Sparkie® II Mini Fusion Welder
Millennium Edition #503-191

What is new in the Millineum Edition?

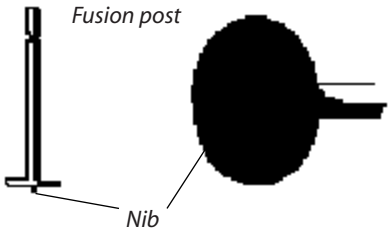
In a word it is simpler to operate. Less buttons and dials gives this new version a clean unclutered look. Charging times have been reduced for faster production rates. The new foot pedal charging control frees both hands for accuracy and speed. Extra power for those big findings now just plugs in.

What is SPARKIE?

SPARKIE is a mini fusion welder. Fusion welding has been a mainstay in the jewelry industry for many years. Fusion provides a fast, clean bond between similar and dissimilar metals when using fusion findings. Low temperature (pot metal) and lead bearing alloys are not compatible with fusion welding.

SPARKIE is a capacitive discharge welder. A large capacitor is used to store an electrical charge, like a battery. That charge is released through a fusion finding as it touches the surface of the receiving metal. A small explosion occurs which blows all of the oxides and gasses away from the weld. For the next millionth of a second a vacuum exists, allowing similar and dissimilar metals to bond in the residual heat.

What are fusion findings?



When you look closely at the bottom of a fusion finding you will see a small (appx. .01 in. dia.) nib in the center of a flat plate. It is forged of the same metal as the finding, it is not a solder or flux. This nib is what explodes when the capacitor discharges. The geometry of this contact area is the key to fusion welding.

Fusion findings have been standardized in the industry. They are available from your SPARKIE distributor and other sources.

What about quality control?

The simplicity and speed of fusion welding can be misleading. Proper alignment of the machine and preparation of the pieces to be welded is very important and cannot be over emphasized. Test welds should be performed with the actual pieces and findings to be used. Occasional tests should be performed on the finished product.

In the final analysis the precision of the operator is the key to success. The hand held operations must be performed with care and a realization that the quality of the finished product is in the balance during this final few seconds.

Please read all of the instructions before attempting to operate

Please Note: For your personal safety and for the proper and efficient operation of SPARKIE welders, TRIAD recommends that you read the instructions *before* operating the machine. Your familiarity with the machine and its operation will permit the continued safe use of SPARKIE in your workplace and will allow for the efficient production of high quality work.

TRIAD Inc.
PO Box 92 Chartley, MA 02712
508/222-7126 • 800/646-4218

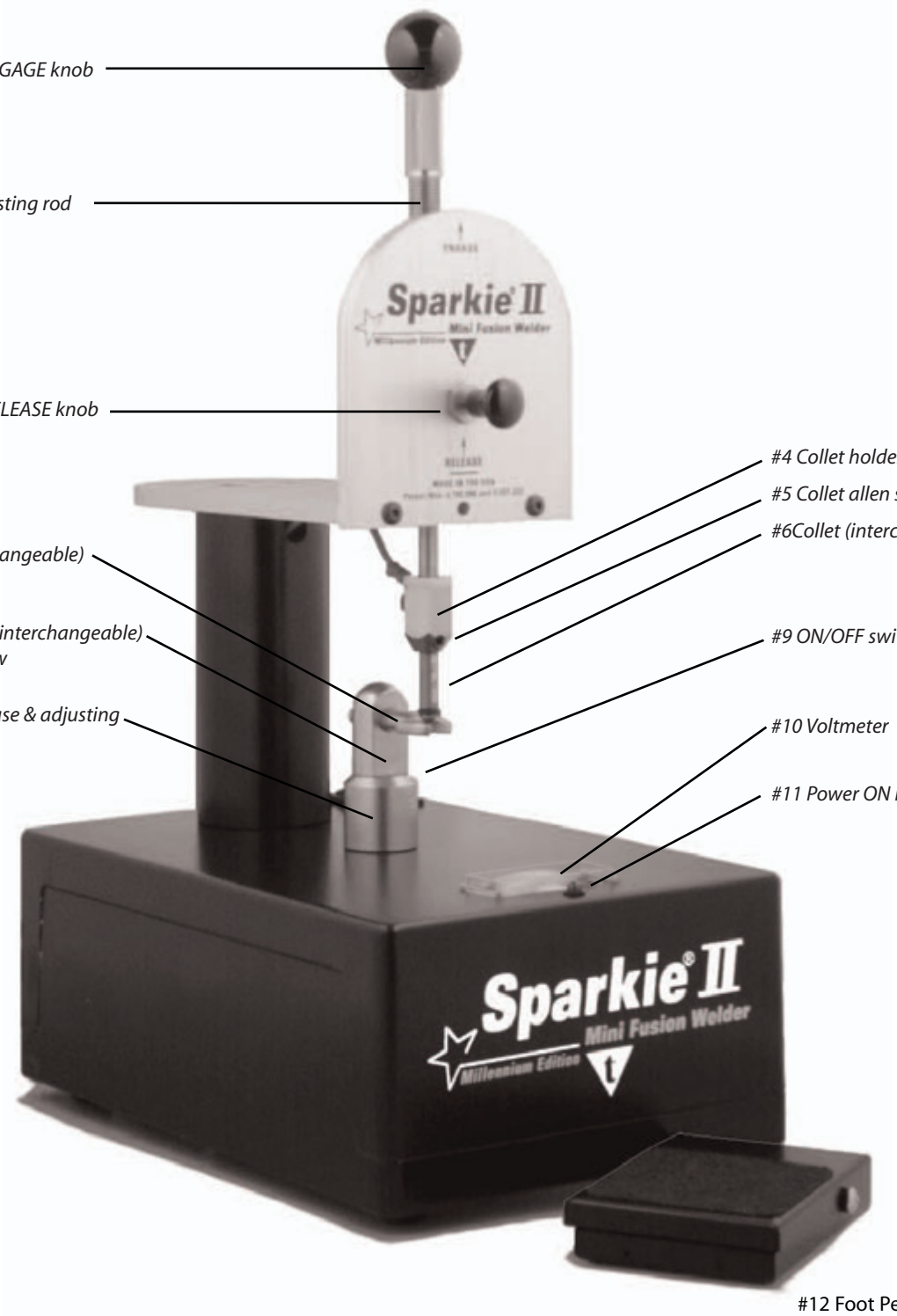
DISCLAIMER

TRIAD, INC and/or its representatives shall not be held liable for any injury, incidental or consequential damages or loss of profit. No liability is assumed for damages due to accident, abuse, tampering with the instrument, lack of reasonable care, loss of parts, or subjecting the instrument to short circuits or input values of a magnitude in excess of those specified.

WARRANTY

For one year from the date of purchase, Triad, Inc. will repair or replace The SPARKIE® II Mini Welder if defective in material or workmanship. This limited warranty does not include replacing collets, jigs or any damage caused by accident, neglect or misuse and ceases when you sell, rent, or dispose of this welder. The SPARKIE II Mini Welder must be delivered or shipped prepaid to the factory with your copy of the warranty or proof of purchase. Please save your shipping carton.

SPARKIE II working diagram



Please Note: On the back banana plugs are provided for installation of a Power Pack.

General information

The following items where packed with your SPARKIE II: 1) Video instruction manual (VHS). 2) Collets for ear posts(.030L, installed) and tie tacs(.045L). 4) Jigs SF-6(ear post, installed) and SF-7(tie tac). 3) Allen wrench. 4) Two extra 'O' rings and ball bearings. 7) Safety glasses. 8) Sample kit and test report. Please save your shipping carton.

Practice

Prior to plugging SPARKIE II into a power source, a dry run should be made to learn what to expect. If you have already plugged the unit in, please unplug SPARKIE II now!

1 Pull up on the cylinder ENGAGE knob (#1) until a slight "click" indicates that it is locked in the up position.

2 While the cylinder is up, note the position and alignment of the jig (#7). The collet (#6) must drop through the center of the hole in the jig. A gentle pull on the cylinder release knob (#3) will drop the collet holder. Try it. When in the down position the collet should fit perfectly into the hole in the jig. Try this a few times so you get used to the feel of this operation.

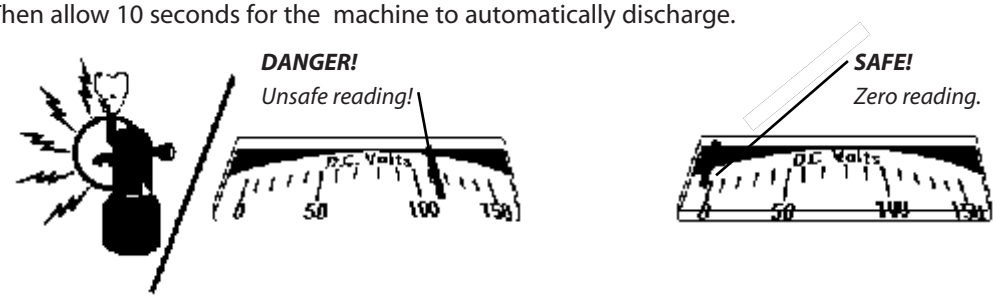
3 The alignment of the jig can be adjusted in two ways.

- A Loosening the thumb screw on the side of the jig holder (#8) will allow the removal of the jig and adjustments fore and aft and horizontally . Use the allen wrench through the hole in the thumb screw for leverage while tightening.
- B At the base of the jig holder an allen screw locks the holder in place (#8A) and allows adjustments from left to right. The jig holder may also be removed and replaced with other fixtures.

4 The depth of the stroke can be adjusted with the COLLET ADJUSTMENT ROD (#2). This is the threaded cylinder just below the ENGAGE knob. SPARKIE II is shipped with the adjustment set so that the collet strikes the jig. This is normal for most post fusing operations. Other findings and fixtures may need this depth adjustment reset.

WARNING! ELECTRICAL SHOCK HAZARD!

Reaching into the area of the collet, jig or production table while this unit is charged can cause electrical shock. Always be sure that the voltage meter reads ZERO before loading a finding. If you are unsure, turn the POWER SWITCH (#10) to OFF. Then allow 10 seconds for the machine to automatically discharge.



Operating Instructions

ALWAYS WEAR EYE PROTECTION WHEN OPERATING MACHINERY!

The safe operation of SPARKIE II requires the use of grounded 115 volt AC. electrical receptacles. If you are not sure that your receptacles are properly grounded, have them checked by a qualified technician.

Set up and post welding

1 First plug SPARKIE into a grounded 115 volt AC. receptacle.

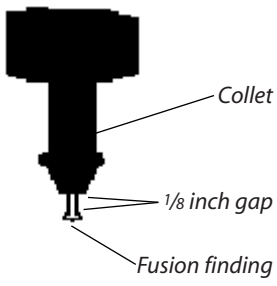
2 Pull the cylinder ENGAGE (#1)knob into the up, locked position.

3 Check the voltmeter for a zero reading then insert a stainless steel ear post part way into the collet. It is important to leave the finding extended about 1/8th inch below the collet.

5 Place one of the brass samples that came with your welder firmly up against the bottom of the jig (#7) with your finger (It's OK, you won't get a shock.) making sure the area to be welded is visible and centered through the hole in the jig. See the diagram below.

6 The Voltage Chart at the end of these instructions will guide you to the correct voltage for the type of metals you are fusing. The chart is only a guide and test pieces should be fused to find the level that best suits your needs. For now, use a voltage setting of 80.

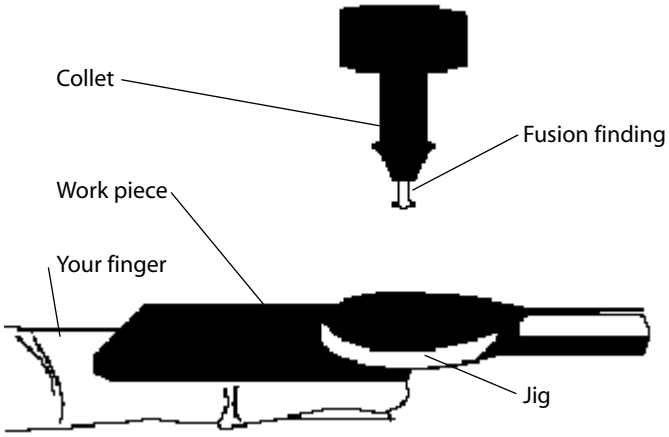
7 Press and hold the foot Pedal Charger switch (#12) until the voltmeter reads 80 volts.



8 Gently pull on the cylinder RELEASE knob (#3). Bang! The cylinder should have dropped to the down position, sparks should have flown and the weld is complete.

9 Remove the welded piece and reset the cylinder into the up, locked position.

10 Examine the weld closely for a true perpendicular (right angle) position. An uneven splash around the weld may also indicate a misalignment. Poor alignment may make the weld fail. Test the weld by bending the post back and forth. If the weld breaks easily or peels off, either the alignment or voltage will need to be adjusted. While a large amount of splash around the base of the post may indicate too high a charge, no sign of the weld indicates that the voltage is too low. Pitted burn marks will indicate poor contact between the work and jig.



Collet depth adjustments

Most post welding is performed with the set up just described and allows the collet to strike the jig. Larger findings (joints, catches, ear clips and stick pins) pass through a jig without touching. The depth of the collet stroke must be adjusted so that the finding strikes your work, but does not drive into it and damage it. The stroke depth must also be adjusted when the Production Table is installed in place of the jig holder.

Stroke Adjustment

1 With the proper collet and jig installed, release and lower the cylinder so that the ENGAGE knob is in the down position.

2 The Collet Adjusting Rod (the knurled collar) can then be rotated to adjust the stroke depth.

3 Rotate the collar counter clockwise until it comes in contact with the ENGAGE knob. Continuing to rotate will shorten the stroke.

4 Rotating the collar in a clock wise direction will lengthen the stroke.

Set up

1 Lower the collet mechanism carefully and check that it will clear the sides of the jig. Check that the jig is aligned and perfectly perpendicular with the collet.

2 Place a finding in the collet and hold a sample piece of metal tightly under the jig.

3 Rotate the collet Adjusting Rod until the finding touches the work piece and then add just a little more until the metal moves down just a hair.

4 Again check that the finding is hitting the metal squarely and clears past the jig. It is extremely important that large findings hit squarely in order to produce consistant results.

Please Note: Welding findings can cause dents in metals thinner than B&S 24 ga (.020" or .5mm). Results can vary depending the type of metal and its condition (annealed or work hardened).

Maintenance

SPARKIE II requires very little in the way of special care. All that is necessary is a little cleaning.

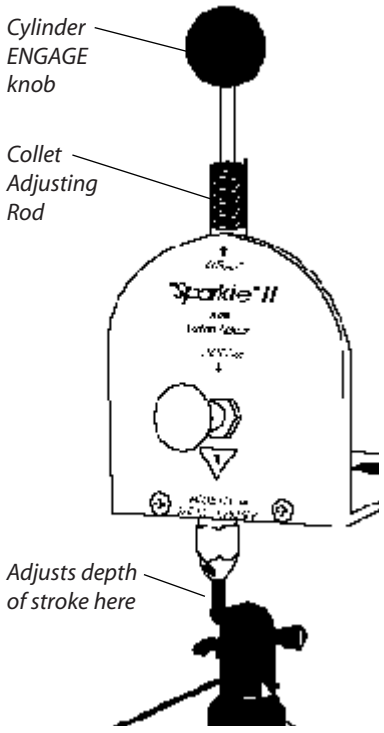
Residue from the fusion process will build up on the bottom of the jig. This can be the cause of inconsistent welds and burns on the back of your piece.

1 Loosen the thumb screw that holds the jig in place and pull out the jig.

2 Clean the bottom of the jig with fine abrasive paper or steel wool. Be sure to check inside the hole.

3 Check the shaft of the jig for burn marks and clean. Indications of burns on this shaft mean that the thumb screw was not tight. This can be a source of inconsistent welds.

4 Slip the jig back into the jig holder. Lower the collet into positon and align the jig hole with the collet. Align the jig and collet so they form a true right angle. This is very important, findings must be perpendicular to the surface as they strike! Tighten the thumb screw very firmly. Use the allen wrench through the hole in



the thumb screw for leverage. Do not overtighten and break the bolt!

Residue can also build up on the bottom of the collet.

1 Loosen the front allen screw on the collet holder. (Not the one with the wire attached.) Pull the collet down and out.
2 Clean any built up metal deposits off the end with sand paper or a small file. Tighten the allen screw firmly when it is back in place.

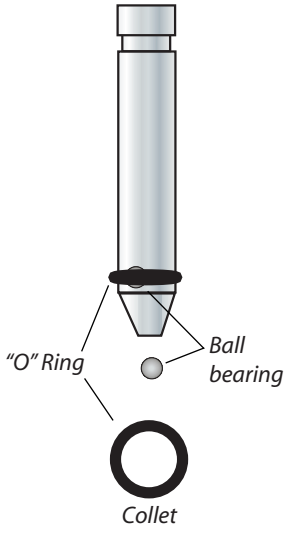
The "O" ring and ball bearing that hold the findings in place in the collet may occasionally need to be replaced.

1 Remove the collet from the holder.
2 Roll the rubber "O" ring off the tapered end of the collet. (Work on a clean surface so these small parts don't get away from you.) If the rubber appears to be cracked replace it with a new one.
3 If the ball bearing appears burnt and pockmarked, replace it with a new one.
4 Look down the inside of the collet for roughness and built up residue. An abrasive cord or small drill bit should be used to clean it out.
4 With the ball bearing in place, roll the "O" ring back over the tapered end of the collet.
5 Replace the collet. Make sure the collet slides all the way back up into the holder before tightening the allen screw. Be sure the allen screw is tightened firmly.

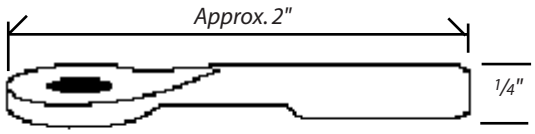
Collets with clips will need the same basic kind of care. Light brushing with a toothbrush is all that is necessary. The clip should hold the findings tightly, preventing burn marks from appearing on the finding. Replace the clip when necessary by removing the two hold down screws. An extra clip was provided with each collet and replacements are available from your dealer.

NOTES:

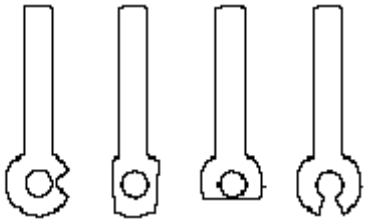
1 A thin film of water containing a small amount of dish detergent can be applied to the piece to be welded. It acts as a wetting agent. This will help clean away residue and splash from the weld. It is also very important when welding plated goods and repairs. The wetting agent also helps prevent surface burns.



2 The small black stain that appears around the weld is just carbon. It will wipe off with mild soap and water.
3 The jigs that came with SPARKIE II are of an all purpose design. Special jigs can be made by the owner to fit odd shapes and help align production pieces. Jigs can be machined from steel and aluminum as well as cast from wax patterns in brass or bronze.



Custom jigs



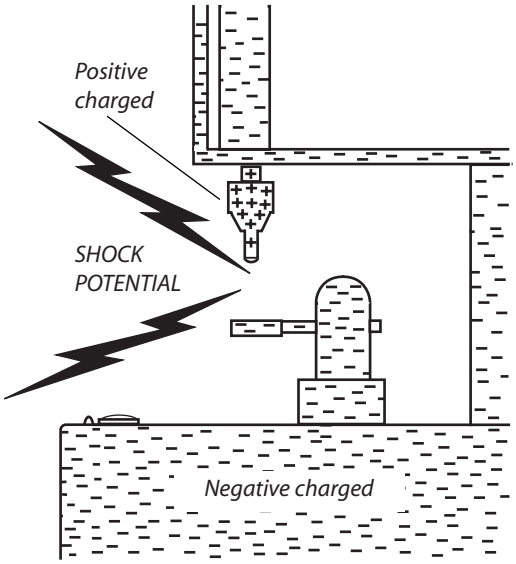
4 Too small a contact area or holding the work loosely against the jig will cause burned spots on the surface due to poor contact. Developing a consistent technique when holding the work against the jig is very important. The contact must be firm!
5 If the piece to be welded is too small to hold on your finger, place it on a soft eraser or rubber pad. Use the pad to press the work up under the jig.
6 A small amount of silicon lubricant inside of the collet can help smooth the insertion of findings and assure good electrical contact.
7 Re-using findings is not recommended, but they often work just fine.
8 Remember, always look at the meter before inserting a finding. If you have started to charge, DON'T REACH UNDER THE COLLET! You will get a shock! OUCH! Turn the power switch OFF and wait a few seconds for all the charge to drain.
9 Objects that will fit in the collet other than fusion findings can often be adapted for welding. Use the base of a fusion finding as a model when experimenting with your own designs.
10 Warm SPARKIE up before you start. Turn ON and charge the welder, then turn OFF and let it discharge internally (10 seconds). Do this at least twice to get the juices flowing in the capacitor.
11 Poor welds are most often caused by misalignment. It can really help to look at the weld under high magnification. Look at the base and see if it is sitting crooked and has uneven splash around the edges. This indicates the

edge of the base hit first. The post will probably peel off.

12 Remember, SPARKIE will continue to charge as long as you hold down the foot pedal! It will discharge slowly if allowed to sit and quickly if turned off.

Can SPARKIE shock you? The answer is unquestionably, yes! But, where and when and how bad is it?

The components of SPARKIE represent two sides of a short circuit. POSITIVE and NEGATIVE. Almost all of SPARKIE is NEGATIVE. The case, the upper frame, the jig holder and jig, even the metal OFF/ON switch are NEGATIVE. (See the diagram.) All that is POSITIVE is the collet and the collet holder. The red wire that connects to the collet holder carries the POSITIVE charge from the internal components to the holder. So, where, is anywhere between the two sides of the circuit. Fusion welding is what happens when the POSITIVE and NEGATIVE sides touch and the energy stored inside SPARKIE is released.



Which leads us to when. A shock can only happen when SPARKIE is turned ON. Turning SPARKIE OFF automatically drains any stored energy (allow 10 seconds). Let's set the scene for an accident.

The operator is happily shooting earposts, when a slight distraction interrupts the process. The operator looks away a moment while pressing down on the foot pedal and then turns back.

There is no finding loaded in the collet!

Noticing that the finding is missing, the charging is stopped. SPARKIE is partially charged and waiting to discharge thru something or someone. Check the volt meter!

If at this point the operator reaches in to load a finding the chances of a shock are very high. All that is necessary is to touch any NEGATIVELY charged metal part of SPARKIE when contact is made with the collet. (See the diagram.) OUCH!

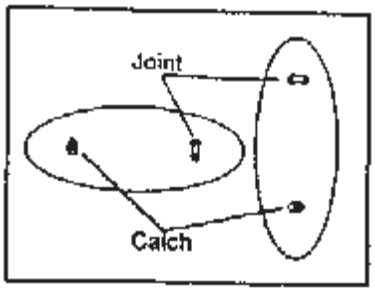
A shock from SPARKIE lasts only a millisecond. It can produce a nasty bite. It should be avoided at all costs. SPARKIE automatically drains itself of all stored energy in about 10 seconds when it is turned off.

The rule is simple: Check the volt meter!
If you are unsure, turn Sparkie off!

Guide to Joints and Catches

As with other findings, joints and catches used with SPARKIE II must be designed specifically for fusion welding. Examine the bottom of the findings for the small nib necessary for fusion. Findings must also be compatible with SPARKIE's specific collet mechanisms. Using improperly designed findings may cause damage to the machine, collets or your product.

Placement



Joints and catches are traditionally designed to be placed in the following positions. When looking at the back side of a brooch the catch is placed to the left and the joint to the right.

The catch is welded into position with the "ears" (closing mechanism) in the up and open position. The "ears" roll into the down position where gravity helps keep the catch closed. On vertical applications the joint goes on the top with the catch at the bottom.

Set Up

Mount the proper joint coliet in the collet holder. Make sure the collet is all the way up into the holder. Align the collet with the brass clip on either the left or right side. Tighten the allen screw firmly.

Lower the collet mechanism and check that it will clear the sides of the jig. Check that the jig is aligned and perfectly horizontal with the collet. Place a finding in the collet and hold a sample piece of metal tightly under the jig. Now adjust the Collet Adjusting Rod until the finding just touches and then add a little more until the sample moves down just a hair. Again check that the finding is hitting the metal squarely and that the findlng clears the jig.

Important note: Welding this type of finding can cause dents in metals thinner than B&S 24ga (.020" or .5mm). Results can vary depending on the type metal and its condition (annealed or work hardened).

Operation

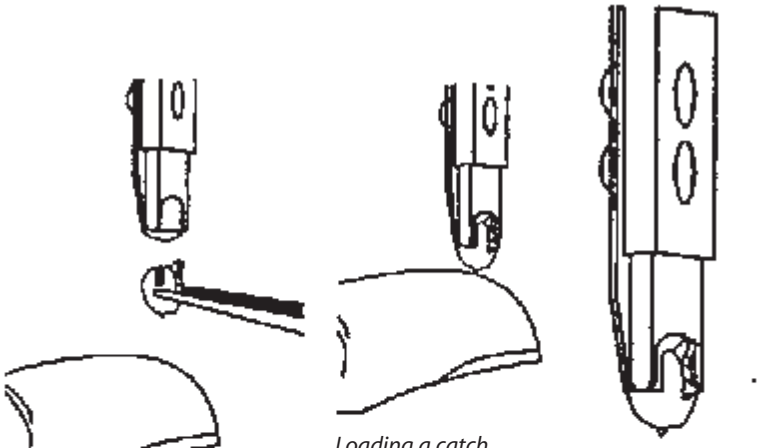
A set of guide lines drawn on your piece with a fine line marker (pencils scratch) will help accurately align and place your joints and catches. The line can be washed off later.

WARNING!

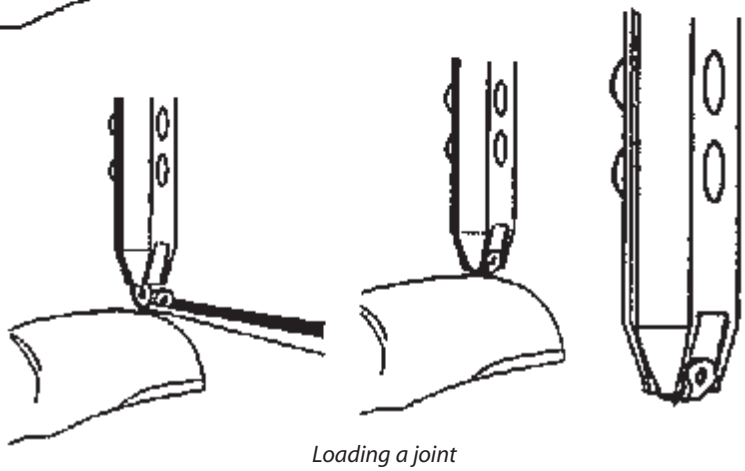
Electrical shock hazard! Always check the volt meter before loadlng a finding. If a charge is indicated, turn the machine off until the meter reads zero voltage.

Joints and catches can best be handled with a pair of fine tipped tweezers. With the collet in the up, cocked position, pick up the finding wth the tweezers and align it under the collet and holding clip. Then press the finding into place with a finger of the other hand as it is released from the tweezers. Check carefully and see that the finding has seated properly on the collet.

Align and hold your piece in place under the jig. Press the the Push To Charge button until the proper voltage is reached (see the Fusion Welding Chart), then pull the Release Knob to complete the weld.



Loading a catch



Loading a joint

Guide to Cuff Links

As with other findings, cuff links used with SPARKIE® II must be designed specifically for fusion welding. Examine the bottom of the findings for the small nib necessary for fusion. Findings must also be compatible with SPARKIE's specific collet mechanisms. Using improperly designed findings may cause damage to the machine, collets or your product.

Placement

Placement of the cuff link should be carefully planned. Each design should be evaluated by its size and weight to determine how and where it will best balance.

Set Up

Mount the cuff link collet in the collet holder. Make sure the collet is all the way up into the holder. Align the collet with the brass clip on either the left or right side. Tighten the allen screw firmly.

Lower the collet mechanism and check that it will clear the sides of the jig. Check that the jig is aligned and perfectly horizontal with the collet. Place a finding in the collet and hold a sample piece of metal tightly under the jig. Now adjust the Collet Adjusting Rod until the finding just touches and then add a little more until the sample moves down just a hair. Again check that the finding is hitting the metal squarely. This is extremely important. This finding must hit perfectly for consistant welds.

Important note: Welding this type of finding can cause dents in metals thinner than B&S 24ga (.020" or .5mm). Results can vary depending on the type metal and its condition (annealed or work hardened).

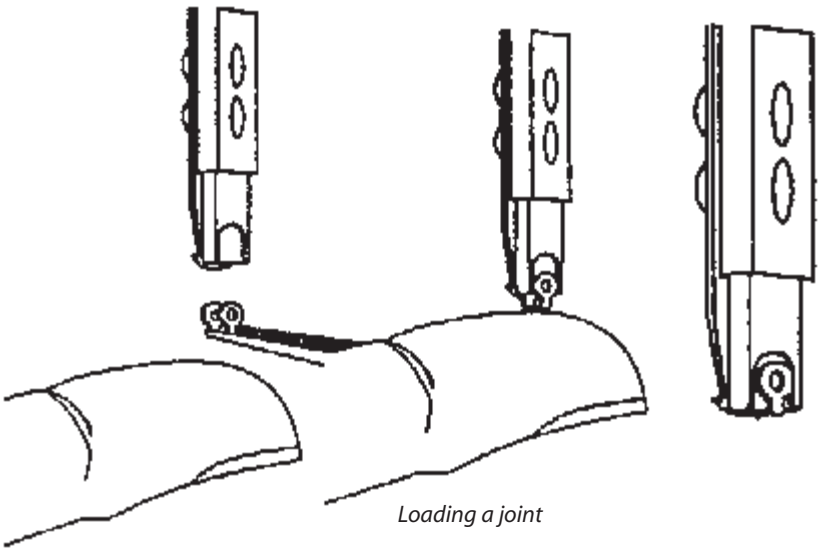
Operation

WARNING! Electrical shock hazard! Always check the volt meter before loading a finding. If a charge is IndIcated turn the machine off until the meter reads zero voltage.

Cuff link joints can best be handled with a pair of fine tipped tweezers. With the collet in the up, cocked position, pick up the finding with the tweezers and align it under the collet and holding clip. Then press the finding into place with a finger of the other hand as it is released from the tweezers. Check carefully and see that the finding has seated properly on the collet.

Align and hold your piece in place under the jig. Press the Push To Charge button until the proper voltage is reached, then pull the Release Knob to complete the weld.

The cuff link is then set into the joint. A rivet wire is broken off to length and placed through the joint and link. The rivet is set by pressing between the jaws of a flat nose pliers.



Loading a joint

Guide to Ear Clips

As with other findings, ear clips used with SPARKIE® II must be designed specifically for fusion welding. Examine the bottom of the findings for the small nib necessary for fusion. Ear clips must also be compatible with SPARKIE's specific collet mechanisms. Using improperly designed findings may cause damage to the machine, collets or your product.

Placement

Placement of ear clips should be carefully planned. Each earring design should be evaluated by its size and weight to determine how and where it will balance on the ear lobe.

Setup

Mount the correct size joint collet in the collet holder. Make sure the collet is all the way up into the holder. Align the collet with the brass clip on either the left or right side. Tighten the allen screw firmly.

Lower the collet mechanism and check that it will clear the sides of the jig. Check that the jig is aligned and perfectly horizontal with the collet. Place a finding in the collet and hold a sample piece of metal tightly under the jig. Now adjust the Collet Adjusting Rod until the finding just touches and then add a little more until the sample moves down just a hair. Again check that the finding is hitting the metal squarely and clears past the jig. It is extremely important that a large finding of this type hit squarely in order to produce consistent results.

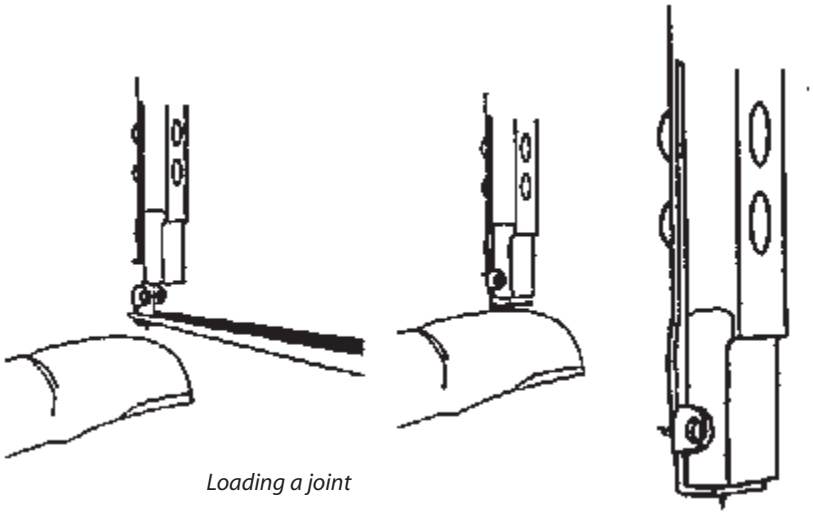
Important note: Welding this type of finding can cause dents in metals thinner than B&S 24ga (.020" or .5mm). Results can vary depending on the type of metal and its condition (annealed or work hardened).

Operation

WARNING! Electrical shock hazard! Always check the volt meter before loading a finding. If a charge is indicated turn the machine off untll the meter reads zero voltage.

Joints can best be handled with a pair of fine tipped tweezers. With the collet in the up, cocked position, pick up the finding with the tweezers and align it under the collet and holding clip. Then press the finding into place with a finger of the other hand as it is released from the tweezers. Check carefully and see that the finding has seated property on the collet.

Align and hold your piece in place firmly under the jig. Press the Push To charge button until the proper voltage is reached (see the Fusion Welding Chart), then pull the Release Knob to complete the weld. The paddle back is then snapped into place.



Loading a joint

Gulde to Stick Plns

As with other findings, stick pins used with SPARKIE® II must be designed specifically for fusion welding. Examine the bottom of the finding for the small nib necessary for fusion. Stick pins must also be compatible with SPARKIE's specific collet mechanisms. Using improperly designed findings may cause damage to the machine collets or your product.

Placement

Placement of stick pins should be carefully planned. Each design should be evaluated by its size and weight to determine how and where it will balance. The pin should also be an appropriate length.

Set Up

Mount the stick pin collet in the holder. Make sure the collet is all the way up into the collet holder. Align the collet with the brass clip on either the left or right side. Tighten the allen screw firmly.

Lower the collet mechanism and check that it will clear the sides of the jig. Check that the jig is aligned and perfectly horizontal with the collet. Place a finding in the collet and hold a sample piece of metal tightly under the jig. Now adjust the Collet Adjusting Rod until the finding just touches and then add a little more until the sample moves down just a hair. Again for consistent welds it is very important to check that the finding is hitting the metal squarely.

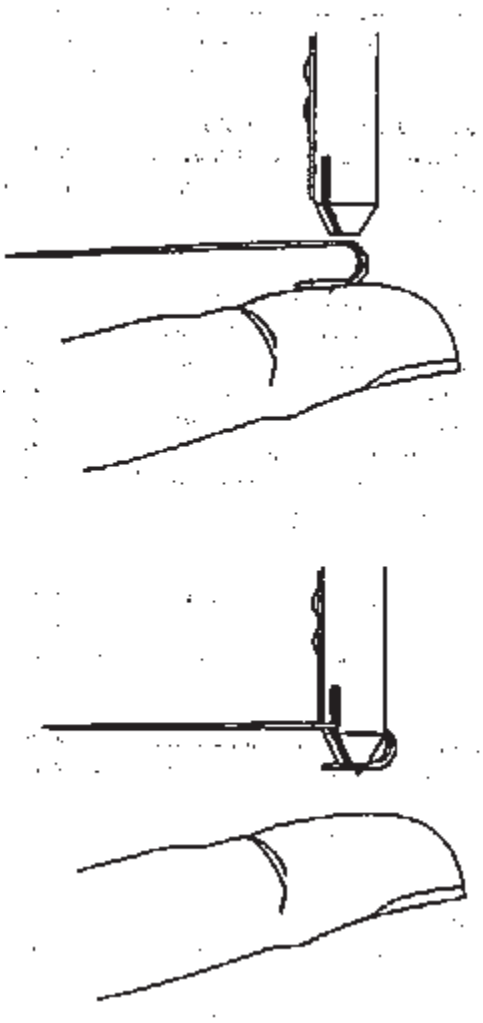
Important note: Welding this type of finding can cause dents in metals thinner than B&S 24ga (.020" or .5mm). Results can vary depending on the type metal and its condition (annealed or work hardened)

Operatlon

WARNING! Electrical shock hazard! Always check the volt meter before loading a finding. If a charge is indicated turn the machine off until the meter reads zero voltage

Stick pins can best be handled with the finger tips. With the collet in the cocked position, pick up the finding and align it under the collet with the pin pointing towards you. Then press the finding up into place with a finger of the other hand. The flat base of the pin should center on and be flush with the base of the collet. Check carefully and see that the finding has seated properly on the collet.

Align and hold your piece in place underthe jig. Press the Push To Charge button untll the proper voltage is reached (see the Fusion Welding Guide), then pull the Release Knob to complete the weld.



Guide to Using the Production Table

As with other accessories, the Production table is specifically designed for use with SPARKIE II. All findings must be designed for fusion welding. Examine the bottom of the findings for the small nib necessary for fusion. Findings must also be compatible with SPARKIE's specific collet mechanisms. Using improperly designed findings may cause damage to the machine, collets or your product.

Installation

The Production Table replaces the Jig holder. The Jig holder is removed by loosening the allen screw that locks it in place. Loosen the allen screw at the base of the jig holder and lift the fixture out. You may have to twist it to the side to clear the collet. The table is then dropped into the hole in the fixture base. Square the table up with the collet and work space and tighten the allen screw firmly. This screw is an important electrical connection and must be tight.

The three inch plastic Fixture Disk is held in place by an allen screw threaded into a nut under the table. The disk may be both rotated and its position adjusted through the slot in the table.

The Fixture disk is a special low temperature plastic in which an impression mold is formed to hold each piece in place during welding. This fixture should be used with work no larger then approximately 7/8" x 1 1/2". The pieces should be relatively flat. Multiple molds may be made in each disk.

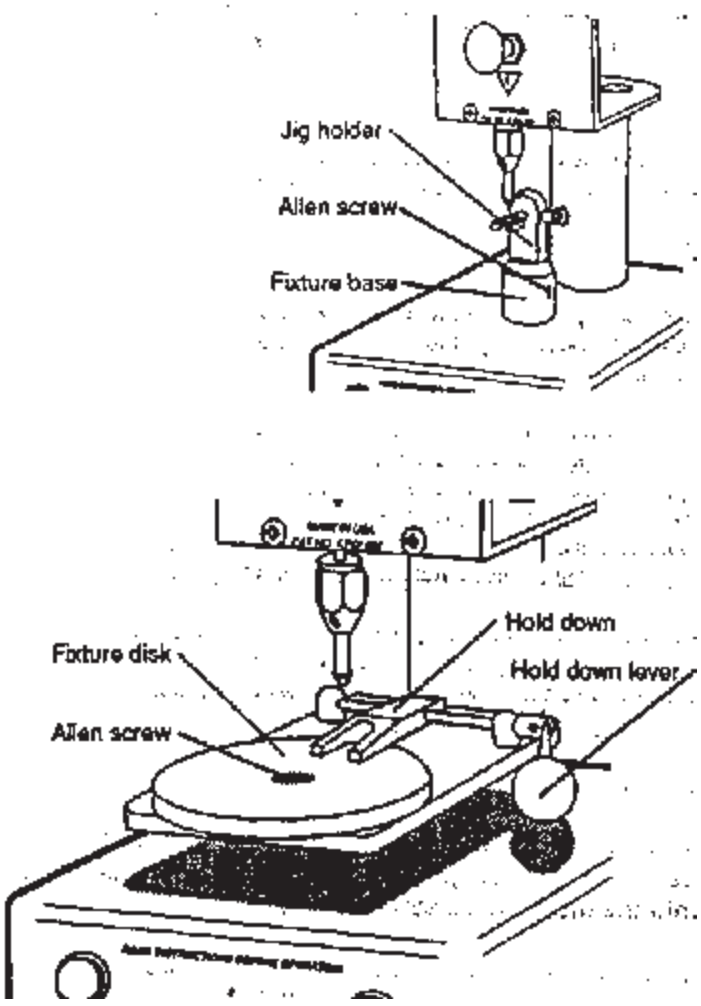
Impression mold making

Impression molds are best made with a bench press. This assures that the design is pressed into the disk parallel with the disk surface. The process may be done by hand with a flat metal block or a drill press can be used with a large square ended rod set in the chuck. The disk should be sandwiched between two flat metal plates at least as large as the disk. This will keep the disk from warping.

Remove the desk from the table and place it on a nonflamable surface. Proper ventilation should be provided, as dangerous fumes may be generated if the plastic is overheated.

Heat the plastic slowly with a soft flame in constant motion over the area to be used. The surface will immediately take on a water-like appearance. This is the surface melting. The heat must now slowly soak deeper into the disk. Do not rush, do not over heat. When property executed, no smoke or flame should be generated. This slow heating may take up to a full minute.

When the disk is properly warmed place a sample of the work face down onto the disk and press it into the surface. It is very important that the piece be pressed straight down. The surface welded must be parallel with the top of the disk. Allow the disk to cool until it can be handled and then remove the sample. The impression should be deep enough to hold the work firmly in place during welding. If the mold seems shallow repeat the process with more heat or pressure.



Set up

Replace the disk onto the table and load a piece into the new mold. Load the finding that you will use with this piece into the collet. Release the cylinder and slowly lower it, adjusting its position with the collet Adjusting Rod (see page 5 of the instructions) until it hangs just above the piece to be welded. The disk position can now be adjusted so that the weld is properly located. At this time check that the hold down seats squarely on the piece and holds it firmly down. This is important because the Hold down provides an electrical contact for the piece. Lock the allen screw down firmly so that the disk will not shift during extended use.

Use the Collet Adjusting Rod (see page 5 in the instructions) to lower the collet until the finding just touches the piece. It is extremely important that all findings hit squarely in order to produce consistent results. So check the alignment carefully. Then lower the collet one quarter of a turn. This assures that the finding is pressed into the weld.

Earposts and tie tacs are usually left sticking out of the collet about 1/8". In this case the collet is set at a point about 1/16" above the piece to be welded. The collet does not touch the work piece and thinner metals may be welded without denting. Please test your work before committing a design to this process.

Important note: Welding with this accessory can cause dents in metals thinner than B&S 20ga (.032" or .8mm). Results can vary depending on the type metal and its condition (annealed or work hardened).

Operation

WARNING! Electrical shock hazard! Always check the volt meter, before loading a finding. If a charge is indicated turn the machine off until the meter reads zero voltage.

Operational Steps

1 Load a finding.
2 Place the piece to be welded in the mold.
3 Press the Push to Charge button and hold until the proper voltage is reached.
4 Rotate the Hold down into position and hold firmly down. This is an electrical contact.
5 Gently pull the cylinder Release knob. The weld is complete!
6 Lift the Engage knob, which releases the welded finding and cocks the welder for the next piece.

Examine and test the welds periodically and closely. Check for proper alignment and strength.