

4.2 Machine assembly

- 1 Carefully take the machine out of its case.
- 2 Attach the primary hose to the gas distributor.

Oxygen hose (green) to the top position hose nipple. Hose (1) in figure 4 - 1.

Gas hose (red) to the bottom position hose nipple. Hose (2) in figure 4 - 1.

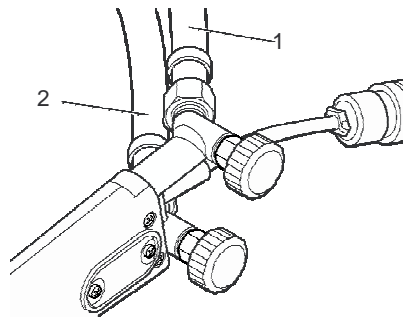


figure 4 - 1

4.3 Preparation for operation

4.3.1 Connecting the power cable



Caution

Before connection, check that there is no foreign substances or dust.

- 1 Connect the metal plug on the AC adapter side with the metal receptacle on the machine side.
- 2 Fully tighten the screw-threaded metal plugs, so that they will not come loose during operation.

4.3.2 Adjusting the nozzle

The HANDY AUTO PLUS is suitable for both Propane and Acetylene. Depending on the gas sort, the cover on the nozzle has to be set. Check before use if the position of the cover is correct:

- 1 Remove two screws so that the cover of the nozzle is removed

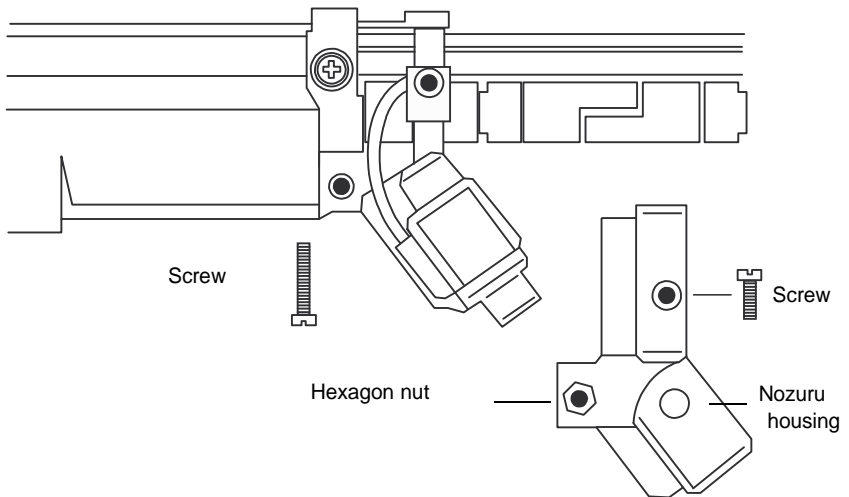


figure 4 - 2

- 2 Check the position of the cover and adjust if necessary.

Setting the cover is conducted as follows:

- 1 Loosen the fixation screw.
- 2 Move the cover fully in the desired direction.
- 3 Check if the opening is open or closed:
for acetylene the opening has to be visible,
for propane the opening has to be covered.
- 4 Fasten the fixation screw.

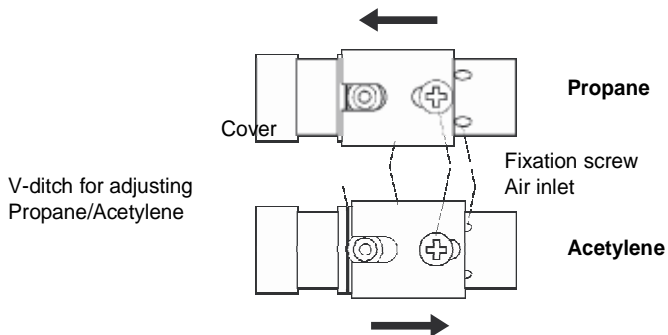


figure 4 - 3

4.3.3 Connecting the tip



Warning

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

- 1 Select a proper tip according to the thickness of the steel plate and attach it to the torch. (To select a tip, refer to table of cutting data.)
- 2 Attach the tip to the torch.
- 3 Tighten the nut with the two attached wrenches to fix the tip to the torch.

Note:

Tightening the tip excessively will make it difficult to remove the tip, since it will be heated during cutting and tighten more.

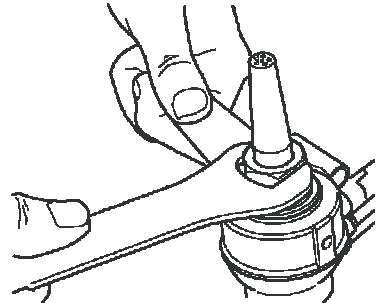


figure 4 - 4

4.3.4 Installing the wheel



Caution

Be careful not to get your fingers caught while attaching the wheel.



- 1 Insert the wheel bracket shaft into the gear cover.
- 2 Pull up spring lever and hang it on the stopper.

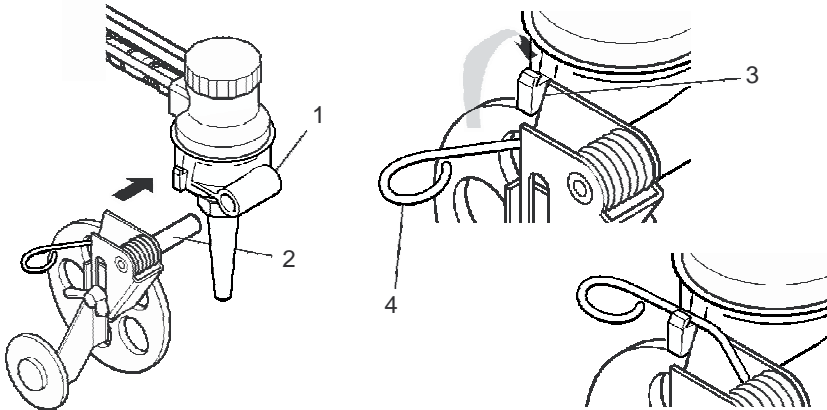


figure 4 - 5

1. Cover
2. Bracket shaft
3. Stopper
4. Spring

4.3.5 Fitting the wheel

As the wheel rotates a full 360 degrees from the centre of the tip, all direction cutting is possible. Decide the position of the wheel as you like according to the material to be cut or for your positional comfort during the cutting operation (see figures 4 - 6 and 4 - 7).

- 1 Loosen the wheel setting knob a little.
- 2 Set the position.
- 3 Tighten the knob up well.

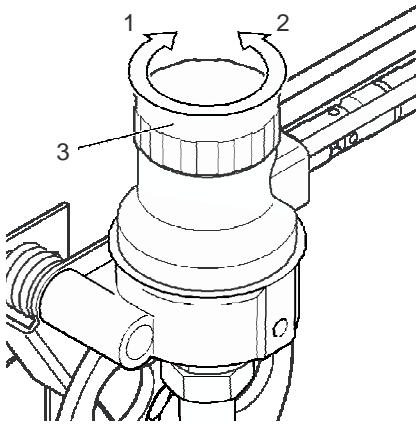


figure 4 - 6

1. Direction for tightening
2. Direction for loosening
3. Position setting knob

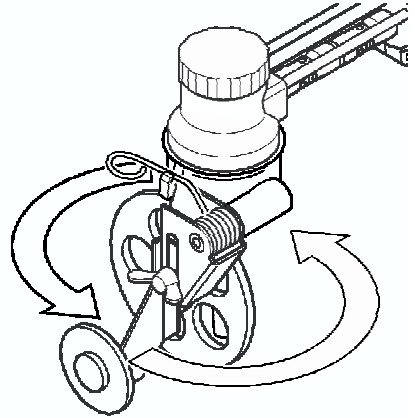


figure 4 - 7

4.3.6 Cutting process

Open the jet oxygen valve more than 1/8 turn (see figure 4 - 8). This starts the motor, as the drive switch and the jet oxygen valve are linked together. Both the drive switch and the jet oxygen valve, however, can operate independently.

1. Valve for jet oxygen
2. Drive switch

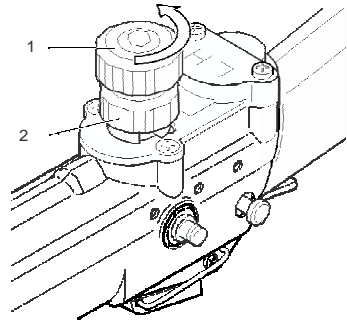


figure 4 - 8

4.3.7 Speed setting

- 1 Adjust the cutting speed with the speed adjustment knob according to the thickness of the material immediately after the wheel has started rotating.
- 2 Turn the knob toward the H to increase the cutting speed and to L to decrease.

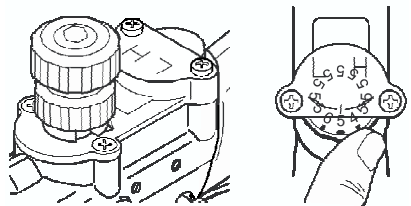


figure 4 - 9

4.3.8 Changing over direction of motor rotation

- 1 Stop the motor before hand.

Note:

Not stopping the motor will shorten the service life of the motor or may cause the fuse to blow.

- 2 Push and hold the button on the left side of the main unit until you hear a click.
- 3 Alter the direction of motor rotation.

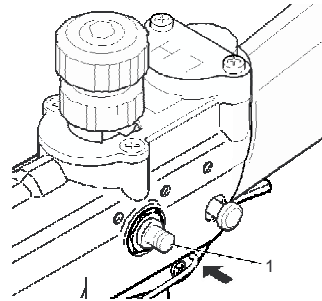


figure 4 - 10

4.3.9 How to use the guide roller

A guide roller is attached to the side of the wheel to stabilize the tip angle.

- 1 Loosen the wing bolt to adjust the height of the guide.
Set it in the lower position for right-angle cutting.
Select a proper height for bevel cutting in accordance with the angle to incline the machine.
- 2 Fasten the wing bolt.

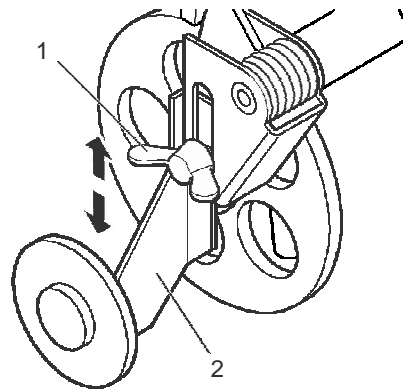


figure 4 - 11

4.4 Other attachments

4.4.1 Installing the auxiliary wheel

The auxiliary wheel is used to add further stability to the cutting operation.

- 1 Lift the guide roller of the square cutting attachment from the cutting material.
- 2 Fix the wheel with a wing screw.

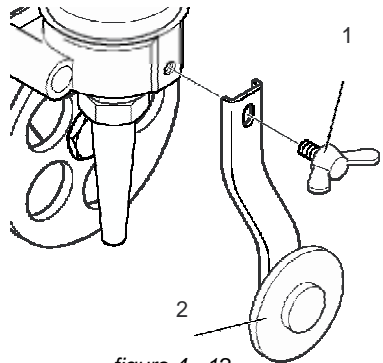


figure 4 - 12

1. wing bolt
2. auxiliary wheel

4.4.2 Installing the beveling wheel

The beveling wheel is used for bevel cuts at an angle range of 22° - 45°. For beveling the use of the straight line cutting rail is recommended, as this will give more stability than a hand-held operation.



Caution

In bevel cutting at a comparatively large angle, watch out for slip caused by dragging hoses or the condition of the material.

- 1 Remove the square cutting attachment.
- 2 Loosen the guide roller fixing wing bolt.
- 3 Adjust the position of the guide roller (see also 4.3.9).
- 4 Set the bevel angle.

Note:

For large angle beveling, use a tip one grade larger than that for straight cutting or preheat more thoroughly.

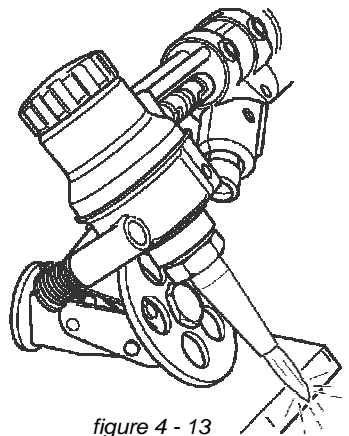


figure 4 - 13

4.4.3 Small circle cutting attachment

The small circle cutting attachment is used for cutting small circles of 30 - 120 0 mm. During the circle cutting operation there may be fluctuations in the cutting speed. These are caused by hose drag, changes in the way or position the machine is held and the like being transmitted to the rotation mechanism.

- 1 Remove the square cutting attachment.
- 2 Loosen the wheel setting knob.
- 3 Fasten the clutch knob to the gear cover firmly. When not cutting circles loosen or remove the clutch knob.
- 4 Loosen the radius setting knob.
- 5 Set the cutting radius.
- 6 Tighten the radius setting knob.
- 7 Put the drive switch to ON.
- 8 Adjust the cutting speed.
- 9 The circle cutting attachment can be operated manually, by loosening the clutch knob.

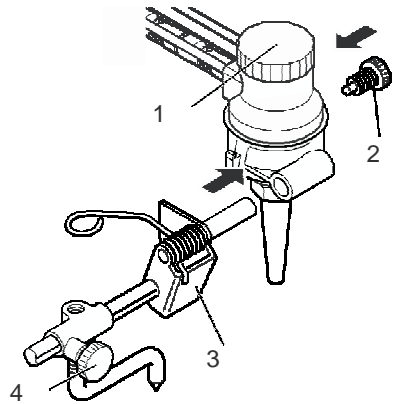


figure 4 - 14

Decide the initial cutting position and set the attachment firmly in position.

1. position setting knob
2. clutch knob
3. stopper
4. radius setting knob

When you start a cut by piercing, open the jet oxygen valve slowly after preheating to prevent cutting errors.

Setting the cutting speed

The cutting speed is different for the diameter and the plate thickness of the material to be cut.

The specification range of the Handy Auto II is between 1.2 - 4.2 rotations per minute and has to be set according to the table below.

thickness (mm)		5	5 - 10	10 - 15	15 - 30
speed (mm/min)		660	550 - 660	490 - 550	400 - 490
Diameter (mm)	30	-	-	-	4,24
	40	-	-	3,90	3,18
	50	4,20	3,50	3,12	2,55
	60	3,50	2,92	2,60	2,12
	70	3,00	2,50	2,23	1,82
	80	2,63	2,19	1,95	1,59
	90	2,33	1,95	1,73	1,41
	100	2,10	1,75	1,56	1,27
	120	1,75	1,46	1,30	1,06
	140	1,50	1,25	1,11	-
	160	1,31	1,09	-	-
	180	1,17	-	-	-
	200	1,05	-	-	-

The speeds in this table are based on the use of a straight tip. On using a different type of type, it might be necessary to deviate from the table. The indicated speed is dependent on the condition and quality of the material, gas pressure etc. Carefully observe the quality of the cut and adjust the speed if necessary.

4.4.4 Straight line cutting rail (optional)

The straight line cutting rail is used for precise straight-line cutting.

- 1 Loosen the wing screw.
- 2 Adjust the position of the magnet along the slot in the rail bracket according to the size of the material.
- 3 Set the rail parallel with the cutting line.
- 4 Put the guide roller in the groove on the rail.

Be careful to maintain a horizontal grip position otherwise the guide roller may come off the groove, spoiling the cut surface.

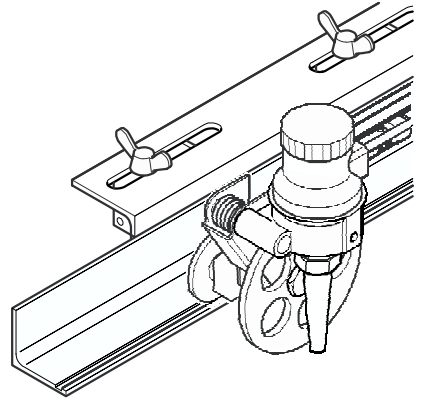


figure 4 - 15

4.4.5 Manual guide lever

The manual guide lever is applied to obtain further stability during the cutting operation. The use in combination with an auxiliary wheel is recommended.

- 1 Remove the wheel setting knob.
- 2 Insert the guide lever into position.

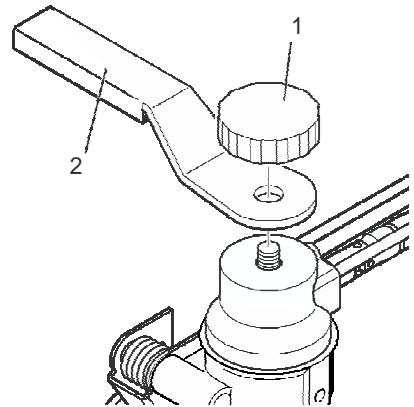


figure 4 - 16

4.4.6 Large circle cutting attachment (optional)

The large circle cutting attachment is used for cutting small circles of 120 -150 0mm. Use the standard wheel for cutting large circles.

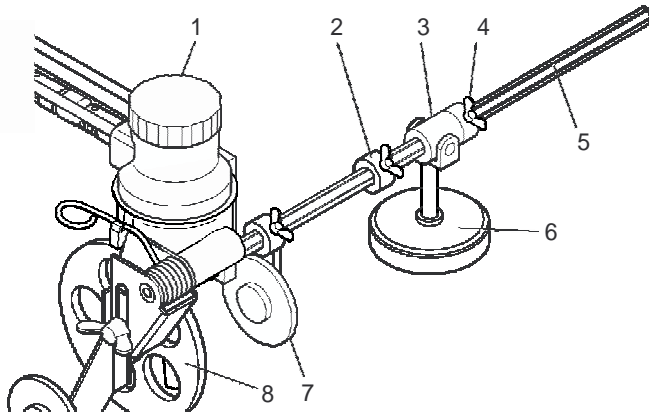


figure 4 - 17

1. wheel position setting knob
2. stopper
3. adjustable holder
4. radius fixing bolt
5. 500 dia. bar
6. magnet
7. guide roller
8. standard wheel

- 1 Raise the guide roller so that it will not touch the steel plate.
- 2 Fix the 500 dia. bar to the main unit with a wing bolt.
- 3 Loosen the wheel position-fixing knob.
- 4 Use a magnet center to set the magnet in the center of the circle to be cut.
- 5 Set the adjustable holder in the magnet.
- 6 Loosen the radius fixing bolt.
- 7 Adjust the cutting radius.
- 8 Fasten the radius fixing bolt.
- 9 Turn on the drive switch.

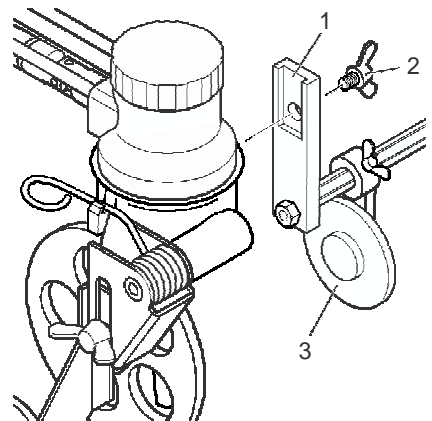


figure 4 - 18

- 10 Adjust the speed.
- 11 Raise the main unit {standard wheel) from the steel sheet to move the main unit to any desired point on the circumference. Determine the cutting start position in this way.

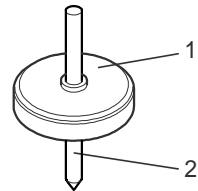


figure 4 - 19

- 12 Operation hereafter is similar to the line cutting operation. Open the cutting oxygen valve - the standard wheel is driven automatically - to start circle cutting.

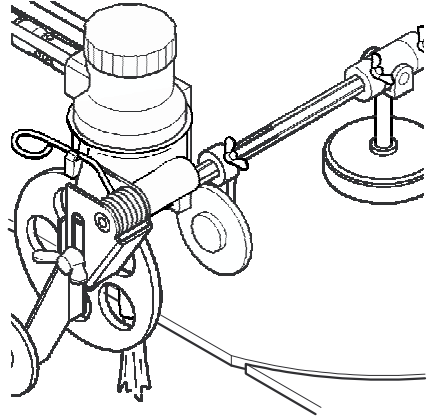


figure 4 - 20

Note:

- Loosen the wheel position-fixing knob to cut out circles with a large circle cutting compass.
- The drive wheel may go beyond a steel sheet when cutting its edge. Therefore, use a support roller as a manual guide for cutting.
- Remove the support roller for cutting out circles of 150 dia. or less.

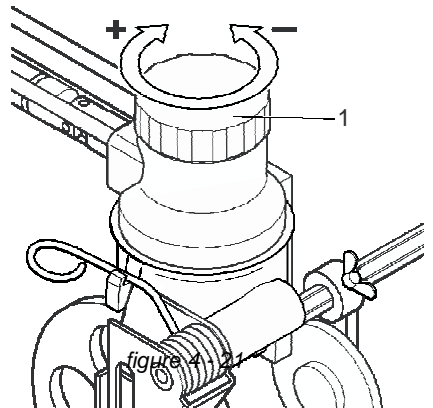


figure 4 - 21

5 Cutting 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 Safety measures prior to operation

5.1.1 Precautions for handling AC adapter

- The **adapter** cannot be repaired. When it has failed, replace the **adapter** with a new one.
- The case of the AC adapter is made from synthetic resin.
 - Do not place the case in a hot place.
 - Do not drop a heavy object onto the case.
- Make sure that the supply voltage is correct. The operating voltage is 115/230 VAC \pm 10%.
- Make sure the equipment is grounded.



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 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 Running direction changeover switch



Danger

Be sure to check that the drive knob is in the stop position before turning on the power. If the drive knob is on, it is dangerous to start the machine.

The traveling direction changeover switch on the machine is used to change forward / backward movement for linear cutting and clockwise / counterclockwise turning for circular cutting.

5.1.4 To change the traveling direction:

- 1 Check the traveling direction or turning direction before cutting.
- 2 Return the drive knob to the stop position.
- 3 Wait till the machine has stopped completely,

- 4 Change the traveling direction.

5.2 Ignition, Flame adjustment and extinguishing flame

5.2.1 Gas supply

- 1 Connect the oxygen and gas hoses to the HANDY AUTO PLUS.
- 2 Set the gas pressure:
Oxygen: Set the pressure at 0.1 Mpa (15 PSI) higher than required for the tip used.
Propane: Set the pressure between 0.04 -0.06 MPa (6 - 8 PSI)
Acetylene: Set the pressure between 0.04 -0.06 MPa (6 - 8 PSI).
- 3 Check all connections for leakage.

5.2.2 Procedure of ignition

- 1 Turn off the POX and FG valves.
- 2 Operate the ignition lever that is located under the gas distribution unit of the HANDY AUTO PLUS.
 - Gas should be coming from the nozzle and you should be able to hear the sparks of the automatic ignition.
 - In case of first use, there can be air in the gas hoses. Under these conditions the ignition will fail.
 - In that case the gas valve must be opened and the ignition lever be pulled. Let the gas blow out for a while. Make sure that there is no fire in the environment.
(Blowing out gas for a longer period is dangerous, limit this to two or three times.)
- 3 When the pilot flame is generated, open the gas valve on the distribution unit. The cutter will ignite.
- 4 If tip is burning, the ignition lever can be released.
Although the pilot nozzle will close the FG and POX valves on the gas distribution unit the gas valves for FG and POX have to be set properly since they will hold on to the setting ON (see "Flame adjustment method" on page 33).
- 5 The flame will burn continuously, even on touching the gas and/or oxygen valves uncontrolled. In case the flame does change the valves were not disconnected correctly. Disconnecting the valves is conducted by pulling the valves up and turning them half a turn, towards the flame adjustment.
- 6 Ignition for the second time.

- If the ignition lever is pulled fully, the pilot flame will ignite automatically. The FG and POX valves on the gas distribution unit set the flame.
- When set, pulling the ignition lever suffices, the pilot flame will ignite automatically.
- As soon as the ignition lever is released, the pilot flame goes OFF.

5.2.3 Flame adjustment method

- 1 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 - 6 mm in length.
- 2 Open the cutting oxygen valve fully.
- 3 Readjust the flame if its condition has changed.

A disorderly flow of the cutting oxygen will adversely affect the quality of the cutting surface. In such a case, the cutting oxygen channel has to be cleaned.

- 1 Close both the gas and the preheat oxygen valves before cleaning the cutting oxygen.
- 2 Clean the tip with a suitable cleaning needle while the cutting oxygen is flowing.

Neutral flame ensures a good quality cut surface. (Oxidized flames may be used for bevel cutting.) The oxidized flame shortens the jet oxygen flow, causing slug deposition or melting the upper edge of the cut surface. Excessively high jet oxygen pressure will cause the same effect.

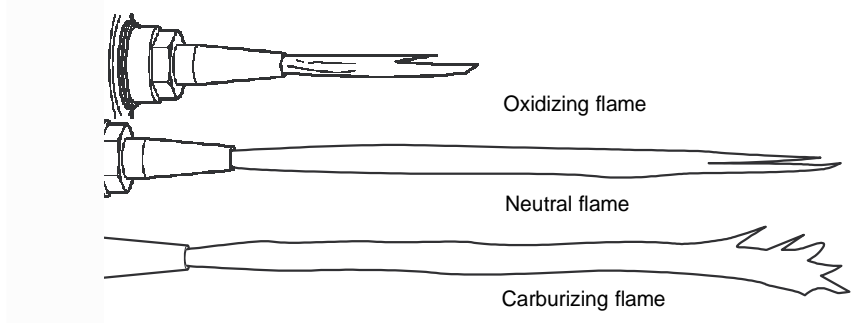


figure 5 - 1

5.2.4 Preheat

- 1 Hold the grip with your right hand to support the HANDY AUTO PLUS.
- 2 Hold the jet oxygen valve with the thumb and forefinger of your left hand to stabilize the HANDY AUTO PLUS.

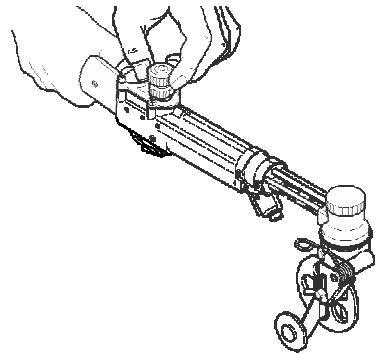


figure 5 - 2

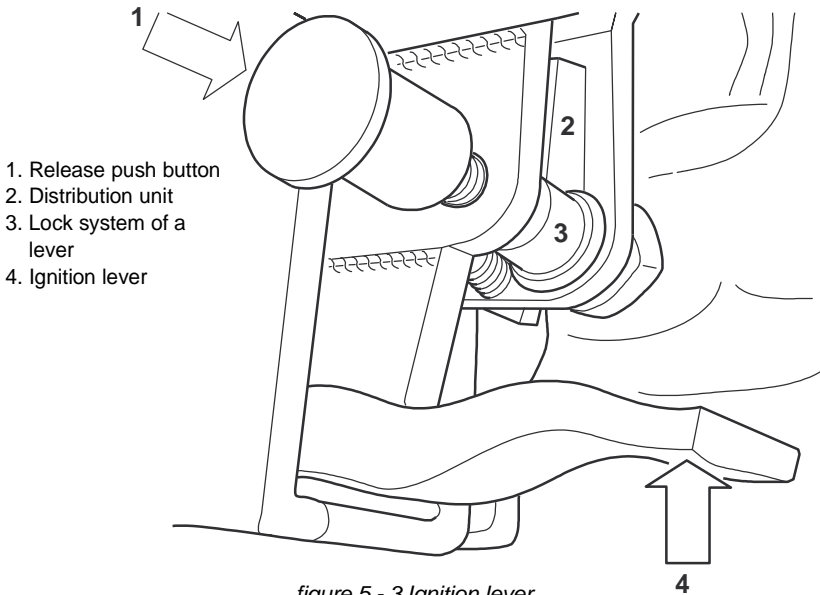
5.2.5 Procedure for extinguishing the flame

By pushing the release button, on the right side of the lever, the FG and POX valves will close and the preheat flame extinguishes.

5.2.6 Pilot flame ON/OFF

- 1 Close the valve for the gas supply and the preheating oxygen valve in the gas distributor.
- 2 Open the ignition lever fully.

5.2.7 The ignition lever



5.2.8 Lock system for ignition lever

Make sure the ignition lever safety lock is set when the machine is not used. This to be sure that the machine is not operated. Refer to the following figure for locking the ignition lever.

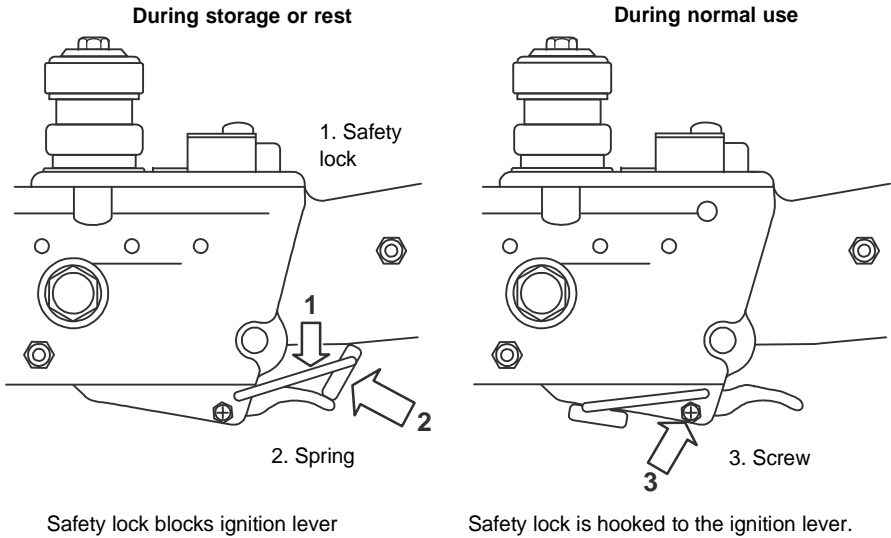


figure 5 - 4 Locking the ignition lever



Danger

Make sure the gas valve is closed when the machine is not in use or when you leave the machine without supervision. Block the ignition lever with the safety lock so that the handle cannot be operated. Otherwise, gas leakage could occur unexpected which is extremely dangerous. This might cause accidents.

5.2.9 Gas valve locking system

The HANDY AUTO PLUS is equipped with a locking system for gas valves to prevent the following situations:

- Gas leakage by unexpected operation of the gas valves
- Change of gas flows after completion of the setting

Refer to the following figure for locking the gas valves.

During adjusting

After completion of adjustment and at the time of rest

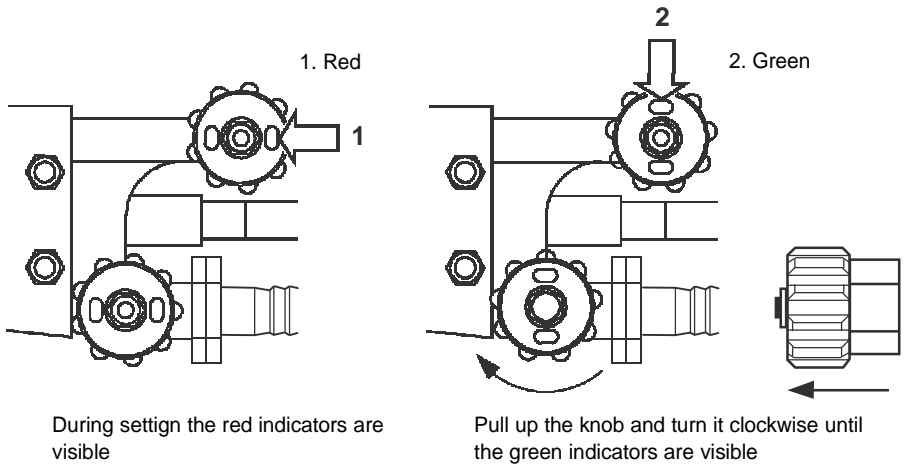


figure 5 - 5 Gas valve locking system

5.3 Cutting and piercing method

- Cut in from the end of the steel plate.
- Pierce steel plate before cutting.
- Drill a hole before cutting.

Piercing method

Standard 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 - 20 mm from the plate to prevent slag from splashing on to the tip and adhering there, which will shorten the working life of the tip.

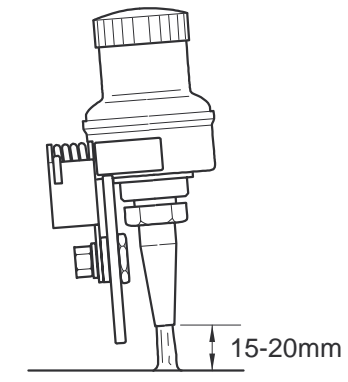


figure 5 - 6

Alternative method

Piercing starting from the middle of the material is not recommended, since the result heat exposure will spoil the durability of the wheel. In some situations such piercing is unavoidable.

- 1 Turn the drive switch on independently to rotate the wheel and start preheating, lifting the main unit up a little to prevent the heat affecting the wheel.
- 2 Pierce the steel plate.

Note:

After cutting like this, the motor may not stop sometimes even after cutting is finished. This is not a fault but is caused by the valve not having been opened fully. The motor will stop, when the drive switch is tightened.

5.4 Procedures for starting cutting operation and extinguishing the flame

- 1 Align the tip within the cutting start point, ignite and then adjust the flame.
- 2 Sufficiently preheat the cutting start point.
- 3 After heating, open the oxygen valve by turning it more than 11/8 turn, and the motor switch will be turned on, starting automatic cutting.

When the valve-opening angle is too small at that time, cutting operation will not be interlocked with the motor switch. When cutting an approx. 6-mm thick sheet at a high oxygen pressure, the valve opening must be adjusted; therefore the motor switch may not be turned on. (Refer to the Cutting Data for pressure setting.)

- 4 Carefully check the cutting condition and control the cutting speed with the speed adjuster. For the cutting speed refer to the Cutting Data.

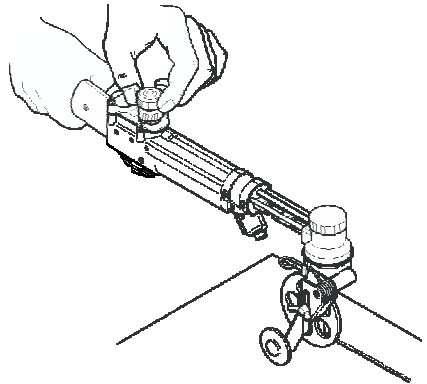


figure 5 - 7

- 5 Extinguish the flame after cutting as follows:
 - a Turn off the motor switch (or turning direction switch).
 - b Close the cutting oxygen valve.
 - c Close the preheating oxygen valve.
 - d Close the fuel gas valve.
- 6 The guide roller is designed for stable and even cutting operation. But for preventing unstable tip movement such as might be caused by hose drag or the cutting travel, use both hands, with the left hand supporting the jet oxygen valve or the motor unit, when switching off the jet oxygen.

5.4.1 Thin plate cutting

- 1 Select the tip size and the pressure suitable for the job according to the cutting data.
- 2 Adjust the flame. When you cut a thin plate, 6 mm thick for instance, adjust for a slightly weak flame.
- 3 Tilt the tip top slightly forwards.
- 4 Start the cutting operation.

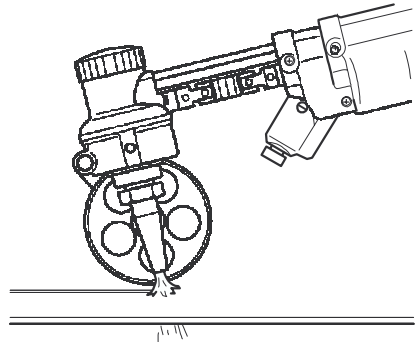


figure 5 - 8

Cutting with a too high jet oxygen pressure or with too much preheating will cause incomplete separation of the material, or cause slag to stick on the lower edge of the cut.

5.4.2 In bevel cutting

- 1 Select the tip size. Use a tip one grade above that for the specified thickness for straight cuts in the same thickness of plate in the cutting data.
- 2 Adjust the preheat flame.
- 3 Set the speed 20 - 30% lower.
- 4 Start the cutting operation.

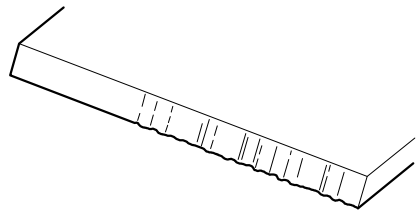


figure 5 - 9

0 - 20° Bevel cutting is possible with the standard wheel and the beveling wheel range is 22 - 45°. Insufficient preheating causes a cut surface in bevel cutting. In such a case; reselect the tip, readjust the preheat and speed.

5.5 Safety measures against backfire and flashback

5.5.1 Prevention of backfire



Warning

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.

5.5.2 Prevention of flashback



Warning

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

6 Maintenance and inspection

Refer to the following for inspection and maintenance of the machine. Always use the machine under the best circumstances. Maintenance is only to be conducted by a qualified professional.

6.1 Wheel maintenance

As wheels are made of stainless steel (SUS-27), they are rust-proof and have high heat and slag resistance. Even if slag sticks to the wheel, you can easily take it off with a wire brush or the like.

Carry out periodic inspection and maintenance to prevent knocking or slag sticking, which may cause faulty power transmission to the wheel. When the wheel knurls become worn, replace the wheel. A worn wheel may cause slip and prevent operation.

6.2 Tip maintenance

Tips used for the HANDY AUTO PLUS are designed for high durability combined with high safety.

To maintain cutting quality, follow the correct instructions on maintenance and handling.

- 1 In piercing, lift the machine body up a little to prevent damage caused by the flame being deflected upwards.
- 2 Clean the orifice of the tip very carefully with a tip cleaner of the correct size.
- 3 Be careful not to damage the tapered seating section.
Replace the tip when the following occurs:
 - a Even after cleaning, the jet oxygen jet does not extend straight. b The jet oxygen jet flares at its end.
 - c During the cutting operation, clicking sounds are heard within the tip.
 - d Gas leaks from the fixing nut and burns. e Preheat flames are extremely uneven.

6.3 Lubrication

To enhance safety, the HANDY AUTO PLUS has been designed so that lubrication is not necessary.

6.4 Gas leakage

It is possible for the gas connections to become loose during use and do not close properly anymore because of vibrations, thermal expansion etc. Therefore, check the gas connections for leakage before use.

Check also before use for gas leakage at the pilot nozzle and the tip.

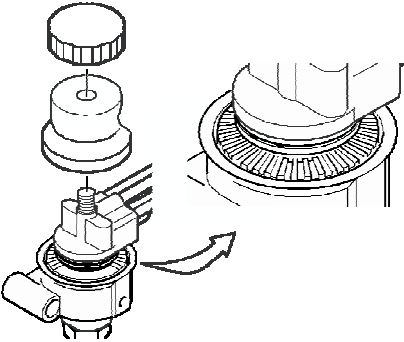
7 Troubleshooting

Repairs are only to be conducted by a qualified professional.

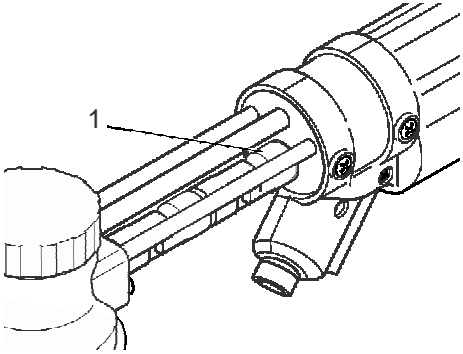
1 Motor does not run

Possible cause	Action	Solution
No electrical power	Check power circuit.	
Defective fuse	Check fuse.	Replace fuse
Faulty drive switch	Check that clicking sound is heard by turning the drive switch to the full extent. (This sound indicates the switch is not faulty) .	Repair
Defective power cord	Check the cord with a circuit multimeter.	Repair or replace

2 Motor does not run. (Power is on)

Possible cause	Action	Solution
Foreign matter on the beveling gears.	Check by removing the fixing knob and the head cover. 	Clean

3 Motor runs but rotation is not transferred to the universal joint.

Possible cause	Solution
<p>Screw holding the speed reducer shaft to the universal joint is loose.</p> 	<p>Tighten the screw.</p>

4 Beveling gear (Larger) rotates but rotation is not transferred to the wheel or slipping and knocking occurs.

Possible cause	Solution
<p>Slag between the drive wheel and the beveling gear.</p>	<p>Clean</p>
<p>Slag or dust between the wheel and the shaft.</p>	<p>Clean</p>

5 Wheel rotates but speed cannot be adjusted

Possible cause	Solution
<p>Faulty speed adjuster or transistor.</p>	<p>Repair or replace</p>

8 Wiring diagram and Assembly drawing

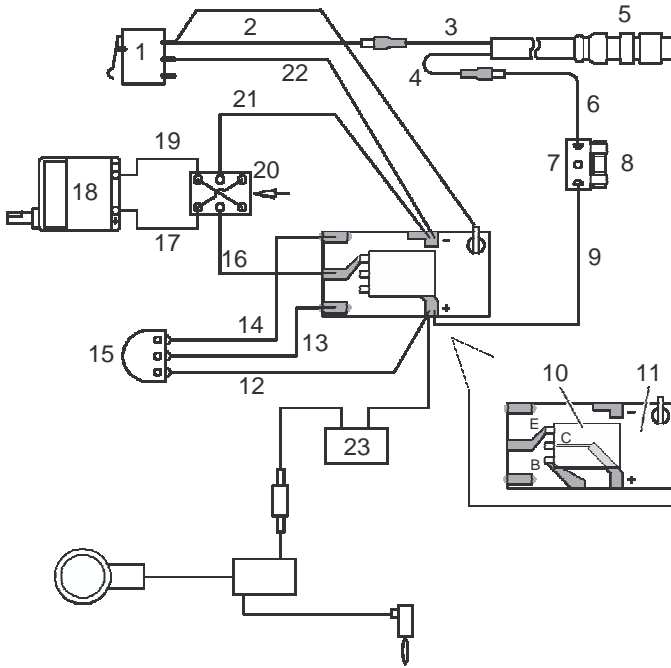


figure 8 - 10

- | | |
|---------------------------|------------------------|
| 1. Limit switch | 12. Red |
| 2. Black | 13. Blue |
| 3. Black | 14. Yellow |
| 4. White | 15. Speed adjuster |
| 5. Metal socket | 16. Red |
| 6. White | 17. Red |
| 7. Fuse holder | 18. Motor |
| 8. Fuse | 19. Black |
| 9. Red | 20. Push button switch |
| 10. Transistor | 21. Black |
| 11. Printed circuit board | 22. Yellow |
| | 23. LS |

Assembly drawing

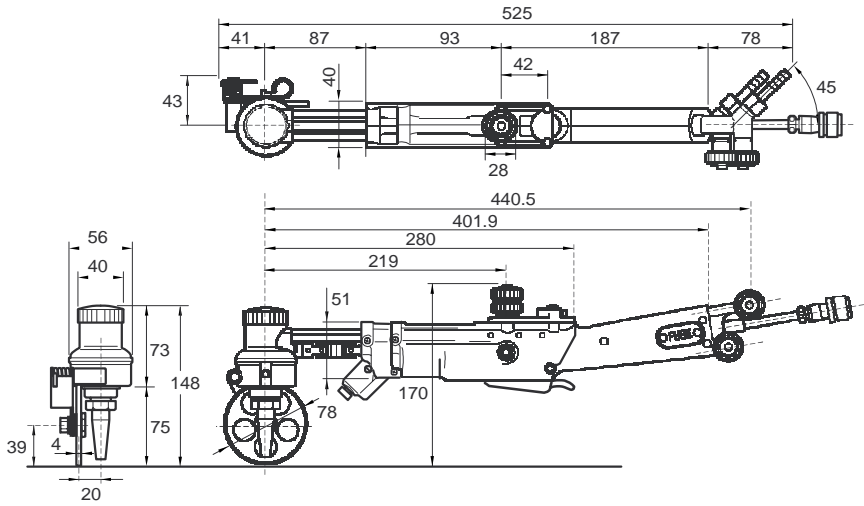
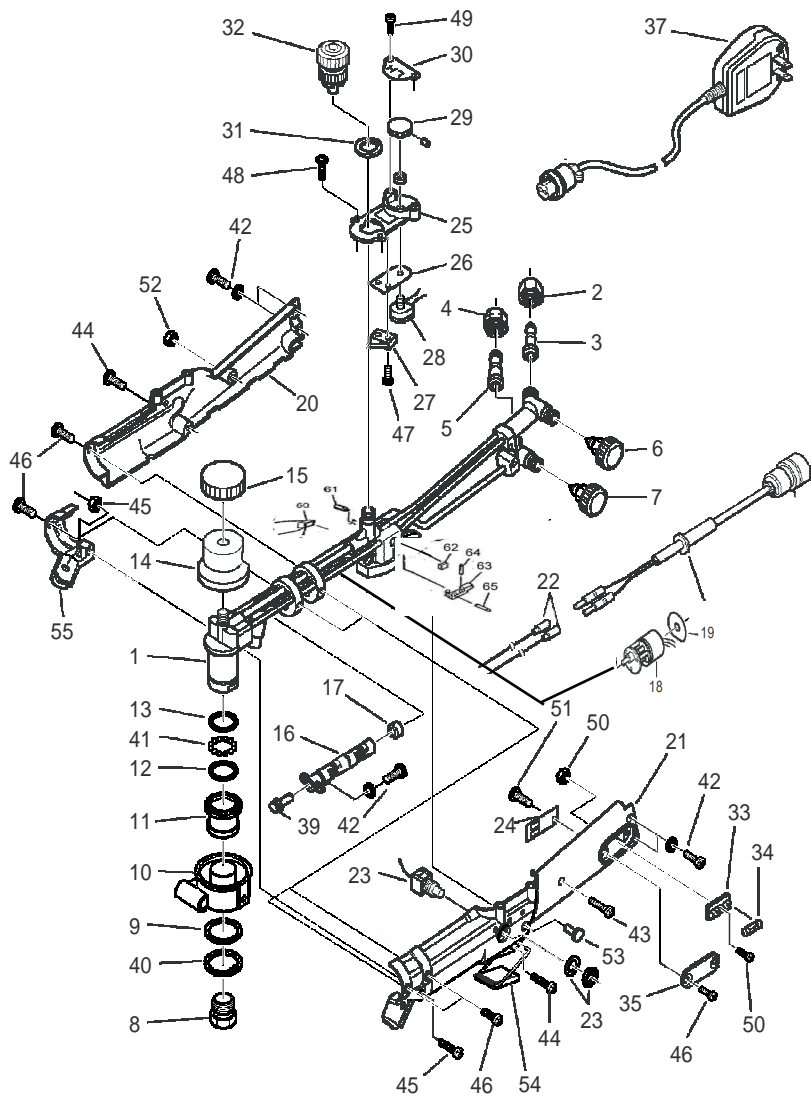


figure 8 - 11

9 Parts list

9.1 Main units



ITEM NUMBER	PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
1	TORCH	1	ZS30002	2A01356A0
6	VALVE FOR PREHEATING OXYGEN	1	80015777	BLUE
7	VALVE FOR GAS TIP	1	80015778	RED
8	TORCH FIXING NUT	1	ZS05020	
9	HEAD COLLAR GEAR	1	ZS30003	
10	COVER	1	ZS30004	
11	BEVEL GEAR (L)	1	ZS30007	WITH DU BUSH
12	THRUST COLLAR (LOWER SIDE)	1	ZS30008	
13	THRUST COLLAR (UPPER SIDE)	1	ZS30009	
14	TORCH HEAD COVER	1	ZS30005	
15	POSITION SETTING KNOB	1	ZS30006	
16	UNIVERSAL JOINT	1	ZS30010	
17	REDUCTION GEAR COLLAR	1	ZS30011	
18	MOTOR W/SPEED REDUCTION GEAR	1	ZS30021	

MAIN UNIT

HANDY-AUTO PLUS CS-15

ITEM NUMBER	PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
19	MOTOR INSULATING PLATE	1	ZS30038	
20	MAIN UNIT COVER (R)	1	61001724	
21	MAIN UNIT COVER (L)	1	61001723	
22	MID-TERMINAL	1	ZS30028	
23	PUSH BUTTON SWITCH	1	61002003	
24	PRINTED CIRCUIT BOARD	1	ZS30064	

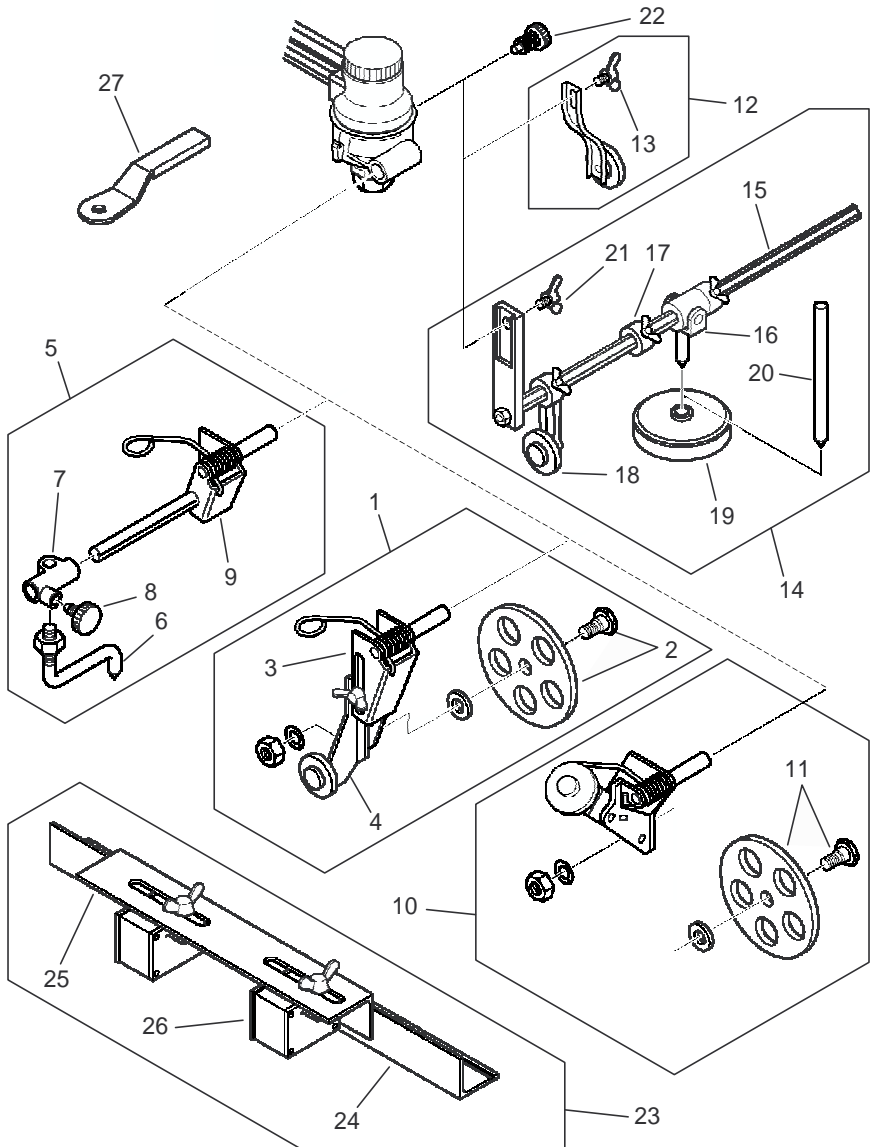
ITEM NUMBER	PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
25	LIMIT SWITCH COVER	1	ZS30014	
26	LIMIT SWITCH INSULATING PLATE	1	ZS30017	
27	LIMIT SWITCH	1	ZS30023	
28	SPEED ADJUSTER	1	ZS30024	
29	SPEED ADJUSTING KNOB	1	ZS30015	WITH SCREW
30	SPEED ADJUSTER COVER	1	ZS30016	
31	LIMIT SWITCH TOP	1	ZS30012	
32	JET OXYGEN VALVE WITH KNOB	1	ZS30013	
33	FUSE HOLDER	1	ZS30026	
34	FUSE	1	ZS30027	
35	FUSE COVER	1	ZS30018	
36	METAL SOCKET WITH CORD	1	61004650	
37	AC ADAPTOR WITH CABTYRE CORD	1	64000232	GREEN PIGTAIL
	BEFORE MODEL YEAR 2009	1	64000232 & 61004650	BLACK PIGTAIL
39	BEVEL GEAR (S)	1	ZS30062	
40	STOP RING	1	9968262400	ISTW-28
41	STEEL BALL	32	ZSTB1/8	
42	SCREW	5	9968174900	SP-4X10
	WASHER	5	9968150100	M4

MAIN UNIT

HANDY AUTO PLUS CS-15

ITEM NUMBER	PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
43	SCREW	1	9968175800	SP-4X25
	WASHER	1	9968150100	M-4
44	SCREW	1	9968176200	SP-4X35
45	SCREW	1	9938175400	SP-4X18
	NUT	1	9968123100	M4
46	SCREW	5	9968174800	SP-4X8
47	SCREW	2	9968168600	SP-2X10
48	SCREW	2	9968174800	SP-4X8
49	SCREW	2	9968174800	SP-4X8
50	SCREW	1	9968172300	SP-3X6
	NUT	1	9968123000	M-3
51	SCREW	1	9968174700	SP-4X6
52	NUT	1	9968123100	NH-4
53	UNLOCKING PILOT FLAME OFF SWITCH	1	6C520303	
54	SAFETY BRACKET	1	61002199	
55	NOZZLE COVER	1	61001725	
60	IGNITION TRANSFORMER	1	61001726	
61	SUPPORT	1	64000055	
62	MICO LIMIT SWITCH	1	80009299	
63	LEVER	1	80009325	
64	PIN	1	80009325	
65	WAVE SPRING PIN	1	6B40003	PS-3X17

9.2 Option units



OPTION UNITS

HANDY AUTO PLUS CS-15

ITEM NUMBER	PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
1	STANDARD WHEEL ASSEMBLY	1	ZK30100	
2	078 DRIVE WHEEL	1	ZS30107	WITH SHAFT NUT
3	STANDARD WHEEL BRACKET	1	ZS30108	
4	GUIDE WHEEL	1	ZS30109	
5	SMALL CIRCLE ATTACHMENT	1	61001597	
6	CENTERING NEEDLE	1	61001556	
7	CENTERING NEEDLE HOLDER	1	ZS30113	
8	RADIUS SETTING KNOB	1	ZS30114	
9	BRACKET BAR	1	61001599	
10	BEVELING WHEEL ASSEMBLY	1	ZS30102	
11	BEVELING WHEEL	1	ZS30110	WITH SHAFT NUT
12	AUXILLARY WHEEL ASSEMBLY	1	ZS30101	
13	WING NUT	1	ZS30126	
14	LARGE CIRCLE CUTTING ASSEMBLY	1	ZS30106	
15	BAR 0500	1	ZS30120	
16	FREE HOLDER	1	ZS30121	
17	STOP COLLAR WITH WING BOLT	1	ZS30122	

OPTION UNITS

HANDY AUTO PLUS CS-15

ITEM NUMBER	PART DESCRIPTION	QUANTITY	PART NUMBER	REMARKS
18	SUPPORT ROLLER	1	ZS30123	
19	MAGNET	1	ZS30124	
20	CENTERING MAGNET	1	ZS30125	
21	WING NUT	1	9968232100	
22	CLUTCH KNOB	1	ZS30115	
23	STRAIGHT RAIL ASSEMBLY	1	ZS30104	20"
24	RAIL	1	ZS30117	
25	RAIL BRACKET	1	ZS30118	
26	MAGNET WITH WING BOLT	1	ZS30119	
27	GUIDE LEVER	1	ZS30105	

KOIKE ARONSON

HANDY AUTO POWER CORD

Does the torch
have a pigtail?
(Very old machines
may **not** have a pigtail)

Yes

Is the plug between the
power cord and the
pigtail Green or Black?

No

Green

Need power cord
64000232



Black

Need power cord
64000232 & Pigtail
61004650



Need part # 64000232
& 61004650

There was a change in the Handy Auto power cords effective 1/2009 from a black plug to a green plug between the power cord and the pigtail. Please review the chart below to determine which parts you will need to replace the power cord you have.