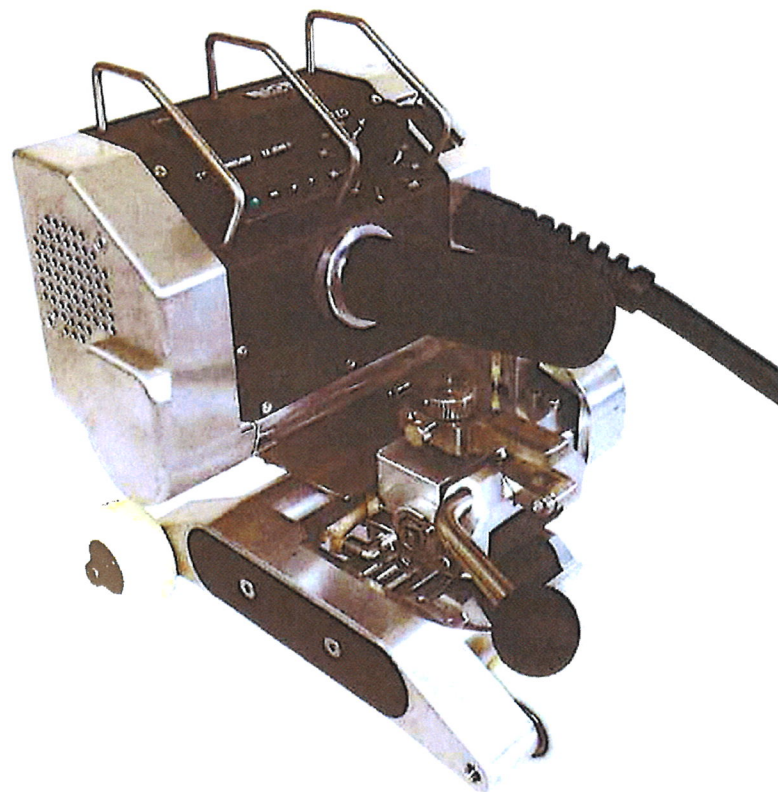


**MICRO**  
Hot Wedge Welder

*Operation Manual*



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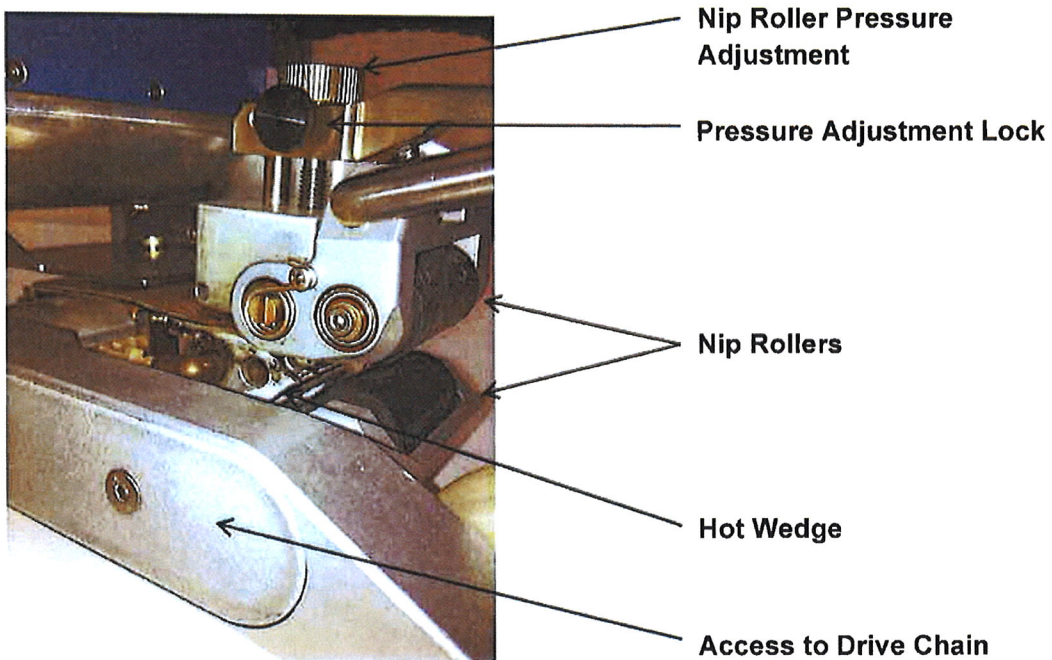
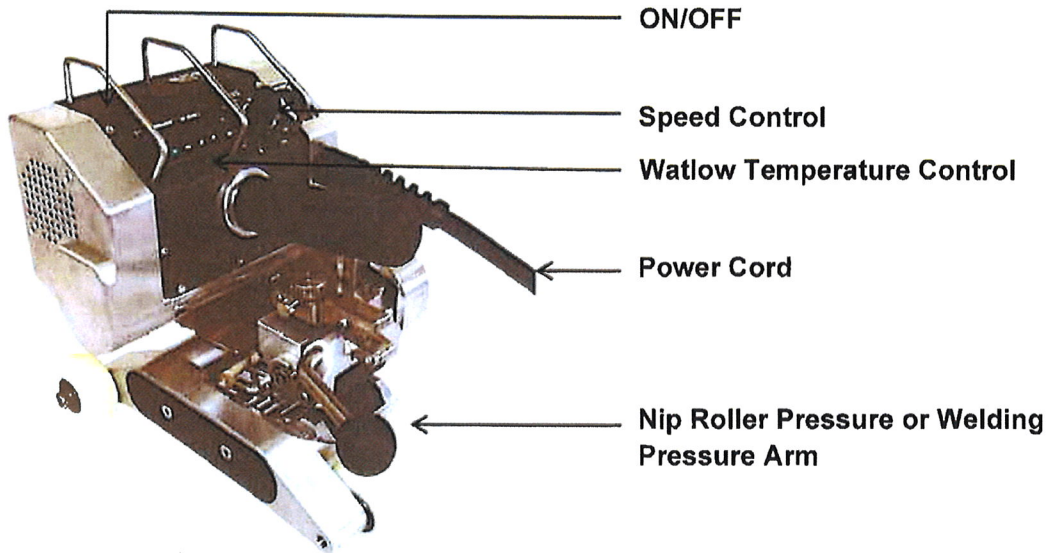
## INTRODUCTION

The Micro Hot Wedge Welder, designed and manufacturer by \_\_\_\_\_ equipment is a self-propelled, heat/pressure fusion machine, used for the seaming of thermoplastic geomembranes and related materials. Although this unit was designed for use in the field, it can be used in-house as well.

## CAUTION

This machine is an electro-mechanical device with moving parts capable of exerting powerful force. Care should be taken to prevent the accidental engagement of clothing, hair or personal extremities with any moving parts.

**Key Mechanical Components and Functions.**



## SET-UP PROCEDURE

Initial Set-up – Various mil thickness tolerances:

The initial set-up of the *Micro* is by far the most critical aspect of not only quality welding results, but also wear and tear on the unit itself.

Adjusting the *Micro* too tightly can result in excessive wear on drive-train parts, such as gears, chains and sprockets, etc.

**THE RECOMMENDED SET-UP PROCEDURE BEFORE HEATING UP THE UNIT IS AS FOLLOWS:**

### ADJUSTMENT #1: WEDGE CENTERING

- A:** Place the two ½ x 2" pieces of material, each folded in half, between Nip Rollers. This is to simulate 2 layers of material between the rollers. Be sure these pieces do not extend past the Nip Rollers into the machine. Rotate the Nip Pressure Cam by moving the Nip Pressure Cam Lever Counter Clockwise.
- B:** Move the Wedge to the ENGAGED position with the Wedge Movement Handle. With a 3mm hex wrench, adjust the Wedge as needed, up or down, to center the Wedge between the Nip Rollers.

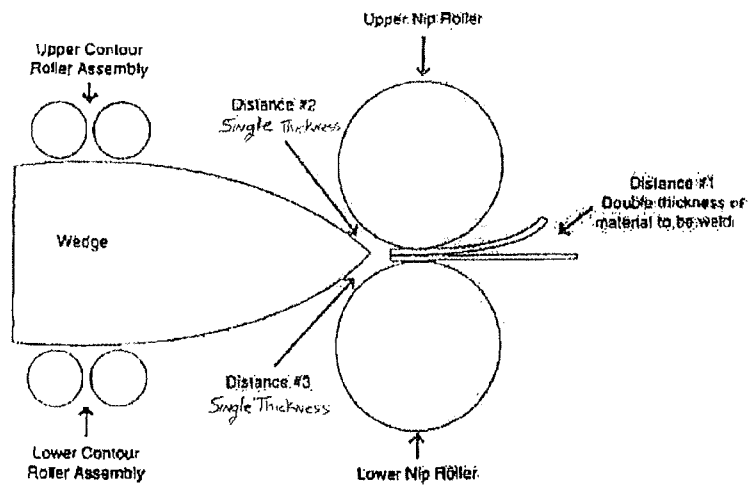
### ADJUSTMENT #2: WEDGE FORWARD TRAVEL

This adjustment determines how close the Wedge is to the Nip Rollers when it is in the ENGAGED or WELDING position.

- A:** To set clearance, engage the wedge into the weld area. Make small adjustments to the 3mm set screws located by the wedge engagement handle.

**NOTE: The distance from the upper tip of the Wedge to the Upper Nip Roller should be the same distance as between the two Nip Rollers. This same clearance should also be maintained between the lower tip of the Wedge and the Lower Nip Roller.**

## SUGGESTED SET-UP FOR HDPE MATERIAL



**NOTE: DISTANCE #2 & 3 SHOULD BE APPROXIMATELY  $\frac{1}{2}$  THE DISTANCE OF #1 AND CONTOUR ROLLER ADJUSTMENTS SHOULD BE BACKED-OFF COMPLETELY OR REMOVED.**

## BASIC WELDING OPERATION

### HEATING UP THE WEDGE:

- A. Plug power cord into 110V or 220V power supply depending on which voltage the unit has been set up for.
- B. Turn temperature ON/OFF switch to the ON position. L.E.D temperature control should display Ambient Temperature and audible alarm will sound.
- C. Press the up and down arrow buttons to set desired temperature.
- D. Whether you are welding small sample pieces, or large sheets, the loading of the material will be the same with the Nip Rollers and Wedge in the disengaged position and motor On/Off switch in the On position.

Position the Micro in the seam, inserting first the bottom sheet of material under the wedge and between the Nip Rollers, and then the top sheet of material over the wedge and between the Nip Rollers. Sheet overlap should be approximately 2 to 3 inches.

**NOTE: Once the bottom sheet of material has been loaded, you may need to manually roll the welder forward and backward as you are loading the top sheet to prevent a "burn out" at the beginning of the weld.**

## **YOU ARE NOW READY TO EXECUTE A WELD**

Engage welding pressure by rotating Nip Pressure Cam Lever counter clockwise to start the drive. Move the Wedge Movement handle until the Wedge retract Plunger drops into the Lock plate. This should take little or no effort on the part of the operator. If it does, the wedge has been set too close to the Nip Rollers and will need to be re-adjusted.

**NOTE:** The speed at which the Micro must travel to produce a quality weld will vary according to the mill thickness of the material being welded, the temperature of the wedge, the ambient (surrounding) temperature, and the temperature of the material, etc. All of these variables must be taken into consideration when choosing a speed setting.

### **REMOVING THE UNIT AT THE END OF THE SEAM**

Just when the nip rollers have reached the end of the seam, extract the Micro in the following order:

1. Disengage Nip Roller pressure
2. Disengage wedge by pulling the wedge retract plunger, the wedge will spring out of the weld area and the drive will stop

### **WELDING PROCEDURE SUMMARY**

#### **STARTING WELD**

1. Turn ON Heat
2. Turn drive motor ON
3. Engage welding pressure
4. Engage wedge

#### **END WELDING**

1. Disengage welding pressure
2. Turn drive motor OFF
3. Disengage wedge

**REMEMBER:** Always engage wedge **LAST** when starting a weld and disengage wedge **LAST** at the end of the weld.



**MAINTENANCE**  
**(QUALIFIED PERSONNEL ONLY)**

This section presents maintenance information for the Micro, including preventive maintenance tips, troubleshooting, and other general information.

**WARNING**  
**THESE SERVICE INSTRUCTIONS ARE FOR USE**  
**BY QUALIFIED PERSONNEL ONLY. TO AVOID**  
**PERSONAL HARM, OR DAMAGE TO THE**  
**MACHINE, DO NOT PERFORM ANY**  
**PROCEDURES IN THIS SECTION UNLESS YOU**  
**ARE QUALIFIED TO DO SO.**

**PREVENTIVE MAINTENANCE TIPS**

Keeping your Micro clean is the most important factor in prolonging the life of the unit. Simple cleaning practices, such as brushing off the hot wedge and removing small rocks and dirt or mud from roller area, should be performed after each seam is completed.

More involved maintenance practices should be performed on a daily or weekly basis, depending on how much welding you are doing.

## LUBRICATING GEARS, SPROCKETS AND CHAINS

**WARNING: TO PREVENT ELECTRONIC SHOCK AND OTHER BODILY HARM, MAKE SURE UNIT IS UNPLUGGED.**

- A. Remove side covers to expose drive mechanisms. The wedge movement handle and adjustment plate will need to be removed for this. Also remove the lower drive chain cover on opposite side to expose lower drive chain.
- B. Clean all gears, sprockets and chains with brake cleaner or cleaning solvent of your choice and a parts brush. Wipe with a clean rag, or preferably, blow dry with compressed air. Make sure all components are clear of dirt and sand, etc. Lightly lubricate all gears, sprockets and chains.

**NOTE: EQUIPMENT COMPANY RECOMMENDS USING SPRAY ON WHITE LITHIUM GREASE WHICH IS AVAILABLE AT ANY HARDWARE STORE OR AUTO PARTS STORE.**

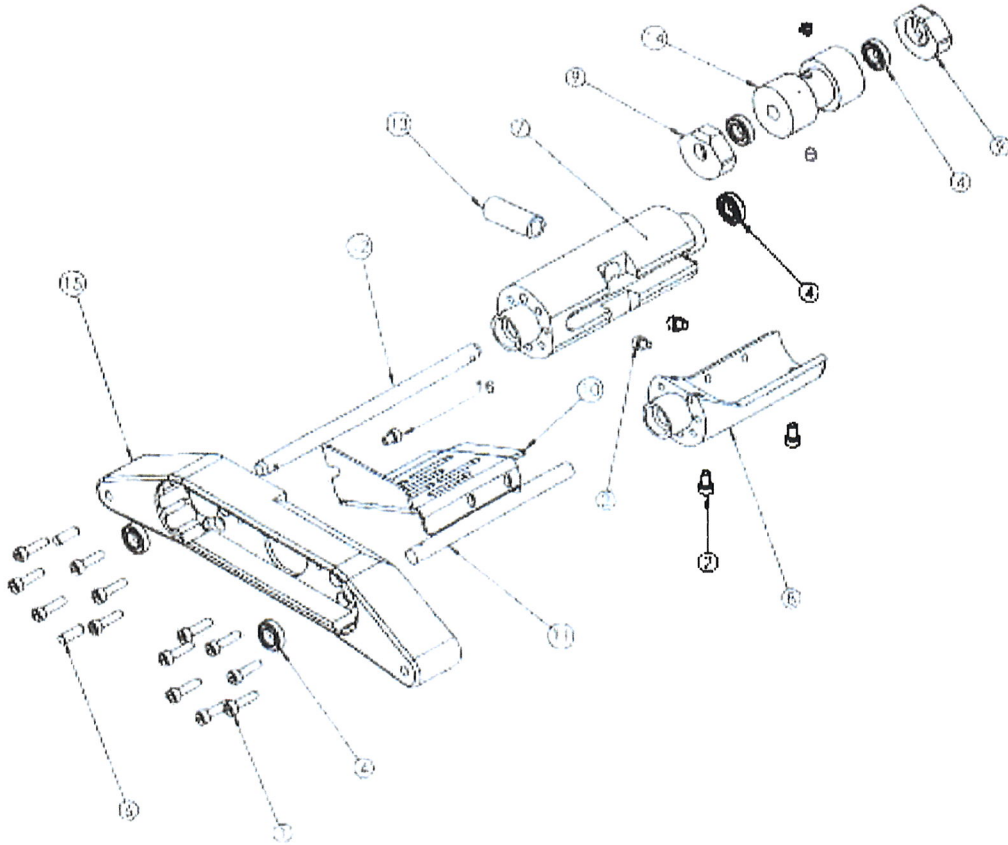
- C. Check chains for proper adjustment and all shoulder bolts, set screws and retaining rings for tightness, including wiring terminal screws.
- D. Replace covers and wipe down the rest of the unit with a clean rag. Check all other screws and retaining rings on the machine for tightness.

**CAUTION!**  
**PLUGGING A MICRO UNIT THAT HAS BEEN SET-UP TO RUN ON 110V INTO A 220V POWER SUPPLY WILL RESULT IN SERIOUS DAMAGE TO THE UNIT.**

### TROUBLESHOOTING CHART

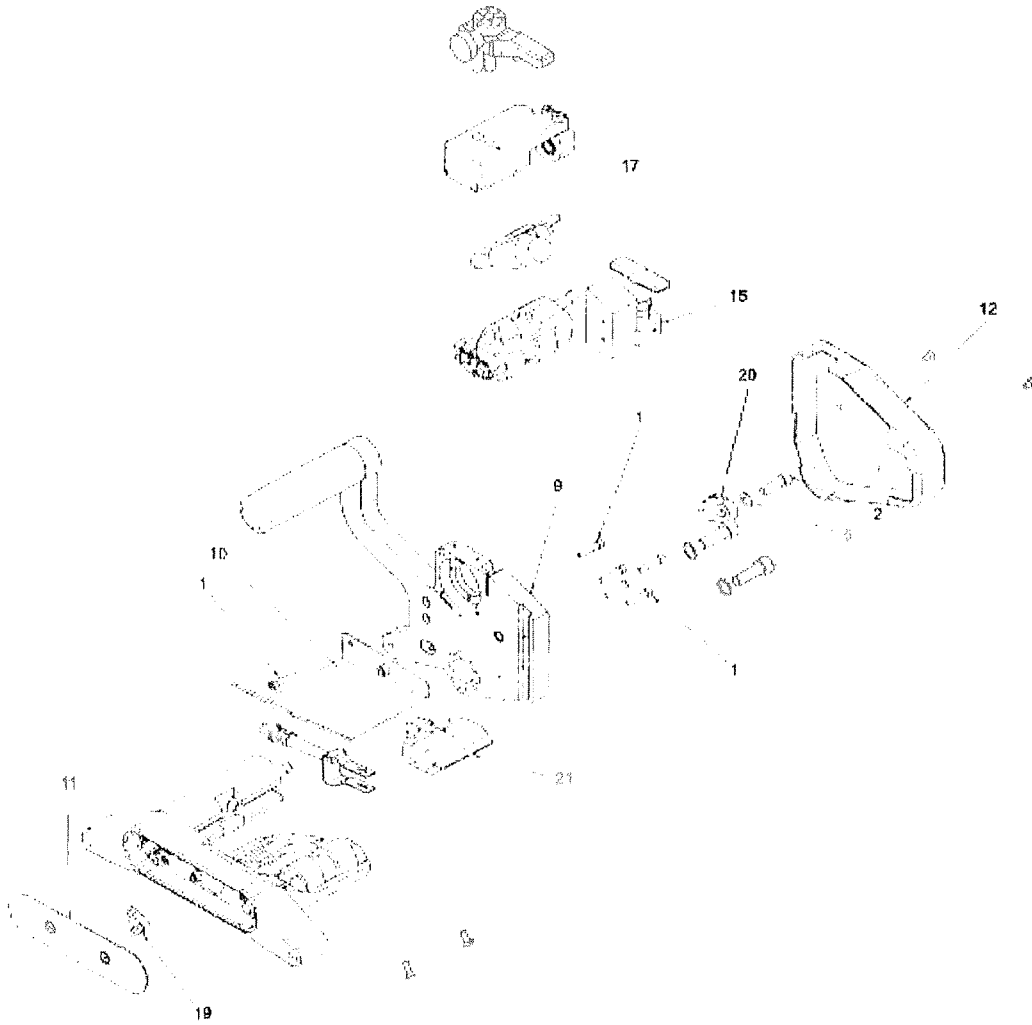
SYMPTOM	PROBLEM AND/OR REMEDY
No power supplied to Micro	Check power cord and power supply. Check main fuses.
Wedge will not heat up	Check temp setting. If setting is correct and wedge still does not heat, contact us.
Wedge heats up to set point temp and continues to increase infinitely (runaway temp)	Turn temp power switch off before temp reaches 900° F (482C) to avoid damage to wedge and/or elements. Possible bad solid state relay. Possible bad temp control.
Temp drops dramatically during welding and will not 'catch up'	Possible bad heating elements. Possible bad relay or temp control.
Nip rollers will not rotate (drive)	Check motor on/off switch. Check motor speed setting. Check motor fuses
Upper nip roller turns but lower doesn't turn or lower nip roller turns but upper doesn't.	Check both nip roller set screws for tightness. Check drive-chains & sprockets.

## MAIN FRAME ASSEMBLY



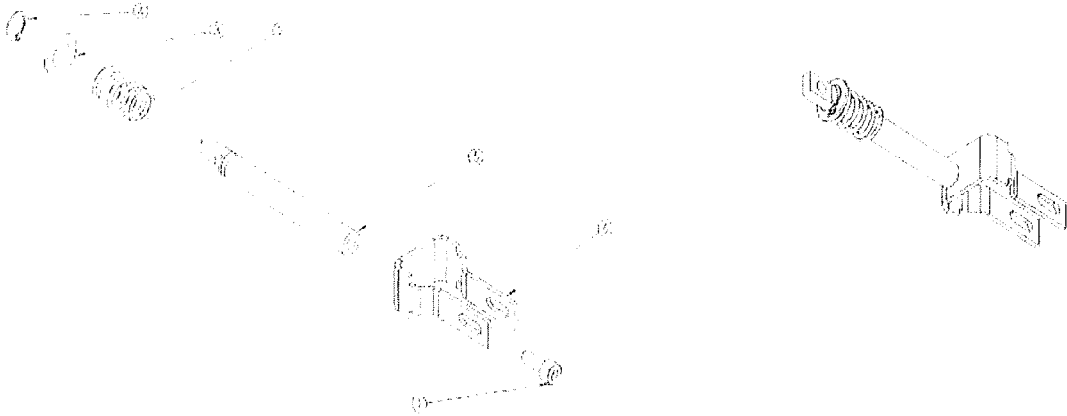
Schematic #	Part #	Description
1	SW11104020	M4 X 0.7 X 20 Soc Head Cap Screw
2	SW1110408	M4 X 0.7 X 8 Soc Head Cap Screw
3	SW1110408	M4 X 0.7 X 8 Soc Head Cap Screw
4	MM26	Drive Bearing 8mm x 16mm x 5mm
6	SW11104020	M4 X 0.7 X 20 Soc Head Cap Screw
7	MM01.02	Left Arm, Main Frame
8	MM01.03	Right Arm, Main Frame
9	MM01.04	Bearing Mount, Main Frame
10	MM41	Slotted Tray
11	MM01.06	Roller Axle, Main Frame
12	MM01.07	Sprocket Axle, Main Frame
13	MM01.08	Left Arm Bushing, Main Frame
14	MM68.03	Split Knurled Roller for Nip Arm
15	MM01.01	Sprocket Box, Main Frame
16	SW11105012	M5 x .80 x 12.00mm Soc Head Cap Screw

## BASE UNIT ASSEMBLY



Schematic #	Part #	Description
1	SW11104020	M4 X 0.7 X 20mm Soc Head Cap Screw
2	SW11105020	M5 x .80 x 20mm Soc Head Cap Screw
5	SW2870303	Thick Washer M5 5.3IDx11ODx2.0 Thick
9	MM02.01	Side Plate
10	MM03.01	Loading Plate
11	MM18.01	Sprocket Box Cover
12	MM19.01	Side Plate Cover
15	MM75.01	Bracket, Wedge Engagement and Release
17	MM74.04	Arm, Nip Engagement
19	MM120.1	Idler Mount Chain Tensioner
20	MM125.1	Chain Tensioner Bracket
21	MM55	Solid Aluminum Wedge
22	MM02.02	Handle, Side Plate

## WEDGE MOUNT ASSEMBLY



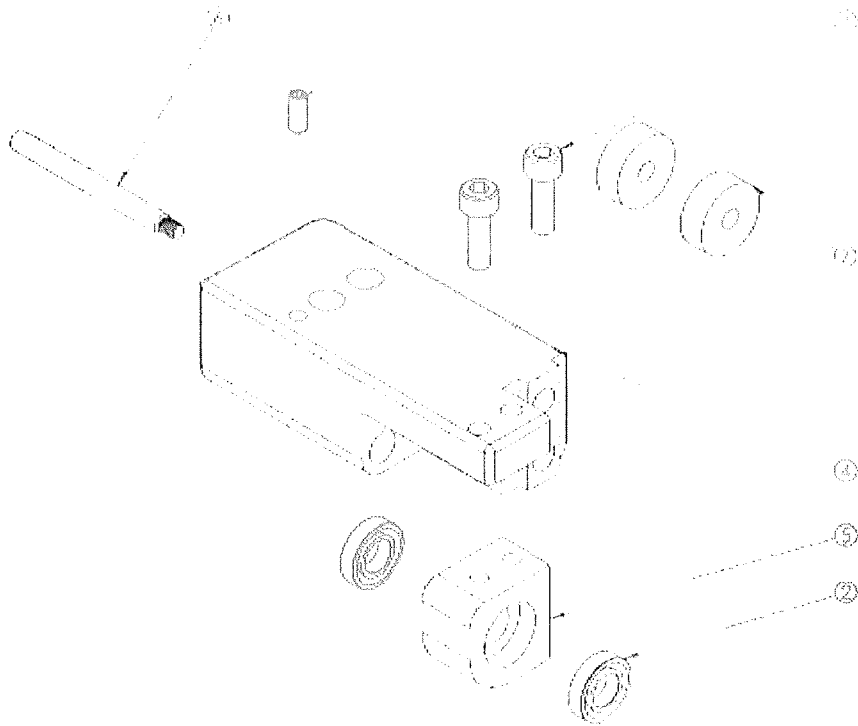
Schematic #	Part #	Description
1	SW11104012	M4 X .70 X 12.00 SS Soc Head Cap Screw
2	MM87	Comp Spring 39mm, 11.OD, 1mm Wire
3	SW2870050	M8 x .16mm Washer
4	CW202	Snap Ring
5	MM51.01	Wedge Mount Rod
6	MM51.02	Wedge Mount New Style

## NIP ARM ASSEMBLY



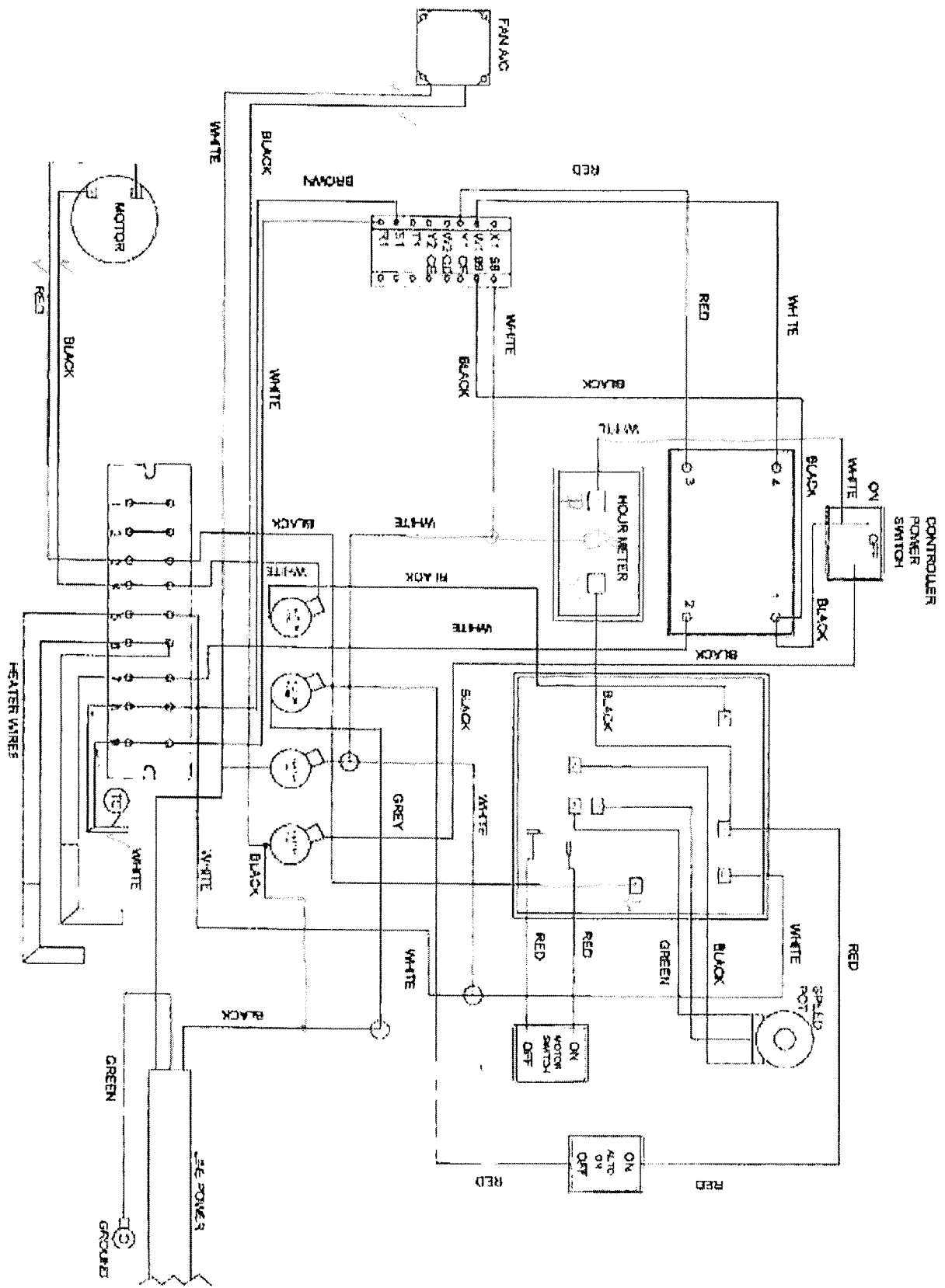
Schematic #	Part #	Description
1	MM26	Drive Bearing 8mm x 16mm x 5mm
2	CW217	M .8 x 8mm Cup Pt Set Screw
3	SW11104016	M4 x 16 Soc Cap Screw
7	MM68.01	Nip Arm Gear Cover
8	MM68.02	Nip Arm Main Body
9	MM68.03	Split Knurled Roller for Nip Arm
10	MM68.04	Roller Spur Gear, Nip Arm
11	MM68.05	Sprocket Driven Spur Gear, Nip Arm
12	MM67.03	Rear Travel Roller Rod
13	MM78	Torsion Spring

## NIP BLOCK ASSEMBLY



Schematic #	Part #	Description
1	SW11105016	M5 x .8 x 16.00 SHCS
2	MM26	Drive Bearing 8mm x 16mm x 5mm
4	MM67.01	Nip Block Main Body
5	MM67.02	Nip Block Bearing Arm
6	MM67.03	Rear Travel Roller Rod
7	MM67.04	Nip Block Roller





## - SAFETY INSTRUCTIONS-

(English)

**WARNING!** When using electric tools,, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following.

Read all these instructions before attempting to operate this product and save these instructions.

For safe operation:

1. **Keep work area clean**  
-Cluttered areas and benches invite injuries.
2. **Consider work area environment**  
-Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit. Don't use power tools in presence of flammable liquids or gases.
3. **Guard against electric shock**  
-Prevent body contact with grounded surfaces (e.g. pipes, radiators, ranges, refrigerators).
4. **Keep children away**  
-Do not let visitors contact tool or extension cord. All visitors should be kept away from work area.
5. **Store idle tools**  
-When not in use, tools should be stored in dry, high, or locked-up place, out of the reach of children.
6. **Don't force tool**  
-It will do the job better and safer at the rate for which it was intended.
7. **Use right tool**  
-Don't force small tools or attachments to do the job of a heavy duty tool. Don't use tools for purposes not intended; for example, don't use circular saw for cutting tree limbs or logs.
8. **Dress properly**  
-Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
9. **Use safety glasses**  
-Also use face or dust mask if cutting operation is dusty.
10. **Don't abuse cord**  
-Never carry tool by cord or yank it to disconnect it from receptacle. Keep cord from heat, oil and sharp edges.
11. **Secure work**  
-Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **Don't overreach**  
-Keep proper footing and balance at all times.
13. **Maintain tools with care**  
-Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean and free from oil and grease.
14. **Disconnect tools**  
-When not in use, before servicing, and when changing accessories such as blades, bits, and cutters.
15. **Remove adjusting keys and wrenches**  
-Form the habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **Avoid unintentional starting**  
-Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **Outdoor use extension cords**  
-When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **Stay alert**  
-Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **Check damaged parts**  
-Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced; by an authorized service center unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by an authorized service center. Do not use tool if switch does not turn it on and off.
20. **Warning**  
-The use of any other accessory or attachment other than recommended in this operating instructions or the catalog may present a risk of personal injury.
21. **Have your tool repaired by a qualified person**  
-This electric tool is in accordance with the relevant safety rules. Repairs should only be carried out by qualified persons using original spare-parts otherwise this may result in considerable danger to the user.

Save these instructions

Save these instructions  
-INSTRUCCIONES DE SEGURIDAD-  
(Español)

**ATENCIÓN!** Con el fin reducir el peligro de descarga eléctrica, de herida corporal y de incendiar al emplear herramientas eléctricas, observe las siguientes medidas de seguridad básicas. Lea y observe estas instrucciones antes de emplear la herramienta. Conserve cuidadosamente las instrucciones de seguridad!

1. **Mantenga el orden en su campo de trabajo**  
-El desorden en el campo de trabajo aumenta el peligro de accidente.
2. **Tenga en cuenta el contorno del campo de trabajo**  
-No exponga las herramientas eléctricas a la lluvia. No utilice herramientas eléctricas en un ambiente húmedo o mojado. Cuide de que el campo de trabajo este bien iluminado. No utilice herramientas eléctricas a proximidad o líquidos o gases inflamables.
3. **Protejase contra las descargas eléctricas**  
-Evite el contacto corporal con superficies conectadas a tierra, como p.ej. tubos, radiadores, cocinas eléctricas, frigoríficos.
4. **Mantenga los niños a distancia!**  
-No permita que otras personas toquen la herramienta o el cable. Manténgalas alejadas de su campo de trabajo.
5. **Guarde sus herramientas en un lugar seguro**  
-Las herramientas no empleadas deberían guardarse en un lugar seco, cerrado y fuera del alcance de los niños.
6. **No sobrecargue su herramienta**  
-Trabaja mejor y con mayor seguridad observando el campo de potencia indicado.
7. **Utilice la herramienta adecuada**  
-No utilice herramientas o dispositivos adaptables de demasiada poca potencia para ejecutar trabajos pesados. No utilice herramientas para fines y trabajos para los cuales no han sido previstos, p.ej. no emplee una sierra circular de mano para talar árboles y cortar ramas.
8. **Pongase la ropa de trabajo conveniente**  
-No lleve ropa ancha o joyas. Podrían ser asidos por las piezas en movimiento. Al efectuar trabajos al aire libre, se recomienda el uso de guantes de goma y de zapatos de suela antideslizante. Pongase una redecilla para el pelo si lo tiene largo.
9. **Pongase gafas protectoras**  
-Pongase también una máscara si el trabajo realizado produce polvo.
10. **Preserve el cable de alimentación**  
-No lleve la herramienta colgada del cable y no tire de este para desconectar la clavija de la base de enchufe. Proteja el cable contra el calor, el aceite y los cantos agudos.
11. **Afiance la pieza de trabajo**  
-Utilice un dispositivo de fijación o un tornillo de banco con el fin de sujetar fuertemente la pieza de trabajo. Estará así sujeta con mayor seguridad que con su mano y tendrá las dos manos libres para manejar la herramienta.
12. **No extienda excesivamente su radio de acción**  
-Evite toda postura que cause cansancio. Cuide de que su posición sea segura y de que conserve el equilibrio en todo momento.
13. **Cuide sus herramientas con esmero**  
-Mantenga sus herramientas afiladas y limpias con objeto de trabajar mejor y de manera más segura. Observe las instrucciones de mantenimiento y las indicaciones para el cambio de los útiles. Compruebe regularmente la clavija y el cable de alimentación y, en caso de deterioro, hágalos cambiar por un especialista acreditado. Compruebe el cable de empalme regularmente y cámbielo en caso de deterioro. Mantenga las empuñaduras secas y exentas de aceite y grasa.
14. **Desconecte la clavija de la red**  
-En caso de no utilizar la herramienta, antes de proceder al mantenimiento y al cambiar de herramienta como p.ej. de hoja de sierra, de broca y de todo tipo de útiles.
15. **Retire las llaves de la herramienta**  
-Antes de conectar la herramienta, cerciórese de que se hayan quitado las llaves y los útiles de ajuste.
16. **Evite toda puesta en marcha accidental**  
-No lleve ninguna herramienta con el dedo puesto sobre el interruptor mientras este conectada a la red eléctrica. Cerciórese de que el interruptor este desconectado al efectuar la conexión de la herramienta a la red eléctrica.
17. **Cable de empalme para exteriores**  
-Al exterior, utilice solamente cables de empalme homologados y convenientemente marcados.
18. **Este siempre atento**  
-Observe su trabajo. Obre demostrando sentido común. No emplee la herramienta cuando este cansado.
19. **Controle si su aparato tiene deterioros**  
-Antes de volver a emplear la herramienta, compruebe cuidadosamente el perfecto funcionamiento de los dispositivos de seguridad o de las piezas levemente dañadas. Compruebe si las piezas móviles están en buen estado de funcionamiento, si no se atascan o si otras piezas tienen desperfectos. Todos los componentes deben estar montados adecuadamente y cumplir los requisitos para garantizar el correcto funcionamiento del aparato.
20. **Atención**  
-Para su propia seguridad, no emplee más que los accesorios y los dispositivos adaptables mencionados en las mencionados en las instrucciones de servicio, o que hayan sido recomendados por el fabricante de la herramienta. La utilización de otros accesorios o herramientas adaptables, excepción hecha de aquellos recomendados en las instrucciones de servicio o en el catálogo, pueden significar para Ud. un peligro personal de herida. Todo dispositivo de seguridad y toda pieza deteriorados deberán ser reparados o cambiados de modo apropiado por un taller del servicio posventa, a no ser que las instrucciones de servicio contengan otras indicaciones. Todo interruptor de mando deteriorado, deberá ser reemplazado por un taller del servicio posventa. No utilice ninguna herramienta en la cual el interruptor de mando no conecte ni desconecte perfectamente.
21. **Haga reparar su herramienta por un especialista**  
Esta herramienta eléctrica está de acuerdo con las reglas de seguridad en vigor. Toda reparación debe ser hecha por un especialista y únicamente con piezas de origen, si no, puede acarrear graves riesgos para la seguridad del usuario.