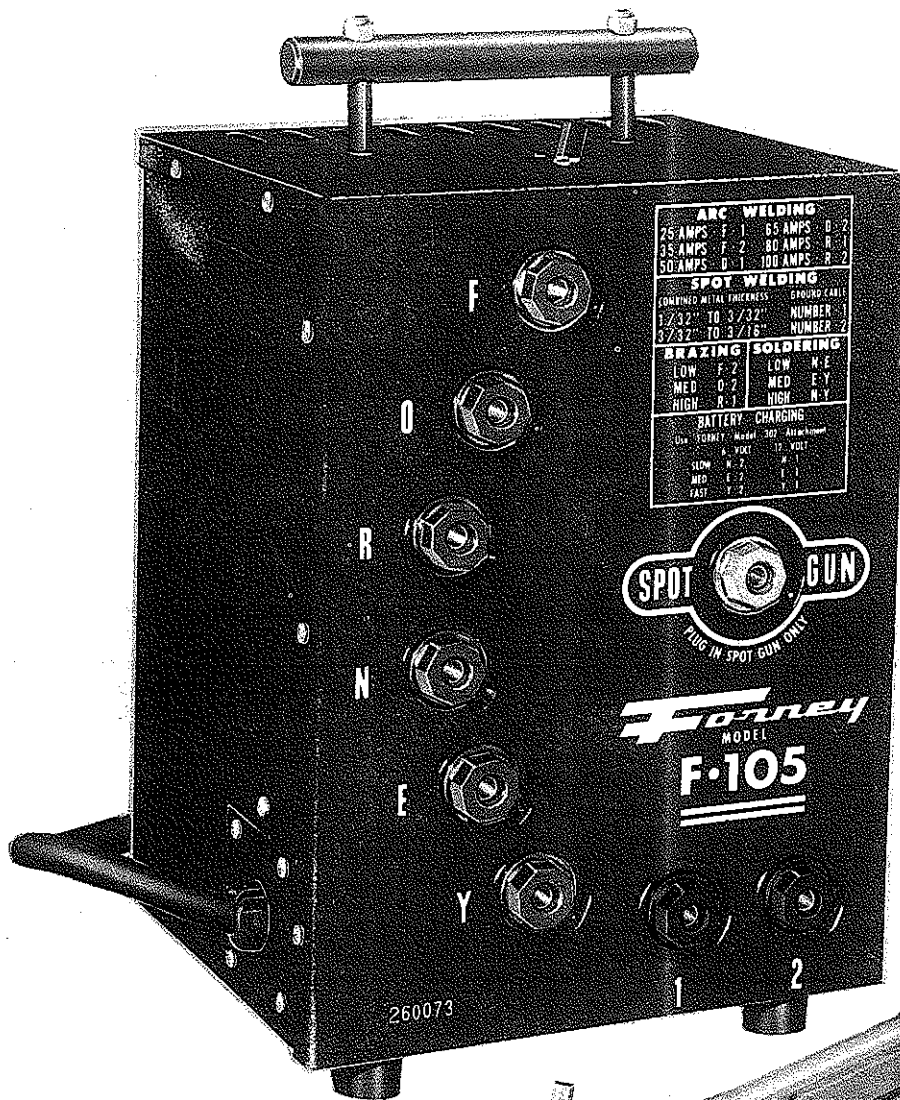


FORNEY F-105

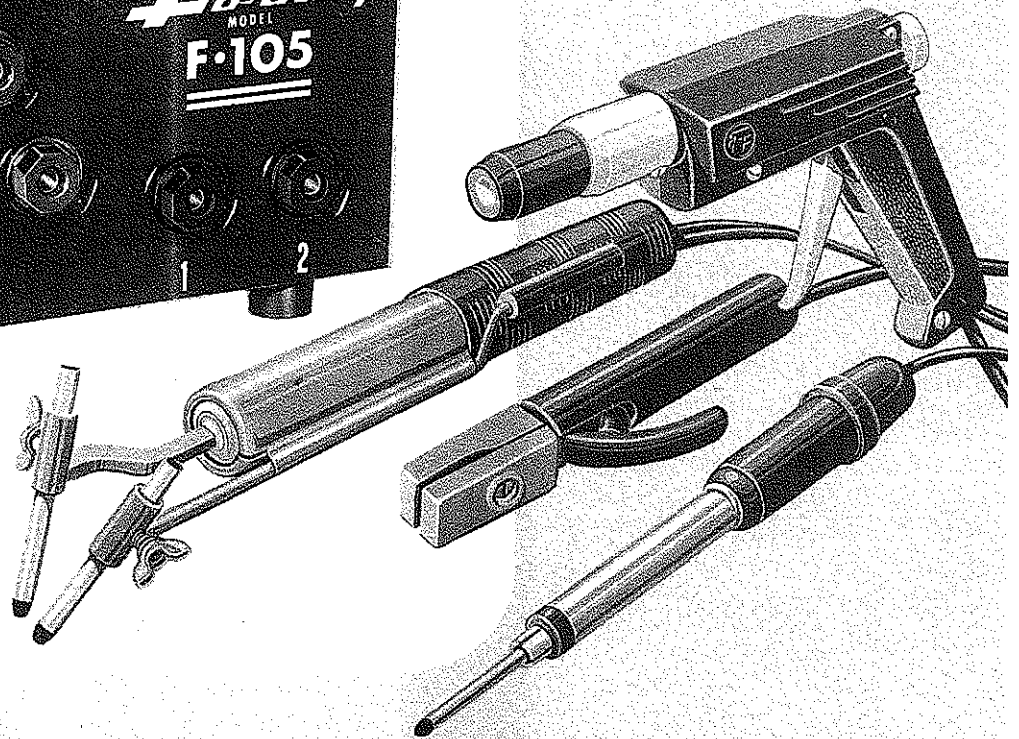
REPAIR UNIT

**BIG POWER
IN A SMALL PACKAGE**

Small enough for the hobbyist, yet power to spare for small Shops, Service Stations, Garages, Sheet Metal Shops, etc.



Operates on either
115 or 230 volts



The FORNEY F-105 is a portable repair unit that welds, brazes, solders, hardfaces, preheats for forming, cuts metal, drills holes, engraves metal tools, charges batteries with the Forney 303 Charger, and spot welds with the Forney Spot Arc Gun.

Forney F-105

Portable Repair Unit



SPECIFICATIONS

Frequency 60

Phase 1

Primary Voltage	115	230
Max. Output Amps.	80	100
Max. Input Amps.	30	26
Max. O. C. Voltage	75	80
Power Factor Max. Rated	75	70

Height ... 19 3/4" Width ... 12 1/2"
Depth ... 10 1/2" Weight ... 54#

COMPLETELY EQUIPPED UNCONDITIONALLY GUARANTEED

The same high quality for which the larger Forney Models are famous is built into this thoroughly portable model. It operates on 115 or 230 volts and a switch-over block on the side of the machine converts it from one to the other voltage by merely changing the connections of the power cable.

The simplicity and speed with which the heat stages are selected are unusual. A combination of lettered taps and the numbered taps produces 6 heat stages as marked in the selection chart under "Welding". The amperages shown are produced by 230 volt input. When operating on 115 volts the amperages on each heat stage are slightly reduced with a maximum of 80 amps at the highest heat stage. Maximum on 230 volts is 100 amps.

For Brazing and Soldering, separate selection charts make easy the proper settings for either 230 or 115 volt input operation.

In all these operations the welding cables can be used without regard for polarity. Either cable plugged into lettered or numbered taps provides for top performance.

The tests made are rigid and thorough. Test performance records of each unit are available to any power company should they desire them.

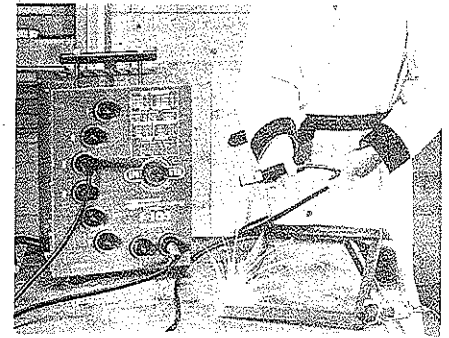
◀ BATTERY CHARGING

The F-105 is designed for use with the FORNEY 303 Battery Charger, too. Again a selection chart is provided for proper taps to charge 6 or 12 volt batteries.

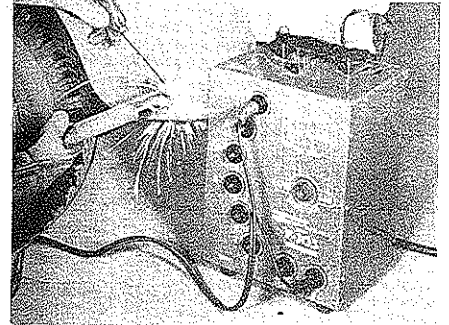
SPOT WELDING ▶

The F-105 is also designed for use with the FORNEY Spot Arc Gun for fast, efficient, professional, quality spot welding.

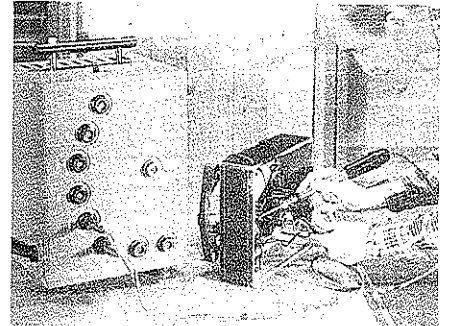
(Battery Charger and Spot Arc Gun not included with standard accessories.)



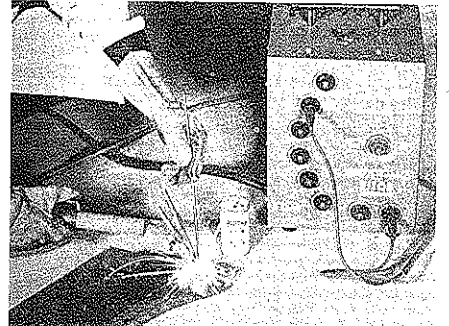
WELDING



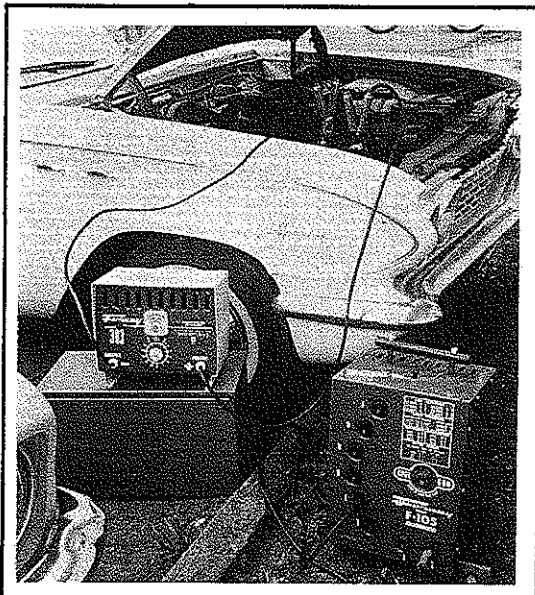
BRAZING



SOLDERING



HARDFACING



FORNEY ARC WELDERS Div. of Forney Industries, Inc.
FORT COLLINS, COLO., U.S.A. • ESTEVAN, SASK., CANADA

FORNEY

MODEL F-105 WELDER

**Operating
Instructions**

FORNEY MODEL F-105 WELDER
OPERATING INSTRUCTIONS

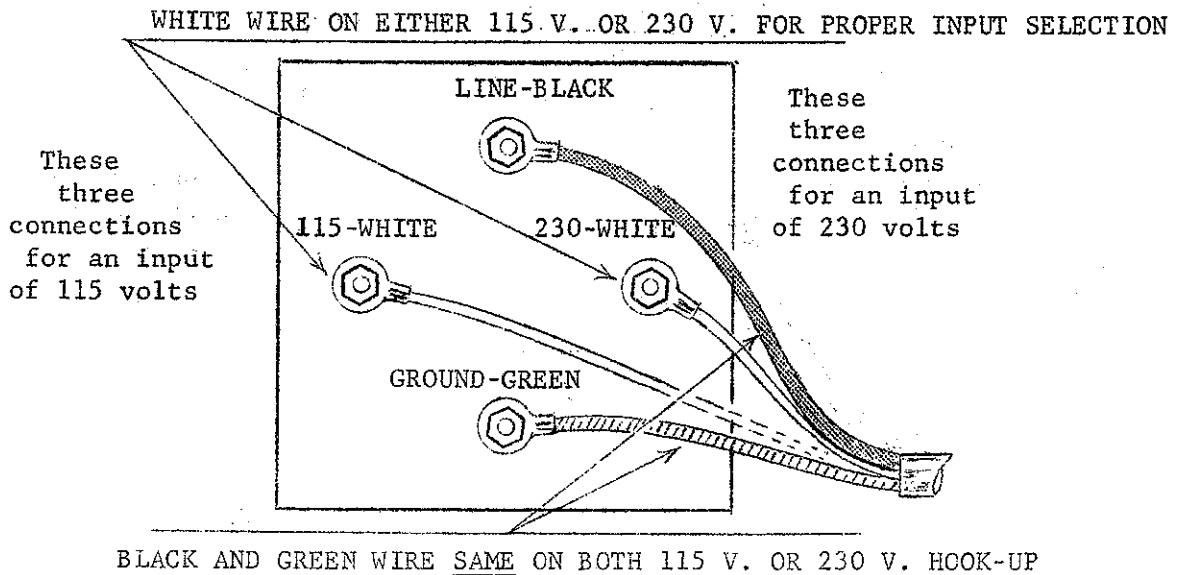
THE WELDER-

Your Forney Welder, Model F-105 is a transformer, limited input type, made of high quality materials backed by the knowhow of over a quarter of a century of making welding equipment for the professional and amateur alike. It will give you years of excellent performance.

INSTALLING THE WELDER

Model F-105 operates on either 115 volts or 230 volts, 60 cycle alternating current. A special change-over block is located on the inside of the machine behind the plate holding the power cable. In packing the machine at the factory, the power cable is connected for 230 volt operation, and the outside end is provided with lugs for a 230 volt plug.

Hooking up the power cable, and making subsequent changes is very easy and fast with this change-over block. Pictured below is the manner in which connections are to be made for either 115 or 230 volt input. Only the white wire is moved to make the change inside the machine.



The black wire is to always be attached to the post marked "LINE-BLACK". The green wire is to always be attached to the post marked "GROUND-GREEN". The white wire is to be attached to the post marked "230-WHITE" or to the post marked "115-WHITE" depending upon the input voltage.

The cover plate is to be attached to the case by means of the four sheet metal screws when the change-over block has been set. The plate prevents unnecessary strain on the post connections because of the strain relief clamp that attaches the cable to the plate.

HOOKING UP THE WELDER-

At the other end of the power cable, short lengths of wires are bared and capped with lugs for quick and easy attachment to a service-disconnect box (fuse or breaker type).

The green wire should be attached to the safety ground of the power system in any case -- 115 volt or 230 volt.

In a 115 volt installation, the white wire connects to one prong of the 115 volt plug and black wire to the other prong. The green wire should be connected to the safety ground terminal. Never connect the green and white wires to the same 115 volt prong as the plug.

In a 230 volt installation, the white wire should be attached to one 230 volt wire of the power system and the black wire should be attached to the other 230 volt wire of the system.

Care should be exercised not to hook up incorrectly to a three phase line.

FUSING-

For either 115 volt or 230 volt, the fuse or breaker size should be 30 amps.

WIRE SIZE-

For best results, we recommend wiring not smaller than No. 10.

WELDING-

Fit helmet to your head size and put it on. Be sure dark lens is in place and the cover lens is wiped off.

To select the proper amperage for the most mild steel welding in the flat position, refer to the chart below:

Rod Sizes	METAL THICKNESS			
	22 GA. or Lighter	1/16	1/8	3/16
5/64	25	35		
3/32	25	35	65	
1/8		50	80	100
5/32			100	100

FOR EXAMPLE: The base metal for a certain job is 1/8" thick. Let's say you want to use a 3/32" rod. Where the horizontal and vertical columns cross for these two factors, the recommended amperage is quickly located.

To set the machine for this "heat" merely refer to the "Welding" selection chart on the face of the welder. Here you'll find that 65 amps is produced by taps 0 and 2. Insert one of the welding cables in the tap marked "0". Polarity is not a problem so it won't make any difference which cable you use. Insert the other cable in the tap marked "2".

Attach the ground clamp to the base metal. Insert the rod in the Electrode Holder. Turn the machine on - and you are ready to weld.

The arc is struck by dragging the rod end across the base metal much in the same manner as striking a match. Drag the rod for approximately one inch, then lift the rod about 3/16" from the metal to start the arc, then lower the rod to approximately 1/8" and weld.

The arc length and speed of travel over the metal are the main factors that determine the appearance and strength of the weld. Too fast a travel will string the weld over the metal unevenly and will not give sufficient penetration. Too slow a travel will "pile up" the weld metal unnecessarily and give a rough appearance. A small "puddle" of molten metal should be kept under the arc.

The rod should be held in line with the weld to be made. Hold the rod at 80° to a 60° angle with the piece to be welded and have the rod pointed into the seam.

(When operating the machine on 115 volts, the output will be slightly less than that shown in the "Welding" chart on the face of the case. The maximum amperage at the "hottest" tap will be about 80. On each of the lower heat stages, the amperage will be somewhat less, but the difference diminishes until at the 25 amp stage, the output is the same on either 115 volt or 230 volt.)

BRAZING AND PREHEATING-

As part of the accessories, the Forney Arc Torch is included for use with the Model F-105. This tool is to be used for all work requiring a flame for heating.

Insert carbons into the holders and tighten when they extend a little more than 1/2 way. Be sure they are even at the tips.

Refer to the "Brazing" chart on the face of the welder for the heats wanted. The settings are applicable to either 115 volt or 230 volt operation. Much in the same manner as with the welding leads, insert the torch plugs in the taps recommended in the chart.

With helmet lowered into position and the welder turned on, the carbons are brought together at the tips by means of the thumb control on the torch.

Contact is made for a moment, then a gap is created to produce an arc. The most efficient flame is obtained when a whistling sound is made. This is most noticeable on HIGH heat. Once it is identified here it can be easily identified at the lower heats.

In brazing most metals, the rod is heated slightly, then dipped in brazing flux. The flame is then applied to one end of the area to be brazed. When it begins to "sweat" small bubbles form on the surface and it is at this time the rod can be inserted in the flame and brazing started.

If brazing metal flows out too thin, the size of the flame should be reduced by closing the gap slightly. Dipping the rod in the flux again will be necessary when the adhered flux has been used.

Preheating with the torch is usually done at HIGH heat. The method is somewhat similar to brazing except that the metal is not caused to "sweat". Moving the flame around the part distributes heat evenly. Size of the part, its thickness, etc. determines how much preheating is required.

SOLDERING-

The Instant Heat Soldering Iron grips the tip of the reducer in "chuck" manner. To get this "chuck" action, hold the shank of the soldering iron with one hand, then turn the handle counter clockwise to open the "chuck", clockwise to close. The tips and a reducer are stored in the handle.

There are two kinds of tips: 3/16" copper coated for small, light soldering work and hard to get at places; 5/16" copper coated for heavy duty soldering or high heat work.

Three soldering stages plus the two tips give a wide variety of heats for all soldering work. The "soldering" chart on the face of the machine shows the tap settings for the three stages when operating the machine on either 115 volt or 230 volt.


BATTERY CHARGING-

The provision for battery charging pertains to the use of the Model 303 Forney Battery Charger attachment in conjunction with the Model F-105 Forney Welder. (Do not attempt to connect welder directly to the battery.)

The "Battery Charging" chart on the face of the machine gives tap settings for the three charging rates and two kinds of batteries.

All charging should be started at the slow rate. When battery has warmed up, the charging rate may be increased. All charging should finish at the slow rate for good charge.

The chart below gives amperages of the different rates and different welder input voltages.

RATE 	Welder on 115 Volts		Welder on 230 Volts	
	6 v. Bat.	12 v. Bat.	6 v. Bat.	12 v. Bat.
SLOW	4	4	5	5
MEDIUM	20	12	30	15
FAST	45	20	65	30

Connect the charger to the welder by plugging the lead cables into the proper welder taps. With welder turned OFF connect the positive clamp (indicated by red color) to the positive post of the battery. Connect negative clamp (indicated by black color) to negative post.

CAUTION! Use only the welder taps indicated for battery charging. Hook onto battery with welder switch OFF.

For additional information, refer to instructions for use provided with the Model 303 Battery Charger attachment.

FORNEY ARC WELDING MANUAL-

For complete coverage of the techniques, methods, and materials to be used in welding, brazing, soldering, aluminum welding, hardfacing, cast iron welding, and much more, we recommend that you order the Forney Arc Welding Manual. It is the most comprehensive, easily read, and understandable book available. It is being used in many high schools, colleges, and adult training classes. Over 210 pages and over 100 pictures and illustrations in color. Order by catalog No. 57200 - Price, \$ 2.50.

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