choose the correct size fixed idler wheel and correct size idler wheel according to the rebar diameter.
- 3). Please Connect pedal switches with 1 point and and 2 point holes tightly.
- 4). The 1 point angle setting adjustor is for setting the foot switch connecting with 1 point hole.For example to bend 180 degree by foot swtich 1,you set the angle 180 degree by the 1 point adjustor,then you touch the foot swtich 1 to bend the rebar 180 degree.
- 5).The 2 point angle setting adjustor is for setting the foot switch connecting with 2 point hole.For example to bend 90 degree by foot swtich 2,you set the angle 90 degree by the 2 point adjustor,then you touch the foot swtich 2 to bend the rebar 90 degree.
- 6).please note the angle setting of "1 point" must be bigger than the "2 point",or the machine can't work.please see the below two pictures.
- 7).Fix the angle adjustor by moving to left and right accordingly.
- 8).Operator should work on the outside of the rebar's bending direction.
- 9).Rebar will be bent to set angle when pressing the start switch or pedal switch.

Please use the different sizes wheels for the different sizes rebars according to below specification.

Rebar Diameter	Fixed idler wheel	gyre idler wheel	Rebar quantity for one time bending
22mm or 25mm	Ø78	Ø93	1 pcs
20mm or 16 mm	Ø50	Ø135	1 or 2 pcs
14mm or 10mm	Ø33	Ø165	4 or 5 pcs

**Attention:** In order to work precisely, Pls set at point 1 when the bending angle is large (90°), and set at point 2 when the bending angle is small(135)

#### 4.Note :

- ① follow the processing capacity while use the product is a must, surpass the product easily lead to failure.
- ②operation gripping bending reinforced material should pay special attention to safety incidents such as bumping fingers.
- ③ According to the different hardness of reinforced material, special attention should be paid to the fracture which may lead to safety incidents such as wounding.
- ④ Please do not operate until you confirm no person and object in the reinforced bending radius.
- ⑤ the product is electrical functioning machinery. As encountered by the rain or water leading to leakage, it must be covered with waterproof membrane after use.

### 4.5 Movement

1. Move the bender after making sure the handle fixing bolt is tight.
2. When operating under point 2, fix angle of point 2 same as or no larger then point 1 of 5 degrees, to ensure the operator's safety and the normal working.
3. Make sure the stationary ring bolt is fixed when transit or move the bender.  
Chains must be inserted into the safety pin to pretend the bender from shaking or waving in the transit. When move the bender by fixing handle,4 bolts can not loose or damaged. Move the bender together by 4 handles.

## 5. Maintenance

### 5.1 Check and Change

①Change the carbon brush --- The power must be cut off. If the machine stops operating during the process, please confirm the wearing and tearing intensity of the carbon brush. The carbon brush that electric machinery uses belongs to consumables. If the carbon brush is used beyond the restraining line of the wearing and tearing, the electric machinery will subside, even stop running. Then turn off the machine and resume it. If the machine shuts down automatically after transient running, it proves to be necessary to change the carbon brush. Please do use the machine after the change of the carbon brush as the continuing use accelerates wearing and tearing of the commutator which leading to the damage of the rotor coil.

#### ②Means of changing:

Open the upper brush cap with a screwdriver so that the carbon brush can be taken out in the machine.

Please use the attaching brush while purchasing the machine to clean the internal centre axle and fixed gyro wheel before changing and using.

### 5.2. Lubrication:

#### 5.2.1. Cycle:

The lubrication should be done by the personnel regularly and also can be maintained during the time that not be used.

PLS put the lubrication every week.

#### 5.2.2. Oil

It adopts the common lithium grease; do not use the different lubrication at the same time, if you choose one because it will influence the life span.

#### 5.2.3. Cleaning the oil mouth

Before put the lubrication grease should clean the oil mouth and do remember to wipe off the remaining.

### 5.3 Check and maintain

Check the bolts and nuts of every position, if they become flexible.

In moist season or after rainy days, the rain-proof ventilate must be opened to dry. In the case of heavy power shock when turn the gyro wheel go back to the location, round it tight after adjusting the unclamp, bludgonned bolt into the very slow state.

Panel indicator lamp on means the machine is turned round and planned.

Check the power and cable if not bright when putting through the power rear board indicator lamp.

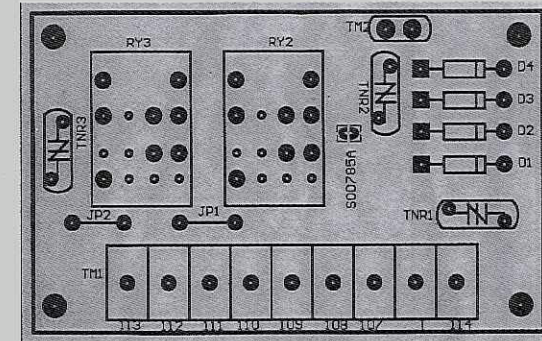
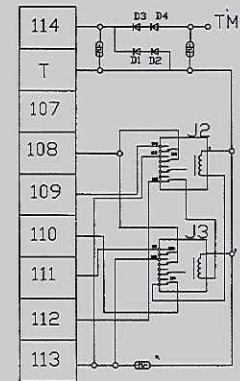
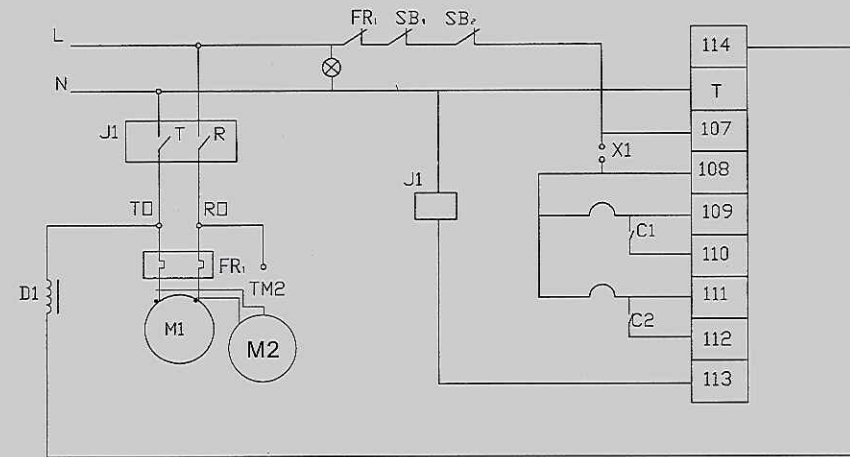
Indicator lamp shows the panel, if it is unable to start the machine when press START switch --- Please confirm the tearing state of wearing or carbon brush .

In addition, please consult each branch and after sale service centre of general headquarters for other items.

## 6. Electrical safety

### 6.1. Safety rules of electrical system

1. Only personnel who are properly trained and have adequate knowledge and skill should undertake all electrical troubleshooting and repair.
  2. Do not alter or bypass protective interlocks.
  3. Before starting, read and observe all warning labels
  4. When trouble shooting make sure the power source has been cut-off and main switch has been locked.
  5. Take extra precautions in damp areas area to protect you from accidental grounding.
  6. Before applying power to any equipment it must be established, without a doubt, that all persons are clear.
  7. Do not open the electrical control panel unless it is necessary to check the electrical equipment.
  8. Do not alter the electrical circuits unless authorized to do by the manufacturer
  9. When replacing electrical components, make sure they conform to the manufacturers specifications, including proper color-coding.
  10. Do not wear metal glasses, metallic necklaces or chains while working on any electrical equipment.
- Also do not wear any ring, watch or bracelet while operating electrical equipment.



J1-J3 Electric relay  
SB Emergency stop  
X1 Travel switch  
D1 Electromagnet

C1-C2 Sensors

Piezoresistor

Remark:RB-25 Suit for M1

RB-32 Suit for M1、M2