



Straight Line Cutter

Operation Manual



INTRODUCTION

Read this instruction manual thoroughly to ensure correct, safe, and effective use of the machine. Co-operation between colleagues in the workplace is essential for safe, smooth operation.

SAFETY PRECAUTIONS

This product is designed to be safe, but it can cause serious accidents if not operated correctly. Those who intend to operate or repair this machine must read the manual thoroughly before use. Keep the manual near the machine so that anyone operating the machine can refer to it as necessary.

- Do not use the machine without following the instructions in the manual.
- Use the machine **only** after you have read and completely understood the contents of the manual.
- Keep the manual to hand at all times and read it as many times as necessary for a complete understanding.
- If the manual becomes lost or damaged, please contact our sales office for a replacement, or your local distributor.
- When transferring the machine to a new owner, be sure to hand over this instruction manual.

MACHINE OPERATOR KNOWLEDGE

Operators and repair staff of this machine must completely understand the contents of the instruction manual and have completed a training course in gas welding.

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SAFETY INFORMATION



Many accidents are caused due to a disregard of the basic safety rules during operation, inspection and maintenance. Carefully read, understand and master the safety measures and precautions outlined in this instruction manual and on the machine before operating, inspecting and maintaining the machine.

- **WARNING**

This word has been used as a warning to the user at places on the machine that could cause injury or lead to a serious accident.



- **CAUTION**

This word has been used to draw the attention of the user, in the form of a message and a caution label located in places that could cause slight injury or damage to the machine. They are also used as a caution to warn against frequent dangerous actions.



- **NOTICE SIGNS**

This sign shows the machine operators and maintenance engineers items that relate directly to the damage of machines and surrounding facilities and equipment.

1.1 GENERAL MACHINE SAFETY PRECAUTIONS

Read and fully understand the following important safety information:

1.1.1 MACHINE SAFETY

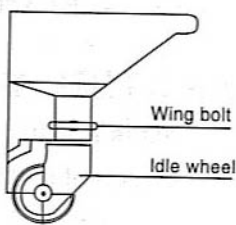
1. The machine casing is mainly made of aluminium alloy to reduce weight. For this reason, be careful not to drop heavy items on the machine, or drop the machine when carrying it as the alloy is not designed to withstand such impact.
2. When attaching hoses to the torch and distributor, tighten the nut with the attached wrench. After attaching, be sure to check there is no gas leak with a detection spray. If a gas leak is found, retighten the nut firmly, and re-check for a leak.
3. When fixing a tip to the torch, tighten the nut with the two wrenches attached. In addition, avoid damaging the taper of the tip as this may cause backfire.
4. Never tamper with the machine other than during maintenance and inspection as the machine may malfunction.
5. Never remodel the machine. Remodelling is very dangerous.
6. When changing the direction, make sure that the direction switch is in the neutral (stop) position, and operate the direction switch only after the machine has stopped.
7. Always turn the power off when not in use.
8. Never use the machine outdoors in wet conditions. This will cause the machine to fail and could cause a fatal electric shock.

1.1.2 SAFETY CLOTHING

1. Be sure to wear protective clothing (gauntlets, goggles, helmet and safety shoes) during operation.
2. Avoid operating the machine with wet clothes or hands, to prevent chance of an electric shock.

1.1.3 OPERATION AND HANDLING SAFETY PRECAUTIONS

1. Read this instruction manual before operating the machine.
1. Mount and centre the machine correctly and confirm correct direction before operation.
2. Before connecting the power plug to the outlet, make sure that the power switch is in the OFF position (or the normal/reverse changeover switch is in the stop position).
3. Prior to operating the machine, check the safety of the surroundings to avoid accidents.
4. Never move the machine while the preheat flame is on.
5. Take great care of spatter dispersal when operating the machine at an elevated position as this may cause injury to people below. A welding blanket would normally be suitable under these conditions.
6. Clutch – before running the machine, check the clutch is on. If the machine runs whilst keeping the clutch at halves problems will occur.



7. When extending the guide rail be careful not to catch your hands between the rails.
8. When cutting is performed on the rails, be sure to fix the idle wheels.
9. A heatshield should be fixed firmly so that it does not contact the rails.
10. Secure the rack bar with the wing bolt attached to the torch slide liner to prevent the rack bar from dropping.
11. Be sure to hold the handle when carrying the machine.
12. Be sure to take the machine body off the track when moving.



1.1.4 ELECTRICAL SYSTEM PRECAUTIONS

1. Be sure to check the input power voltage of the machine before operation. The input power voltage should be in the range of $\pm 10\%$ of the rated voltage. The machine should not be operated out of this range.
2. The metal plugs are screw-threaded, therefore, fully tighten them so that they will not come loose during operation.



3. Be sure to earth the power cable of the machine.
4. Stop operation and turn off the power in the following cases and ask a qualified electrician to repair the machine if:-

- 1) Input cable is damaged in anyway.
- 2) Water leakage from the machine or liquid damage to the machine.
- 3) Abnormal machine operation despite operating the machine according to the instruction manual.
- 4) Machine breakdown.
- 5) Poor machine performance that requires repair.



1.1.5 MAINTENANCE AND INSPECTION

PRECAUTIONS

1. Ask a qualified electrician to perform any repairs and to carry out an inspection service.
2. Disconnect the power plug before inspecting and repairing the machine.
3. Maintain the machine periodically.

1.2 GAS CUTTING SAFETY PRECAUTIONS

Strictly observe the safety rules and precautions to ensure the safety of gas cutting operations. Operators and supervisors MUST keep safety in mind.



1.2.1 PREVENTION OF EXPLOSION

1. Never cut pressurised cylinders or hermetically sealed containers.
2. Ensure sufficient ventilation for gas cutting.



1.2.2 PRESSURE REGULATOR SAFETY PRECAUTIONS

1. Before starting operation, check that all pressure regulators are operating correctly.
2. Ask a skilled repair engineer to carry out a maintenance and inspection service.
3. Do not use leaking pressure regulators, nor malfunctioning pressure regulators.
4. Do not use pressure regulators smeared with oil or grease.



1.2.3 HIGH-PRESSURE GAS CYLINDER SAFETY PRECAUTIONS

1. Never use broken cylinders or leaking cylinders.
2. Install cylinders upright and ensure they will not fall.

3. Use cylinders only for specified purposes.
4. Do not smear container valves with oil or grease.
5. Install cylinders in a place free from heat, sparks slag and naked flame.
6. Contact the distributor if the container valves will not open. NEVER use a hammer, wrench or other tools to force open container valves.



1.2.4 SAFETY PRECAUTIONS FOR HOSES

1. Use the oxygen hose for oxygen gas only.
2. Replace cracked hoses or other hoses damaged by sparks, heat, unshielded fire etc.
3. Check installed hoses for kinks.
4. To prevent breakage of hoses, take great care during operation and transportation.
5. Do not hold the hoses when moving the machine.
6. Periodically check the hoses for damage, leakage, fatigue, loose joints etc. to ensure safety.
7. Cut hoses to the minimum possible length. Short hoses reduce hose damage and pressure drop as well as reduce the flow resistance.



1.2.5 SAFETY PRECAUTIONS FOR FIRE

Take safety precautions to prevent fire prior to gas cutting.
Ignoring hot metal, sparks and slag could cause a fire.

1. Keep a fire extinguisher, fire extinguishing sand, bucket of water etc ready on the site where gas cutting is performed.
2. Keep flammables away from the cutting area to avoid exposure to sparks.
3. Always allow steel plates to cool that have become hot after cutting, as well as hot cut parts or scrap, before bringing them close to flammable materials.
4. Never cut containers to which flammable materials are stuck..



1.2.6 SAFETY PRECAUTIONS FOR SKIN BURNS

Observe the safety precautions to prevent skin burns. Ignoring heat, spatter, and sparks during operation could cause a fire or burn the skin.

1. Do not perform cutting near flammable items. (Move flammable items well away from the sparks.)
2. Do not cut containers filled with flammable materials.
3. Do not keep lighters, matches, and other flammable items nearby.
4. Flames from the torch may burn the skin. Keep your body away from the torch and tip and check the safety before operating the switches and valves.
5. Wear correct eye and body protection.
6. Correctly tighten the tip to prevent backfire.

When fixing a tip to the torch, tighten the nut with the two wrenches attached.

If the tip is over tightened, it will be heated during cutting and become tighter making it difficult to remove.

Avoid damaging the taper of the tip since this may cause backfire.

7. Using leak detector check for any gas leakages from the connection part of the distributor, hose and torch. Never use oil or grease on the connection of the oxygen pipe. This could cause a backfire which may lead to explosion.

8. Be sure to check the following when igniting:

Place the torch on the torch holder before igniting.

Always wear the required safety protection (gauntlets, goggles, helmet etc)

Check for any obstacles, dangerous materials and flammables near or in the direction of the cut.

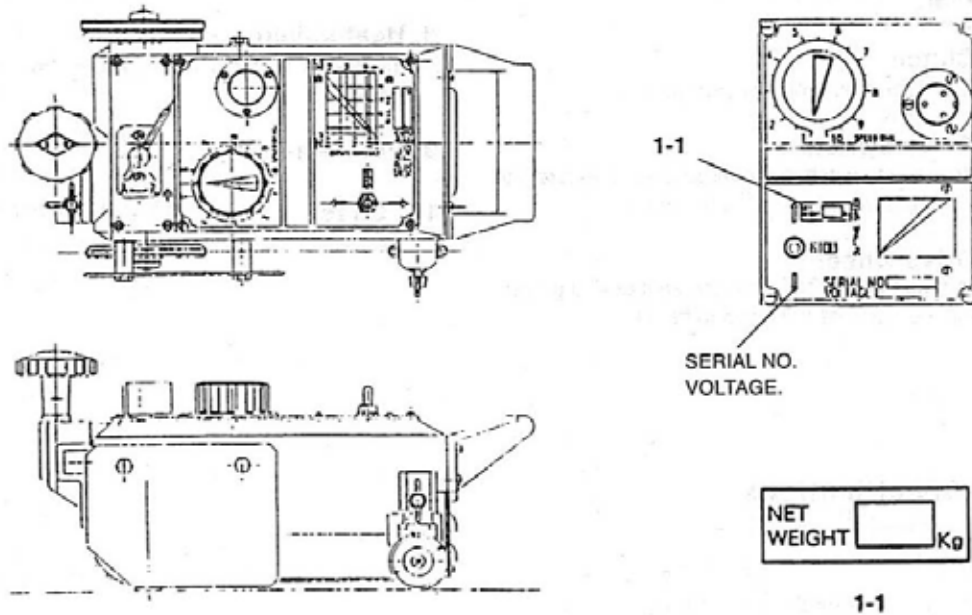
Determine the gas pressure. The gas pressure must be within the appropriate range. (For the correct gas pressure, refer to the Cutting Data.)

9. The torch, tip and heat shield are heated to very high temperatures. Always wear gauntlets when handling them. After cutting the surface will be very hot; do not touch it even whilst wearing gauntlets.

10. Never move the machine while the preheat flame is on.

2 LOCATIONS OF SAFETY LABELS

Safety labels and other labels for correct operation are affixed to the machine. Carefully read the labels and follow the instructions on them when operating the machine. Never remove the labels. Keep them clean and legible at all times.



OF MACHINE

3 OUTLINE

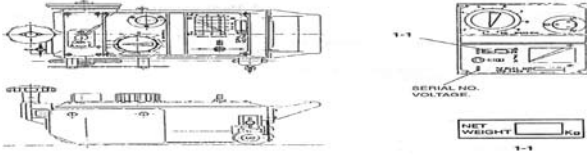
3.1 FEATURES OF MACHINE

This machine is equipped with a single cone speed changer (mechanical non-stage speed changer) to materialise substantial compactiveness and lightweight design. It has been based on the double cone speed changer that has been successfully used on other versions. The improved mobility and operability of the machine will contribute to the rationalisation and labour saving of the cutting operation.

3.2 NAME AND FUNCTION OF EACH SECTION

Locations of safety labels

Safety labels and other labels for correct operation are affixed to the machine. Carefully read the labels and follow the instructions on them when operating the machine. Never remove the labels. Keep them clean and legible at all times.

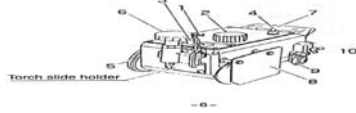


Outline of machine

3.1 Features of machine

This machine is equipped with a single cone speed changer (mechanical non-stage speed changer) to maintain substantial compactness and lightweight based on the double cone speed changer that has been successfully used. The improved transportability and operability will surely contribute to rationalization and labor-saving of cutting operation.

3.2 Name and function of each section



1. Metal receptacle

Used for connection of power cable to supply electric power.

2. Speed adjuster

Turn the knob clockwise, to increase the travel speed.

3. Clutch

The lever operation will stop driving.

4. Drive switch

Point the switch in the direction of the arrow to move the machine in that direction.

5. Drive wheel

Engage the clutch (ON) to transmit driving power and the machine will begin to travel.

6. Torch slide handle

This handle adjusts the lateral position of the torch.

7. Handle

Hold the handle to carry the machine, as well as for positioning.

8. Heat shield

The shield protects the machine from the heating flame.

9. Idle wheel

10. Case

3.3 SPECIFICATIONS

Weight:	7.0 Kg
One torch with body:	9.5 Kg
Two torch with body:	13 Kg
Machine size:	350 x 140 x 175mm
Wheel distance:	160mm
Power source:	110v ($\pm 10\%$)
Reduction gear:	Single cone system
Cutting speed:	150-800mm/mm
Cutting edge sharp:	1.V (45°)
Cutting thickness:	5-50mm (by standard accessories)
Motor:	1500 r.p.m

ACCESSORIES

Cabtyre code:	1 set
Tip:	ANM-L 1/32", 3/64", 1/16"
Weight:	1 pc (two torch set only)
Weight supporter:	1 pc (two torch set only)
Fitting:	1 pc (two torch set only)

OPTION

Rail:	1.8m Extra track (9503)
Circle rail:	
Circle cutting attachment:	

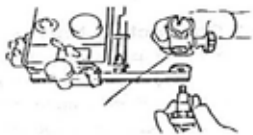
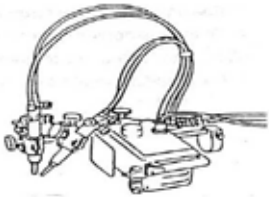
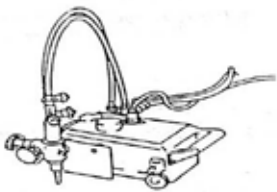
4 PREPARATION FOR OPERATION

4.1 CONTENTS OF PACKAGE

The contents of the standard package are shown below. Check them carefully before assembling the machine.

1. One torch set

Main unit:	1 set
Torch holder with rack:	1 set
Torch:	1 pc



Gas distributor: 1 pc

Hose, 600mm 2 pcs
 Cabtyre cord 5m: 1 pc
 Tip ANM 1/32", 3/64", 1/16": 3 pcs

2. Two torch set

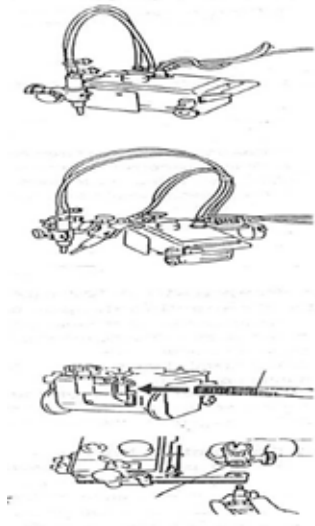
Main unit: 1 set
 Torch holder: 2 sets
 Torch: 2 pcs
 Gas distributor: 1 pc
 Weight: 1 pc
 Weight supporter: 1 pc
 Fitting: 1 pc
 Hose, 600mm (2pcs) and 900mm (2pcs): 4 pcs
 Cabtyre cord 5m: 1 pc
 Tip ANM 1/32", 3/64", 1/16": 6 pcs

4.2 MACHINE ASSEMBLY

1. Take the machine out gently from the case and place it on the rail.
2. Assemble the torch set parts in advance in the following order.

4.2.1 ONE TORCH SET

1. Insert the rack bar into the main unit in the

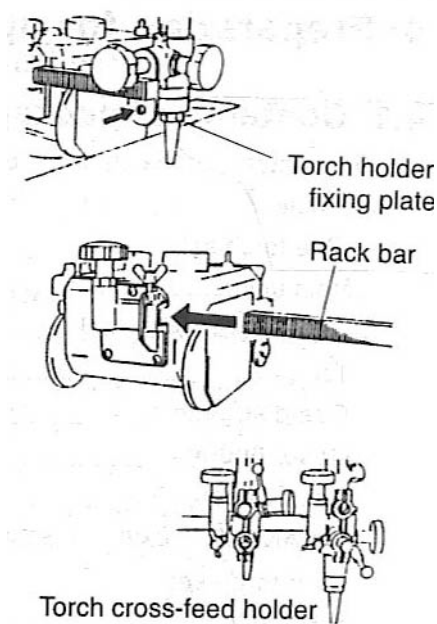


direction of the arrow.

2. Fit the torch holder into the rack bar.

3. Fit the torch into the torch holder and adjust the torch height setting.

4. Fit the hoses between the torch and distributor connection. (The blue hose has a right-hand thread and the red hose a left-hand thread.)



5. When the torch stroke is insufficient to cut the

plate beneath the rail when carrying out lower-edge preparation, change the torch holder to the position indicated by the arrow.

4.2.2 TWO TORCH SET

1. Insert the rack bar into the main unit in the direction of the arrow.

2. Fit the two cross-feed torch holders into the rack-bar.

3. Position and fix the torch holders in the cross-feed holders, then fit the torches.

4. Fit the distributor section onto the main unit and connect and 600mm and 900mm hoses from the distributor to the two torches.

5. Fix bracket, weight bar and



weight in that order.

Weight

Weight bar Fix bracket



4.3 PREPARATION FOR OPERATION

4.3.1 CONNECTING THE POWER CABLE

1. Connect the power cable to the body.

2. Before plugging the metal plug on the cable side into the socket on the machine side, check there is no dust inside.

3. The metal plugs are screw-threaded. Therefore, fully tighten them so that they will not come loose during operation.

4.3.2 CONNECTING THE GAS SUPPLY HOSE

1. Connect the respective gas supply hoses to the primary hose.
2. Securely tighten the joints and check there is no gas leak.

4.3.3 CONNECTING THE TIP

Select a proper tip according to the thickness of the steel plate and attach it to the torch. (To select a tip, refer to the table of cutting data.)

- When fixing a tip to the torch, tighten the nut with the two wrenches attached.
- If the tip is tightened excessively, it will be heated during cutting and become tighter, making it difficult to remove the tip.



- In addition avoid damaging the taper of the tip since this may cause backfire.

5 CUTTING OPERATION

5.1 SAFETY MEASURES PRIOR TO OPERATION

Strictly observe the safety rules, precautions and instructions to ensure safety during gas cutting operations. Operators and supervisors **MUST** keep safety in mind.



5.1.1 GROUNDING THE MACHINE

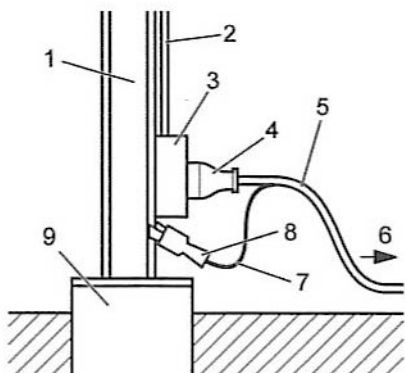


figure 5 - 1

The cable of this machine is

equipped with a grounding wire. For safety, be sure to ground the wire as follows (see figures 5-1):

- Connect the clip to the steel frame as shown in the diagram. If a grounding wire is already provided at the site, connect the clip to the wire.

1. Steel frame
2. Wiring pipe
3. Switch box
4. Rubber plug
5. Cabtyre cord
6. To the machine body
7. Ground wire
8. Clip
9. Concrete foundation

5.1.2 SELECTION OF TIP

Referring to the Cutting Data, select the suitable tip according to the plate thickness. For a heavily rusted plate or for a bevel cutting angle of more than 20° select the tip one grade higher than the one shown in the Cutting Data.



5.1.3 OPERATION OF RUNNING DIRECTION CHANGEOVER SWITCH

- By changing the direction switch, the machine can move forward and backward. The neutral position on the switch is the stop position of the machine.
- When changing the direction, make sure that the direction switch is in the neutral (stop) position, and operate the direction switch after the machine has stopped.
- Be sure that the switch is in the neutral position before starting the machine.
- Make sure that the switch is in the neutral position before turning the power on. If the switch is in the forward or backward position, the machine will start as soon as the power is turned on, which could cause serious accidents.
- Never put your hands in the space between the guide roller and rail, or between the body and the rail, while the machine is running.

5.2 IGNITION AND FLAME ADJUSTMENT

- Adjust the gas pressure according to the Cutting Data. The data shows the pressure when all the valves are open. Re-adjust the pressure after ignition.

Flame adjustment method

1. Open the fuel gas valve $\frac{1}{4}$ to $\frac{1}{2}$ a turn and light the torch with an igniter.
2. Then open the preheating oxygen valve gradually until a white cone of the standard flame has been obtained. (The incandescent area should be uniform and about 5-6mm (3/16-1/14") in length.)
3. Open the jet oxygen valve fully, re-adjust the flame if its condition has changed. A disorderly flow of the jet oxygen will adversely affect the quality of the cutting surface. In such cases clean the tip with a suitable tip cleaner while the jet oxygen is flowing.
4. Appropriate distance between the tip end and cutting surface:
 - Acetylene gas 8-10mm
 - LPG gas 5-8mm

5.3 CUTTING AND PIERCING METHOD

1. Cut in from the end of steel plate.
2. Pierce steel plate before cutting.
3. Drill a hole before cutting.

Piercing method

1. Ignite and adjust the flame.
2. Thoroughly preheat the cut-in point until it is white hot.
3. Open the cutting oxygen valve to pierce the steel plate. The tip should be about 15-20mm from the plate to prevent slag from splashing onto the tip and adhering there, which will shorten the working life of the tip.

5.4 PROCEDURES FOR STARTING CUTTING OPERATION AND EXTINGUISHING THE FLAME

1. Align the tip with the cutting start point, ignite and then adjust the flame.
2. Sufficiently preheat the cutting start point.
3. After preheating, supply oxygen and simultaneously turn on the motor switch or the turning direction switch to start cutting.
4. Carefully check the cutting condition and control the cutting speed with the speed adjuster. For the cutting speed, refer to the Cutting Data.
5. Extinguish the flame after cutting as follows:
 1. Turn off the motor switch (by turning direction switch)
 2. Close the cutting oxygen valve.
 3. Close the preheating oxygen valve.
 4. Close the fuel gas valve.



5.5 SAFETY MEASURES AGAINST BACKFIRE



AND FLASHBACK

5.5.1 PREVENTION OF BACKFIRE

Backfires may cause serious accidents or fires. Be careful to prevent such disaster. When a backfire occurs, find the cause and inspect and maintain the machine correctly before using the machine again.

The following are causes of backfire:

1. Improper gas pressure adjustment
2. Overheated tip
3. Slag clogged in tip
4. Damage to the tapered section of the tip or torch will cause backfire.



5.5.2 PREVENTION OF FLASHBACK

Flashback could cause fire and damage the machine. Should there be a hissing sound in the torch quickly take the following action:

1. Close the preheating oxygen valve.
2. Close the fuel gas valve.
3. Close the cutting oxygen valve.

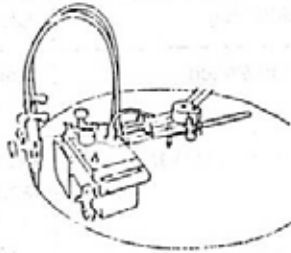
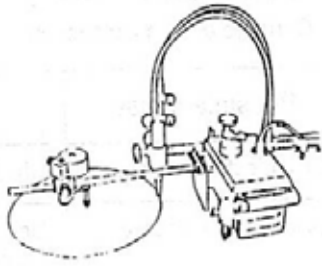
Should a flashback occur, find the cause and take the appropriate action before using the machine again.

5.6 CUTTING OPERATION

1. Attach the rail to the cutting position and align the tip with the cutting start point.
2. Bring a flame close to the tip for ignition and ensure sufficient preheating.
3. Simultaneously with opening the cutting oxygen valve, turn on the switch to start cutting.
4. While checking the cutting condition, select the optimal cutting speed with the speed adjuster.
5. After cutting, turn off the switch and close the cutting oxygen valve, fuel gas valve and preheating oxygen valve in this order.

*Thereafter, repeat operations from step 1.

5.7 SET UP CIRCLE CUTTING ATTACHMENT



Option

1. Attach the respective parts, as shown in the figure for cutting small and large circles.
2. Adjust the height of the centre by the pivot pin so that the drive wheel at the centre side can float 1mm above the work piece.
3. Align the pivot pin with the centre of the circle.
4. Fix the weight as close as possible to the pivot pin.
5. Loosen the butterfly bolt and fix the idle wheel to an angle suitable to the cutting radius.

5.8 CIRCLE RAIL

Round rails are available upon request.
For details, contact the nearest sales office.

6 MAINTENANCE AND INSPECTION

Refer to the following for inspection and maintenance of the machine to use the machine under the best operating conditions at all times.

6.1 DAILY INSPECTION

1. Wipe the exterior of the machine with a clean cloth.
2. Oil the axles and castors as necessary.
3. Wipe the circumference of the driving wheel with a cloth impregnated with oil.

6.2 MONTHLY INSPECTION

1. Oil the torch slide handle shaft and clutch lever shaft.
2. Measure insulation resistance in the following manner, set the switch in the forward or backward position and measure the resistance between one end of the power receptacle and the metallic part of the case. If the resistance is 5 K Ω or more, there is no problem.
3. Disconnect the operation panel and remove dust from the electric equipment parts.

6.3 3-MONTH (2000-HOUR) INSPECTION

1. Remove the motor and speed change cone, replace the old grease inside the gear box with new grease.
2. Replace the internal parts when they are substantially worn.
3. Completely remove oil, if any, from the motor disc and speed change cone of the speed changer with thinners, etc.

7 TROUBLE SHOOTING

Note: If the motor does not rotate even after having been repaired, check that wiring is correct.

Repairs are only to be conducted by a qualified professional

1. Carriage does not move (Motor does not run)

Possible cause	Action	Solution
Power is off	Check the power source and wire connection	
Broken power cord	Check the cord with a circuit tester	Repair or replace
Defective plug	Check wire soldering	Perform soldering
Defective switch	Remove the mid terminal and test the switch	Replace
Defective condenser	Check the condenser with a tester. If the tester handle vibrates slightly and shows immediately, the condenser is functioning properly	Replace
Defective soldering	Check soldered parts	Perform soldering again
Broken lead wire	Check lead wire with tester	Replace
Defective motor	If the test results of all the above tests are normal, cause lies in motor	Repair or replace

- 2 Carriage does not move (Motor runs)

Possible cause	Action	Solution
Faulty clutch	Remove the clutch and check the inside mechanism	Mount clutch properly, or replace
Slippage on frictional surface	See that pressure adjusting spring is working and that there is no oil sticking to frictional surface	Replace if spring is defective. Remove oil, using thinner if frictional surface is stained with oil

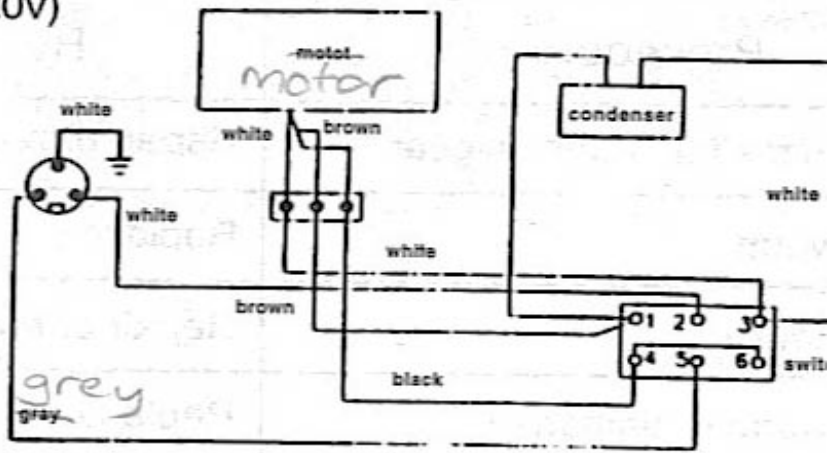
3. Abnormal carriage

Possible cause	Action	Solution
1. Severe vibration and noise	1) Foreign matter caught in gear	Repair or replace
	2) Gear worn	Replace
	3) Motor faulty	Repair or replace
	4) Cone worn or damaged	Replace
2. No disengaging	Snap ring of the clutch pin is off	Replace
3. Knocks	1) Gear worn	Replace worn gear
	2) Faulty clutch pin	Replace faulty pin
	3) Clutch key worn	Replace worn key
	4) Loose shaft or drive wheel	Repair or replace
	5) Worn or damaged cone	Replace
	6) Heat shield touched to the work surface or rail	Exercise caution
	7) Damaged rail or foreign objects on rail	Repair or clean
	8) Hoses or power cord interferes with carriage movement	Exercise caution during operation
	9) Faulty idle wheel	Repair or replace
	10) Foreign matter is attached to drive wheel, or this wheel is damaged	Repair or replace

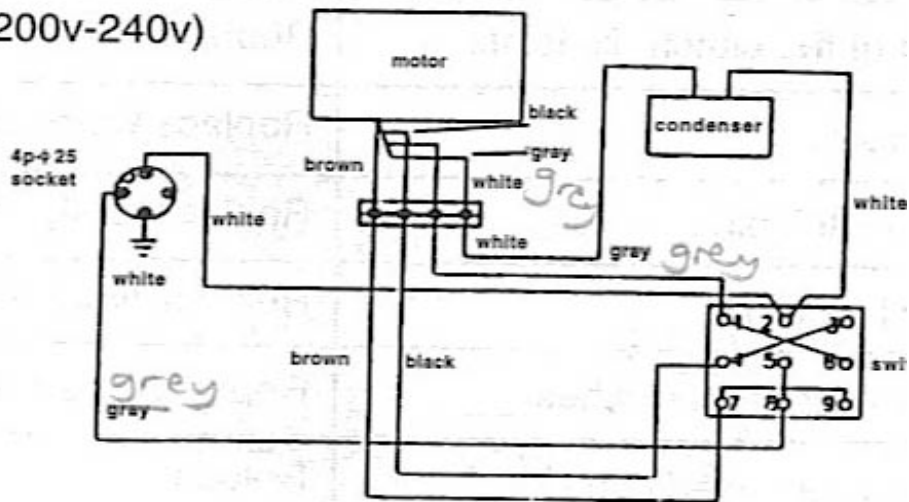
8 WIRING DIAGRAM

(100V-120V)

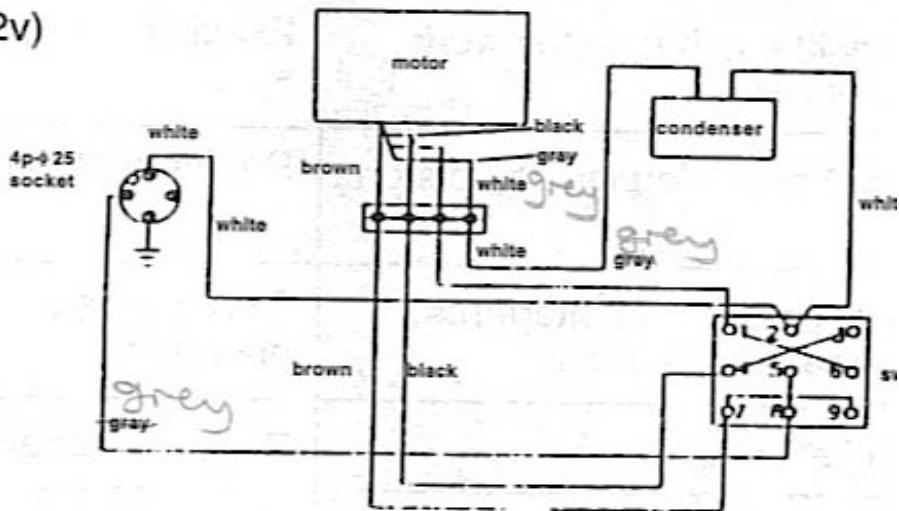
(100v-120v)



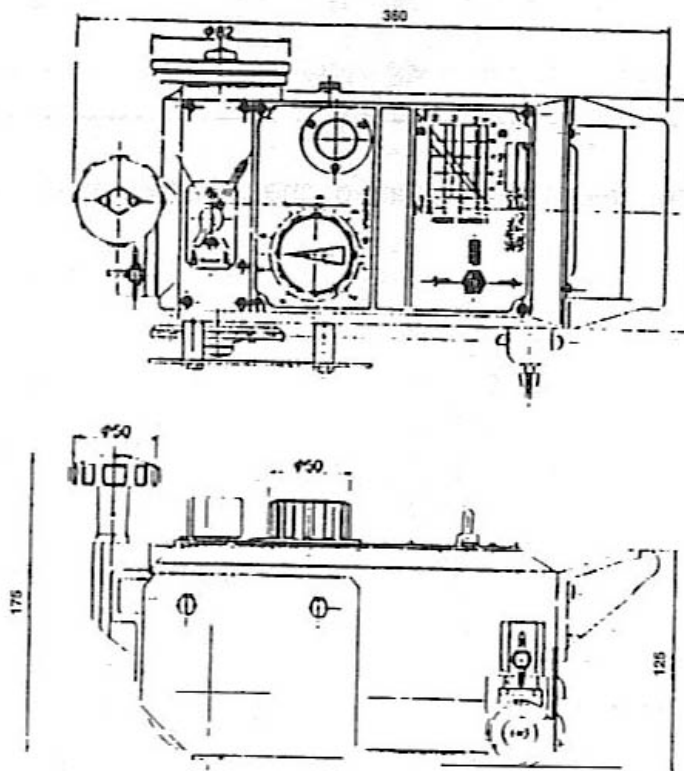
(200v-240v)



(42v)



9 ASSEMBLY DRAWING

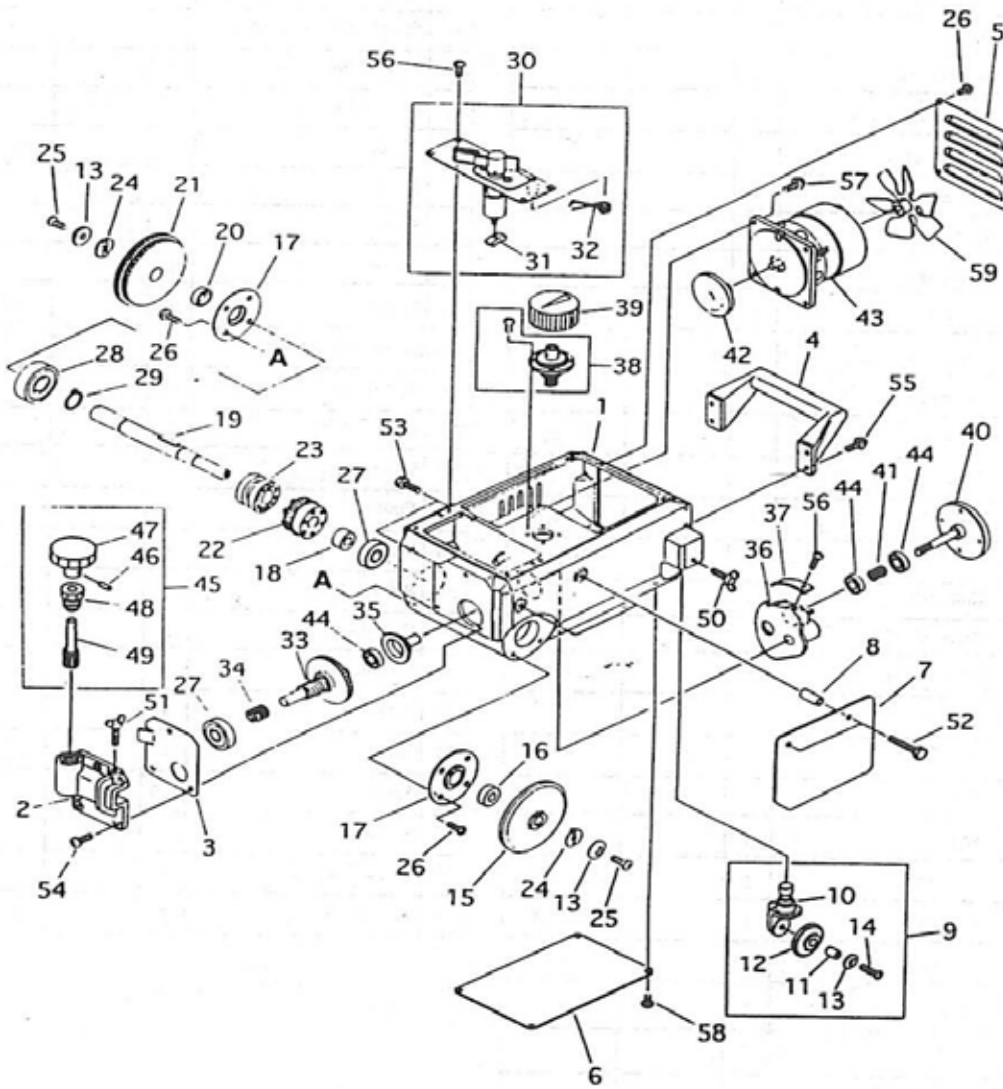


10 PARTS LIST

10.1 MAIN UNITS

10 Parts list

10.1 Main units

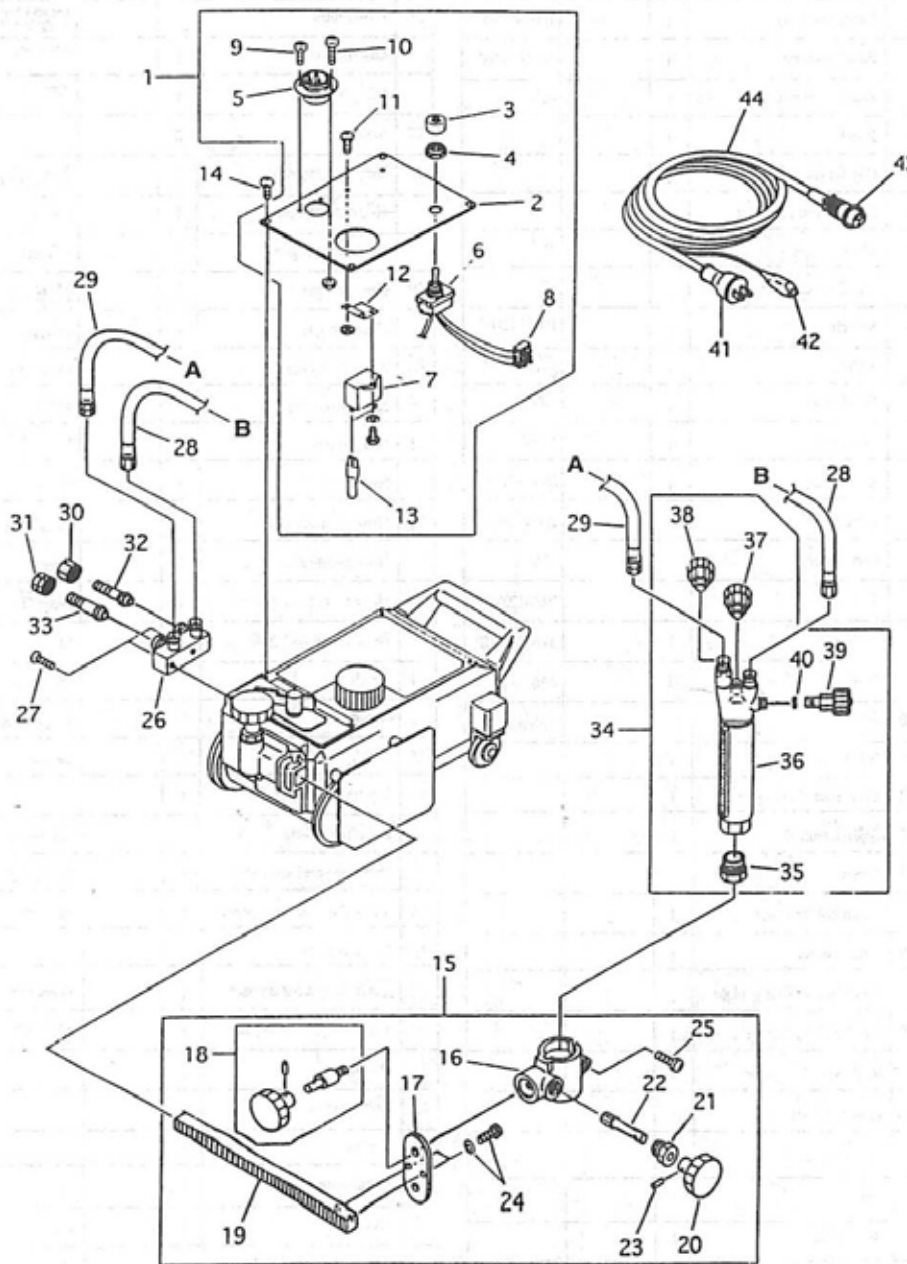


10.1 MAIN UNITS

ITEM NO	PART NAME	QTY	REMARKS
1	Case	1	
2	Cross feed holder	1	
3	Cross feed liner	1	
4	Handle	1	
5	Fan cover	1	
6	Bottom plate	1	
7	Heat shield	1	
8	Heat shield collar	2	
9	Idle wheel unit	1	
10	Idle wheel bracket	1	
11	Roller shaft	1	
12	Roller shaft	1	
13	Washer	1	
14	Screw	1	
15	Idle wheel	1	
16	Collar (A)	1	
17	Bearing retainer	2	
18	Collar (B)	1	
19	Drive wheel shaft	1	With key
20	Collar (C)	1	
21	Drive wheel	1	
22	Worm wheel	1	
23	Clutch	1	
24	Washer	2	
25	Screw	2	
26	Screw	2	
27	Bearing	2	
28	Bearing	1	
29	Stop ring	1	
30	Clutch lever assembly	1	
31	Slider	1	
32	Clutch spring	1	
33	Worm shaft assembly	1	
34	Worm spring	1	
35	Speed adjusting shaft	1	
36	Speed adjusting bracket	1	
37	Rack	1	
38	Speed adjusting handle	1	
39	Speed adjusting knob	1	
40	Speed adjusting cone assembly	1	
41	Cone spring	1	
42	Motor disk	1	
43	Motor	1	100V-120
	Motor	1	200V-220
	Motor	1	230V-240
	Motor	1	42V
44	Bearing	1	
45	Cross feed pinion unit	1	
46	Spring pin	1	
47	Handle (Ø 40)	1	
48	Pinion collar	1	
49	Pinion	1	
50	Wing bolt	1	
51	Wing bolt	1	
52	Hexagon bolt	2	
53	Screw	2	
54	Screw	3	
55	Screw	4	With spring washer
56	Screw	10	
57	Screw	4	
58	Screw	8	
59	Motor fan	1	With screw

10.2 ELECTRICAL, GAS AND TORCH SLIDE HOLDER UNITS

10.2 Electrical, gas and torch slide holder units

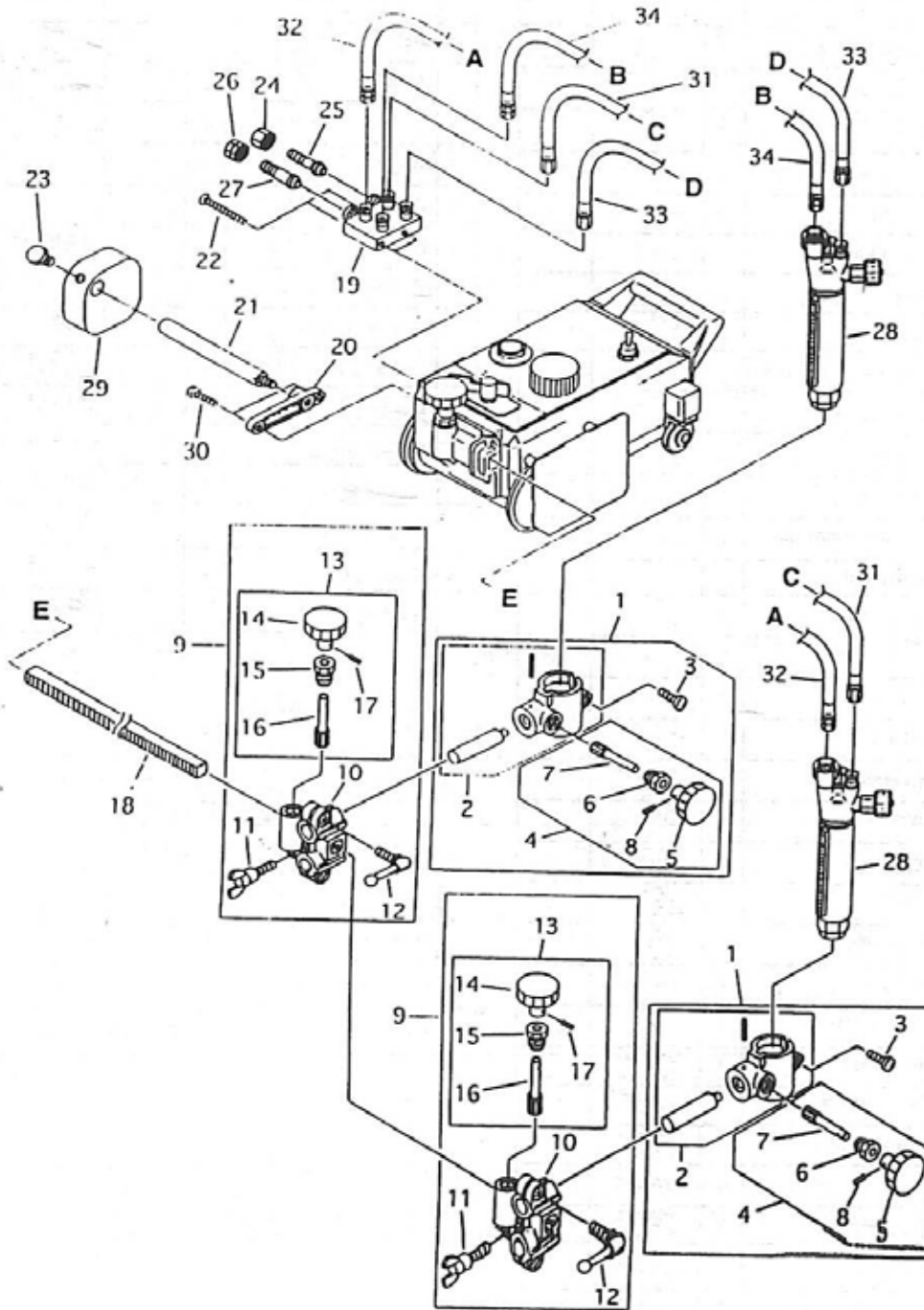


10.2 ELECTRICAL, GAS AND TORCH SLIDE HOLDER UNITS

ITEM NO	PART NAME	QTY	REMARKS
1	Panel assembly	1	100V-240V
	Panel assembly	1	200V-240V
	Panel assembly	1	42V
2	Panel	1	
3	Cap for dust protector	1	
4	Nut for dust protector	1	
5	Metal socket	1	3P
	Metal socket	1	4P
6	Switch	1	100V-120V
	Switch	1	200V-240V
			42V
7	Condenser	1	100V
	Condenser	1	120V
	Condenser	1	200V-220V
	Condenser	1	230V-240V
	Condenser	1	42V
8	Terminal	1	100V-120V 3P
	Terminal	1	200V-240V 4P
9	Screw	2	With nut
10	Screw	1	With nut
11	Screw	2	
12	Condenser fixing plate	1	
13	Terminal	2	
14	Screw	4	
15	Torch holder assembly	1	
16	Torch holder	1	
17	Torch holder fixing plate	1	
18	Holder fixing handle	1	
19	Rack bar	1	
20	Handle (Ø 40)	1	
21	Pinion metal	1	
22	Pinion	1	
23	Spring pin	1	
24	Hexagon bolt	2	With WS
25	Screw	1	
26	Distributor	1	
27	Screw	2	
28	Hose for oxygen	1	
29	Hose for gas	1	
30	Nut for oxygen	1	
31	Nut for gas	1	
32	Hose connector (ox)	1	
33	Hose connector (gas)	1	
34	Torch	1	
35	Torch	1	
36	Tip fixing nut	1	
37	Rack for beetle	1	With screw
38	Valve for preheat oxygen	1	
39	Valve for gas	1	
40	Valve for jet oxygen	1	
41	O-ring	1	
42	Rubber plug	1	
43	Earth clip	1	
	Metal plug	1	4P
	Metal plug	1	4P
44	Cabtyre cord assembly	1	4P
	Cabtyre cord assembly	1	4P

10.3 TWO TORCH UNIT

10.3 Two torch unit



10.3 TWO TORCH UNIT

ITEM NO	PART NAME	QTY	REMARKS
1	Torch holder assembly	2	
2	Torch holder	2	
3	Screw	2	
4	Torch up/down handle	2	
5	Handle (Ø 40)	2	
6	Pinion metal	2	
7	Pinion	2	
8	Spring pin	2	
9	Torch cross feed holder	2	
10	Cross feed holder	2	
11	Wing bolt	2	
12	Crank handle	2	
13	Cross feed pinion unit	2	
14	Handle (Ø 40)	2	
15	Pinion metal	2	
16	Pinion	2	
17	Spring pin	2	
18	Rack bar	1	
19	Distributor	1	Europe
20	Fitting	1	
21	Weight supporter	1	
22	Screw	2	
23	Hexagon bolt	1	
24	Nut for oxygen	1	
25	Hose connector (ox)	1	
26	Nut for gas	1	
27	Hose connector (gas)	1	
28	Torch	2	
29	Weight	1	
30	Hexagon bolt	2	
31	Hose for oxygen	1	
32	Hose for gas	1	
33	Hose for oxygen	1	
34	Hose for gas	1	

11 CUTTING DATA

Standard speed for propane.

Metric System

PLATE THICKNESS (mm)	TIP SIZE	CUTTING SPEED (mm/min)	OXYGEN PRESSURE (kg/cm ²)		FUEL GAS PRESSURE (kg/cm ²)	KERF WIDTH (mm)
			Cutting	Preheat		
3	1/32	680	1.5	1.5	0.2	1.0
6	1/32	610	2.0	2.0	0.2	1.3
10	3/64	560	2.0	2.0	0.2	1.5
12.5	3/64	530	2.5	2.5	0.2	1.8
19	3/64	460	3.0	3.0	0.25	2.0
25	1/16	430	3.0	3.0	0.25	2.0
38	1/16	355	3.0	3.0	0.25	2.3
50	1/16	320	3.0	3.0	0.25	2.8
60	1/16	280	4.0	4.0	0.3	3.0
75	1/16	250	4.0	4.0	0.3	3.0
100	5/64	200	4.0	4.0	0.3	3.6
125	5/64	180	4.0	4.0	0.4	3.6
150	3/32	150	4.5	4.5	0.4	4.1
200	1/8	130	4.5	4.5	0.4	4.3
250	1/8	80	4.5	4.5	0.4	5.6
300	1/8	50	4.5	4.5	0.4	6.6

Imperial System

PLATE THICKNESS (inches)	TIP SIZE	CUTTING SPEED (inch/min)	OXYGEN P.S.I.G (kg/cm ²)		FUEL GAS P.S.I.G (kg/cm ²)	KERF WIDTH (inches)
			Cutting	Preheat		
1/8	1/32"	27	20	20	2.8	0.04
1/4	1/32"	24	30	30	2.8	0.05
3/8	3/64"	22	30	30	2.8	0.06
1/2	3/64"	21	40	40	2.8	0.07
3/4	3/64"	18	45	45	3.6	0.08
1	1/16"	17	45	45	3.6	0.08
1-1/2	1/16"	14	45	45	3.6	0.09
2	1/16"	12.5	45	45	4.3	0.11
2-1/2	1/16"	11	55	55	4.3	0.12
3	1/16"	10	55	55	4.3	0.12
4	5/64"	8	55	55	5.7	0.14
5	5/64"	7	55	55	5.7	0.14
6	3/32"	6	65	65	5.7	0.16
8	1/8"	5	65	65	5.7	0.17
10	1/8"	3	65	65	5.7	0.23
12	1/8"	2	65	65	5.7	0.27

- Note: 1. All pressures are torch inlet pressures
 2. Oxygen purity is minimum of 99.7%; propane is minimum of JIS Grade 3.
 3. Depending on the surface condition of the steel plate (scale, paint) either increase the fuel gas pressure decrease cutting speed. When precision cutting is required, adjust all data.

Standard speed for acetylene

Metric System

PLATE THICKNESS (mm)	TIP SIZE	CUTTING SPEED (mm/min)	OXYGEN PRESSURE (kg/cm ²)		FUEL GAS PRESSURE (kg/cm ²)	KERF WIDTH (mm)
			Cutting	Preheat		
3	1/32	680	1.5	1.5	0.2	1.0
6	1/32	610	2.0	2.0	0.2	1.3
10	3/64	560	2.0	2.0	0.2	1.5
12.5	3/64	530	2.5	2.5	0.2	1.8
19	3/64	460	3.0	3.0	0.2	2.0
25	1/16	430	3.0	3.0	0.2	2.0
38	1/16	355	3.0	3.0	0.2	2.3
50	1/16	320	3.0	3.0	0.25	2.8
60	1/16	280	4.0	4.0	0.3	3.0
75	1/16	250	4.0	4.0	0.3	3.0
100	5/64	200	4.0	4.0	0.35	3.6
125	5/64	180	4.0	4.0	0.35	3.6
150	3/32	150	4.5	4.5	0.4	4.1
200	1/8	130	4.5	4.5	0.4	4.3
250	1/8	80	4.5	4.5	0.4	5.6
300	1/8	50	4.5	4.5	0.4	6.6

Imperial System

PLATE THICKNESS (inches)	TIP SIZE	CUTTING SPEED (inch/min)	OXYGEN P.S.I.G (kg/cm ²)		FUEL GAS P.S.I.G (kg/cm ²)	KERF WIDTH (inches)
			Cutting	Preheat		
1/8	1/32"	27	20	20	2.8	0.04
1/4	1/32"	24	30	30	2.8	0.05
3/8	3/64"	22	30	30	2.8	0.06
1/2	3/64"	21	40	40	2.8	0.07
3/4	3/64"	18	45	45	2.8	0.08
1	1/16"	17	45	45	2.8	0.08
1-1/2	1/16"	14	45	45	2.8	0.09
2	1/16"	12.5	45	45	3.6	0.11
2-1/2	1/16"	11	55	55	4.3	0.12
3	1/16"	10	55	55	4.3	0.12
4	5/64"	8	55	55	5.0	0.14
5	5/64"	7	55	55	5.0	0.14
6	3/32"	6	65	65	5.7	0.16
8	1/8"	5	65	65	5.7	0.17
10	1/8"	3	65	65	5.7	0.23
12	1/8"	2	65	65	5.7	0.27

Note: 1. All pressures are torch inlet pressures.

2. Oxygen purity is minimum of 99.7%

3. Depending on the surface condition of the steel plate (scale, paint), either increase the fuel gas pressure or decrease cutting speed. When precision cutting is required, adjust all data.