

MAINTENANCE & STORAGE



FLAMMABLE LIQUID. When performing maintenance, stop engine and do not smoke in adjacent area.

HIGH TEMPERATURE. Allow machine and engine to cool down before performing maintenance. Contact with hot components can cause serious injury. Moving part. Shut down engine before maintenance. Contact with moving parts can cause serious injury.

Lubrication

The parts which need to be lubricated are marked on figure 3 (besides, different pins and shafts in the operative system should be greased regularly).

FOREWORD

Thank you for your selection of **HISAKI BAR BENDER**. This manual contains necessary maintenance information for you to ensure proper operation and care for this machine. Thus, it is essential for you to read through this manual thoroughly. Please do not hesitate to contact your local dealer or agent for any problem or suggestion as we always welcome feedback and comments from our valued customers.



This safety alert symbol identifies important safety messages throughout this manual. When you see this symbol, carefully read the message that follows.

CONTENTS

Foreword	1
Contents	2
Specifications	3
Safety Precautions	4
Pre Start Up Checking	5
Installation & Setting	6
Starting	7
Operation	8~10
Shut down	11
Maintenance & Storage	12
Trouble Shooting	13

SHUTDOWN

- Step 1.** Push the red stop button, the engine stops completely.
- Step 2.** Close engine fuel cock.
- Step 3.** Cover the machine after the muffler had cooled off and keep the bender in dry place.

EMERGENCY SHUT DOWN :

Move throttle lever to OFF.

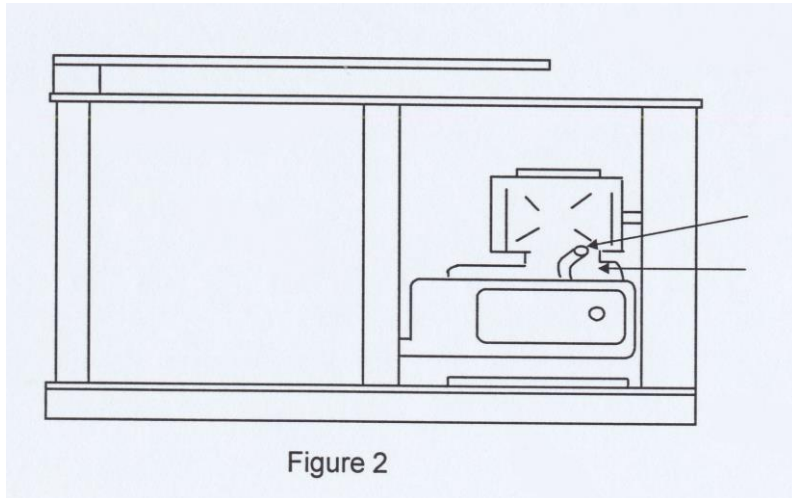


Figure 2

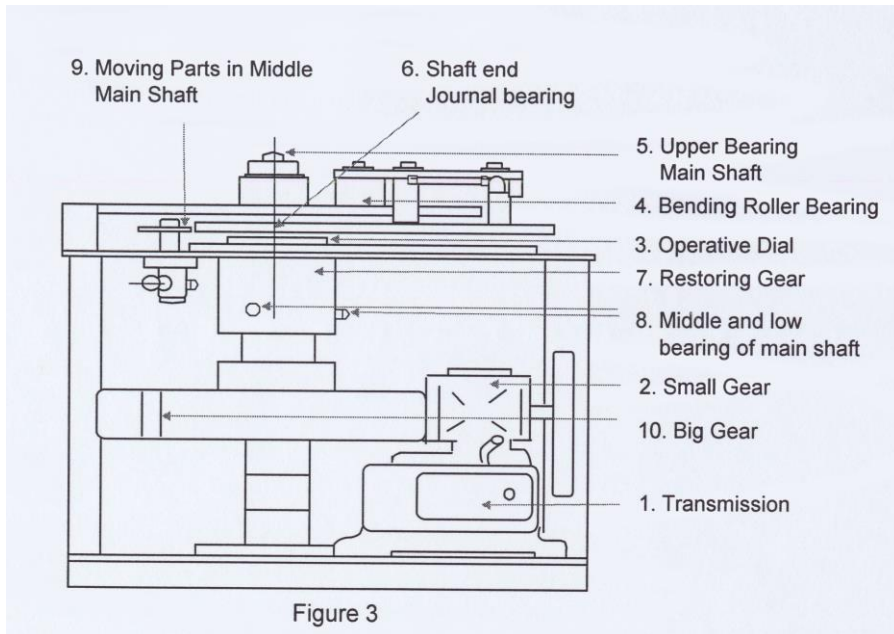


Figure 3

SPECIFICATIONS

ORIMAS bar bender, which is run with diesel engine, is able to bend the steel bar with diameter to 32mm/42mm (max. 43mm). It is of high efficiency, convenient operation and reliable property and widely used in architecture fields and different factories.

Main Data :

Power	5 HP						12.5 HP							
Diesel Engine r.p.m	2600 r.p.m						2400 r.p.m							
Steel Bar Tensile Strength	≤450N/mm ²						≤500/550N/mm ²							
Steel Bar Dia. (mm)	16	19	22	25	28	32	16	19	22	25	29	32	36	43
Max. of Bending (r.p.m)	19.7			10.2			22.3				15.2			
Max. Bending Angle	180°						180°							
Measurement (LXWXH)	1250X1035X860mm						1300X1140X888							
Weight (kg)	765						815							

Safety Precautions

Before operating this equipment, the operator should read this manual. Whenever possible, he/she should be shown how to operate the unit by an experienced operator. It is dangerous for an inexperienced person to operate any machine. Trial and error is not the safe way to become familiar with a piece of equipment.

- **WEAR SAFETY BOOT, HELMET, SHATTER PROOF GLASSES** and other protective devices required by job conditions. Avoid loose clothing. These may trap in moving parts and cause serious injury.
- Be cautious with the ventilation of work place. **AVOID OPERATING MACHINE IN CLOSED AREA**, since engine exhaust contains poisonous gases.
- **BE CAREFUL WITH HOT COMPONENTS.** Mufflers and other parts of engine are hot during operation and right after shut down.
- Fasten fuel cap tightly and closed fuel strainer cock during transportation.
- People are not operators are not allowed to stay in the vicinity of the steel bar bender and within the moving range of the steel bar.

- Step 5.** Insert the limit pin (NO.9) into a suitable hole on the dial (NO.10) according to the required bending angle of steel bar, then start the engine and step on the step (NO.4). As the result, the roller arm will turn back to the beginning position at once automatically. (See Figure 1)

Table 1.

Steel Bar Tensile Strength (N/mm ²)	≤450						≤550				
	Dia. of steel Bar Bent (mm)	16	19	22	25	28	32	16	19	22, 25	29, 32
Dia. of support Roller (mm)	64	74	86	97	109	125	64	74	84	104	125
Gap between Roller and steel bar (mm)	4	5	5.5	6	7	8	4	5	5.5	7	8
Rate of Bending (r.p.m)	19.7 (high rate)			10.2 (low rate)			22.3 (high rate)			15.2 (low rate)	

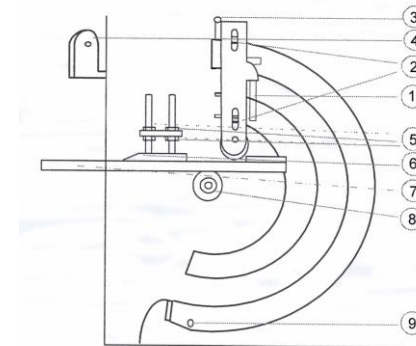


Figure 1

NOTE: When higher rate of bending (19.7 r.p.m.) will be chosen, please insert pin (NO.2) into the hole on the upper – part of the adjusting lever and rotate the pulley slightly and press the adjusting lever to the lower location. As a result, the higher rate of bending has been chosen as per Figure 2.

OPERATION



CAUTION

Be careful with hot components, mufflers and other engine parts are hot during operation. Do not touch them.

- Step 1.** Select one suitable support roller (Fig. 1, NO. 8) according to the diameter of the steel bar to be bent, and install it on the central shaft (the diameter of the support roller should be 4 times larger than the diameter of steel bar to be bent). Please select the support roller according to table 1. Unsuitable support roller is not allowed to be used.
- Step 2.** Adjust the location of the block (NO. 6) by adjusting (and locking) the nuts (NO. 5), and make the steel bar (NO.7), support roller and block contact with each other and keep stable. (see Fig. 1)
- Step 3.** Make the roller arm in beginning position as fig. 1 and loosen the nut (NO. 1 & 2), and adjust the gap Δ between the roller and steel bar to be bent ($\Delta \approx \frac{1}{4}$ diameter of the steel bar) then lock the bolts, (NO.1 & 2) again. Narrower gap is not allowed (especially when the steel bar with max. diameter is bent) (see fig.1)
- Step 4.** Rate of bending should be chosen in terms of table 1. When lower rate of bending (10.2 r.p.m) will be chosen, please make the pulley rotate slightly, and pull the adjusting lever (NO. 1) to the higher location and insert the pin (NO.2) into the hole on the bottom of the adjusting lever. As a result, the lower rate of bending has been chosen.

PRE START UP CHECKING

- a) Install the diesel engine and check the running direction:
- The installed diesel engine should be connected to the transmission of the machine, then check the running direction by rotating the diesel engine with the handle. The big gear should run clockwise when looking down, and is not allowed to run reversely.
- b) Lubricate According to the Requirements
- Check the connection reliability of the operative system and check if the nuts are loose. When new machine or one which is in store for long time is used; please check the function of operative system: Step on the step (Fig 1, NO.4) and see if the clutch is in gear (if the step don't move, please rotate the diesel engine with the handle and make the big gear run slightly), then check if the roller arm runs respondent when rotate the diesel engine with handle. At last, move the handle of dial (Fig. 1. NO. 3) Clockwise for about 50mm and see if the clutch is separated.

INSTALLATION & SETTING

- Step 1.** Loosen engine bracket bolt (underneath engine) to allow engine movement along engine bolt slot.
- Step 2.** Assemble engine pulley into engine shaft; make sure belt grooves are aligned.
- Step 3.** Insert V-belt into pulley and engine pulley one at a time.
- Step 4.** Adjust the engine position by tightening tensioning bolt to ensure v-belts are tight enough.

IMPORTANT : Normal slack should be approximately 10 ~ 15mm (1/2") when the belts are forcibly depressed in the middle position between pulley and engine pulley.

- Step 5.** Tighten all engine bolts and cover the engine pulley with belt cover, tighten cover bolts.

STARTING



CAUTION

Make sure nobody is in front of the bar bender when starting the engine; it might jerk forward with force.

- Step 1.** Open engine fuel cock.
- Step 2.** Set engine leveler to 70% "START" position.
- Step 3.** For engine starting, open valve choke (below engine air filter)
- Step 4.** While holding open valve choke, use hand crank to rotate crank pulley clockwise from slow to fast revolution.

IMPORTANT : Do not rotate crank pulley from fast to slow as starting of the engine depends on the rotating inertia of crank pulley, the faster the crank pulley, the more inertia it builds to start the engine.

- Step 5.** Close choke when smoke comes out of exhaust and rotate crank pulley faster until engine starts.

HISAKI

Bar Bender

Operation & Instruction Manual

TROUBLE SHOOTING

When any malfunction is noted, immediately shutdown the machine. Some simple trouble shooting and lubrication tips are given as below :

Description	Lubrication	Lubricant	Lubricant Schedule	Remarks
Transmission	Oil Pool	NO. 40 Engine Oil (in summer) NO. 20 Engine Oil (in winter)	1 time / half year	Inject to over the oil level line (Don't forget inject oil before first use)
Gear Box	Grease	NO.3 Grease with Ca Base	1 time / half year	Open the top – lid on the gear box
Operative Dial	Grease	NO.3 Grease With Ca Base	1 time / 3 months	Inject through the gap
Bending Roller Bearing	Grease	NO.3 Grease With Ca Base	Change Grease 1 time / 3 months	Disassemble the roller arm and the bending roller.
Upper Bearing Main shaft	Injection	NO.70 Engine Oil	1 time / shift	Loosen and open the lid - nut on the central shaft and inject
Shaft –end Journal Bearing	Grease	NO.3 Grease With Ca Base		When disassemble the work - table and change the bearing, change grease.
Restoring Gear	Grease	NO.3 Grease With Ca Base	1 time / month	
Middle and Low Bearing of Main Shaft	Injection	NO.70 Engine Oil	1 time / Shift	Inject through the holes.
Moving Parts In Middle Main Shaft	Oil Hole	NO.3 Grease With Ca Base	1 time / Shift	
Big Gear	Grease	Mo.3 Grease With Ca Base	1 time / week	