

# MARQUETTE<sup>®</sup>

## Dent Removal System

### User Manual

### M12147 Marquette Dent Removal System

Your M12147 Marquette Dent Removal System includes:

- The welding unit with attached power cord
- Attached insulated 6 foot 3 cable set
- Attached trigger handle with weld/heat shrink tip
- Attached weld-on grounding device
- 1 package 2.1 mm (250) common bonding studs
- D-Ring puller
- Universal Cam Chuck (fits D-Ring puller and optional slide hammer accessory)
- 3 consumable electrodes
- Electrode holder
- Dent puller bar and pad
- Warranty certificate



If any part is missing or damaged, please contact your local Marquette dealer.



## WARNING



READ THIS BEFORE USING YOUR DENT REMOVAL SYSTEM.

- CAUTION! Electrode can become hot. To avoid severe burns, wear protective clothing and gloves during use.
- Pacemaker wearers should consult physician before use.
- Wear proper eye protection. Clear lenses are suitable as nail welder does not generate a bright arc. Electrode tip may glow and/or spark during use and when in contact with sheet metal.
- Do not use near any flammable substance or material.
- Do not mount unit near combustible surfaces.
- Disconnect from power supply before removing top panel. Do not operate with top panel removed.
- Do not allow any part of body to come in contact with any uninsulated current carrying component.
- Do not use machine in wet conditions.
- Connect machine to power source in accordance with applicable electrical codes.
- Consult this owners manual before use.

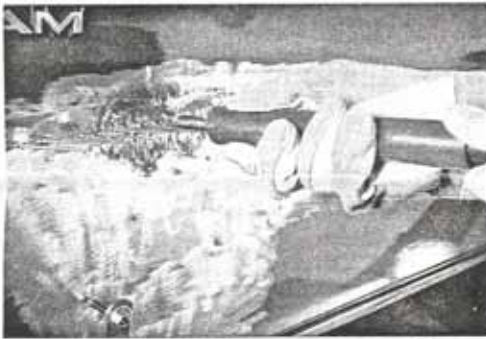
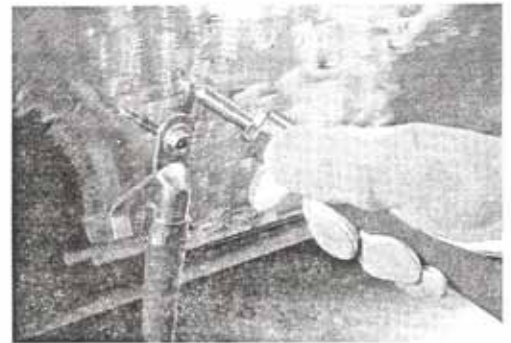
### General Information — READ THIS MANUAL CAREFULLY BEFORE USING YOUR M12147.

For best results and less damage to the panel you are repairing, use Marquette's 2.1 mm Common Bonding Studs (M12142) or equivalent. Copper coated studs may be used, however they may result in larger burn marks.

Keep your trigger click time to short durations. If cable over-heating occurs, allow time for the cables to cool before continuing use.

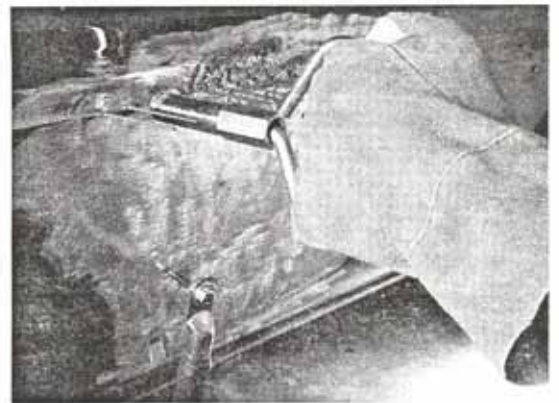
## Grounding Procedure

1. Remove the paint and galvanizing from the surface to be repaired. Touch the electrode tip of the weld-on grounding attachment to the bare panel. (Only the electrode tip need contact bare metal for nail welding.)
2. Turn the timer dial to the Heat Shrink area of the dial. Touch the weld/heat shrink tip of the trigger handle at a slight angle to the panel and trigger click once. The unit is now properly grounded for dent pulling operations using nail bonding or nail less applications.
3. **IMPORTANT!** When grounding for heat shrinking, both the electrode and copper bracket must be in contact with bare metal for maximum grounding and to ensure excess heat is not generated at the grounding electrode causing it to release.
4. To release the grounding electrode bond, twist the device 90 degrees to the right or left. **DO NOT ROCK GROUNDING ELECTRODE BACK AND FORTH**—this may tear a hole in the panel.
5. A magnetic grounding device is available as an accessory which may be substituted for the weld-on grounding attachment included with you unit.



## Nail Welding

1. After following the grounding procedure, insert common bonding stud into the welding tip. Turn the timer knob mid way in the dent pulling area (about 10 o'clock) to weld the bonding studs for D-ring or slide hammer pulling functions. Touch the stud head to the bare panel. Trigger click once for a light bond. Use two or more trigger clicks where a stronger bond is required. If an excessive "blue ring" burn mark results, shorten your trigger click duration.
2. Choose the D-ring puller where finesse is required to remove a dent or the optional slide hammer accessory for larger dents. The cam chuck fits both apparatus.
3. To release the stud bond, twist stud 90 degrees to the right or left. **DO NOT ROCK STUD BACK AND FORTH**—this may tear a hole in the panel.
4. If stud is not bonding to your satisfaction, increase or decrease the timer knob until optimum bond is achieved. The bond should be sufficient to pull dents without studs coming loose and with minimal panel damage.



*Slide hammer is available as an accessory (M12146). Contact your Marquette Welding distributor.*



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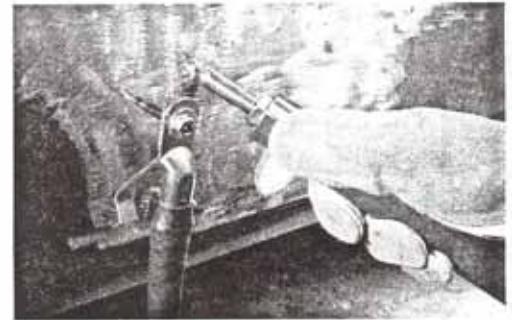
## Dent Removal System

### Heat Shrinking



1. Turn the timer knob to the Heat Shrinking area. Use the weld/heat shrink tip in the same manner as when welding studs, except cock the handle at a slight angle and use the side of the tip so as not to damage the tip opening.
2. If a slag or darkening occurs at the tip, sand it off with an emery cloth. Be sure to keep a smooth rounded surface on the tip.

**CAUTION!** Repetitive use of heat shrinking procedures may cause cabling to heat up. This could damage the cable insulation. If overheating occurs, allow time for cables to cool before continuing.



### Nail Less Dent Removal



Certain repairs require a combination of stud pulling and nail less dent removal techniques. For larger dents use stud pulling techniques for ruff out, then finish with the following nail less procedures. Like stud bonding applications, the timer knob should be adjusted for optimum bond of the electrode with minimum panel damage.

1. Attach electrode holder to side of trigger click handle; attach one of the consumable electrode included with your M12147. Additional electrodes (M12143) are available from your Marquette Welding distributor.
2. Be sure the weld-on grounding attachment is secure. Weld electrode tip to the bare panel surface with one or two short trigger clicks, depending on metal gauge. Pull with steady force to remove dents.
3. To release bond, twist the handle to the right or left. **DO NOT ROCK ELECTRODE BACK AND FORTH**—this may tear a hole in the panel.

On repairs where either more finesse or more force is required, use the puller bar and pad with the electrode as shown.

1. Position puller bar and pad on metal panel surface.
2. Slide attached electrode into the puller bar handle and weld electrode to panel. Pull on bar with steady force.
3. Twist handle to release electrode bond.

With practice, excessive speed in using nail less techniques will cause electrodes to overheat. Dip the electrode into cold water to cool, then continue with your dent removal.



Excessive slag or burnt down electrodes cause poor bonding. Replace the electrode and continue your repair. Dress used electrodes with bench grinding to create a clean flat electrode tip approximately 1/8" diameter.

Flat should be maintained  
approx. 1/8" diameter



### Replacement Parts and Accessories

All parts are available from your Marquette Welding distributor.

M12131	D-Ring Kit (includes Cam Chuck)
M12132	Cam Chuck only
M12133	D-Ring Puller only
M12134	Magnetic Grounding Attachment
M12135	Electrode Holder
M12136	Weld/Heat Shrink Tip
M12138	Puller Bar and Pad
M12142	2.1 mm Bonding Studs (500)
M12143	Electrodes (6-pack)
M12144	Weld-On Grounding Attachment
M12145	Slide Hammer Kit (includes Cam Chuck and D-Ring)
M12146	Slide Hammer only
M12147	Dent Removal Welder
M12148	Welder Stand
M12154	Replacement Grounding Electrodes (4-pack)

### M12147 Specifications

primary voltage	service	frequency	duty cycle	weight (approx.)	warranty normal use
110-120 VAC	20 Amp	50-60 Hz	3%	30 lbs.	5-2-1

Made in U.S.A.

## MARQUETTE<sup>®</sup>

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