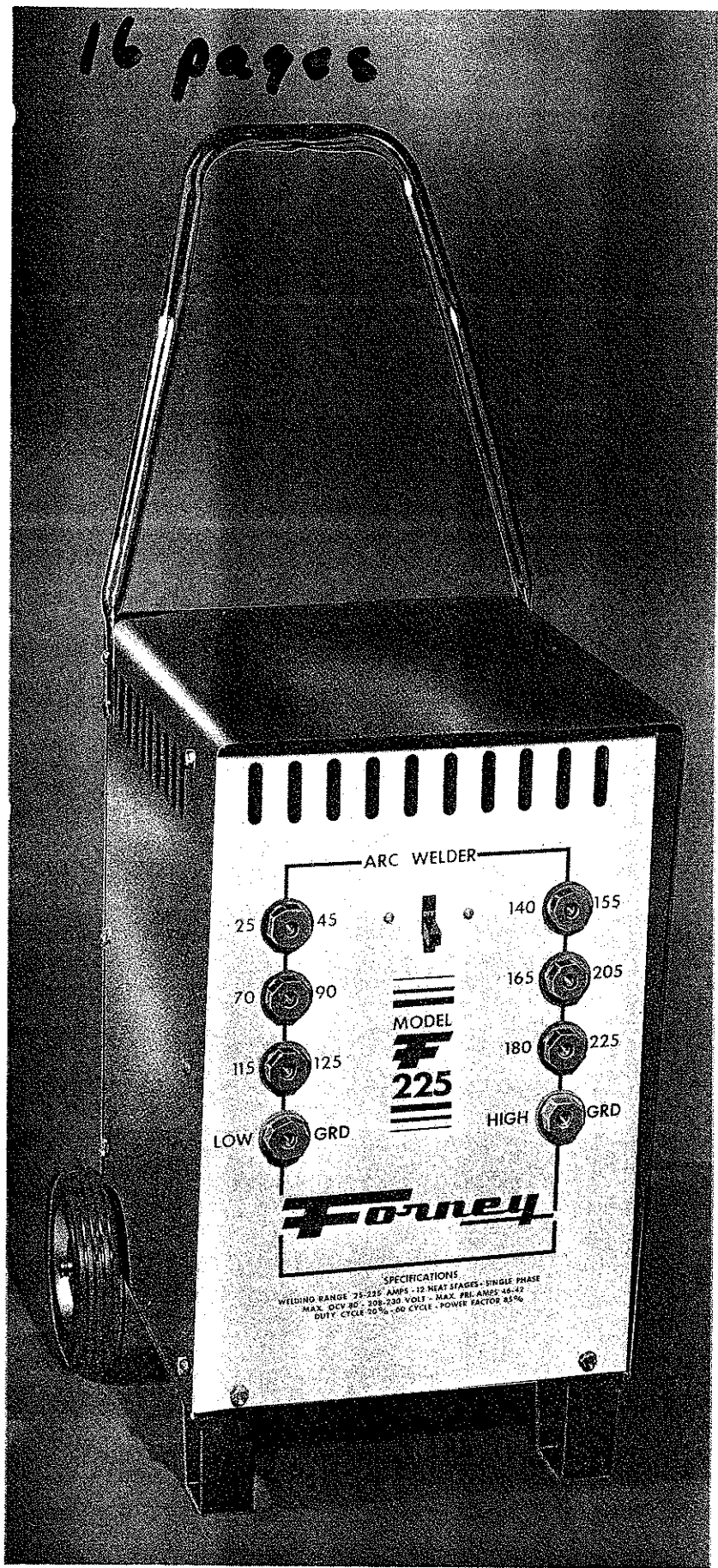


16 pages



# Forney

## ARC WELDER

EXCELLENCE FOR FARM  
SHOP - SCHOOL - USE

An economy 225-Amp Welder to meet the growing demand for a quality low-priced welder in the expanding welder field. Built by the manufacturer of the famous Forney Line of Combination Repair Units. This new Forney F-225 meets all the qualifications for light and heavy welding.

### FEATURES

- \* The easy "plug-in" type, exact amperage every time.
- \* Portable - Equipped with 6" rubber-tired wheels and chrome handle.
- \* Famous Forney quality and workmanship.
- \* Engineered and designed for hours of continuous use and years of service.
- \* Low price without sacrifice of quality.
- \* Calibrated voltage for each amperage.
- \* Guaranteed unconditionally.

### SPECIFICATIONS

208-230 Volts	Welding Range 25-225 amps
60 Cycle	Open Circuit Volts 80
Single Phase	Power Factor 85%
20% Duty Cycle	12 Heat Stages
Dimensions: 38" high with handle, 17" wide w/wheels, 16" deep, weight (crated) 107 lbs.	

### ACCESSORIES

Fiberglass one-piece Helmet with lens, Heavy duty fully insulated Electrode Holder with 15' #3 cable, Heavy duty brass Ground Clamp with 10' #3 cable, and Instruction Booklet. OPTIONAL - Brazing Torch, Soldering Iron and Welding Manual.

### GUARANTEE AND WARRANTY

Unconditional guarantee for 6 months, supplemented with an 18-month service warranty, giving 2 full years of complete protection.

**FORNEY ARC WELDERS**, Division of Forney Industries, Inc.  
Fort Collins, Colorado, U.S.A. - Regina, Sask., Canada  
Over 100 Sales Offices and 800 Factory Representatives to serve you

**Forney**

**MODEL F 225**

**Operating  
and  
Service  
Instructions**

**Forney  
INDUSTRIES, INC.**

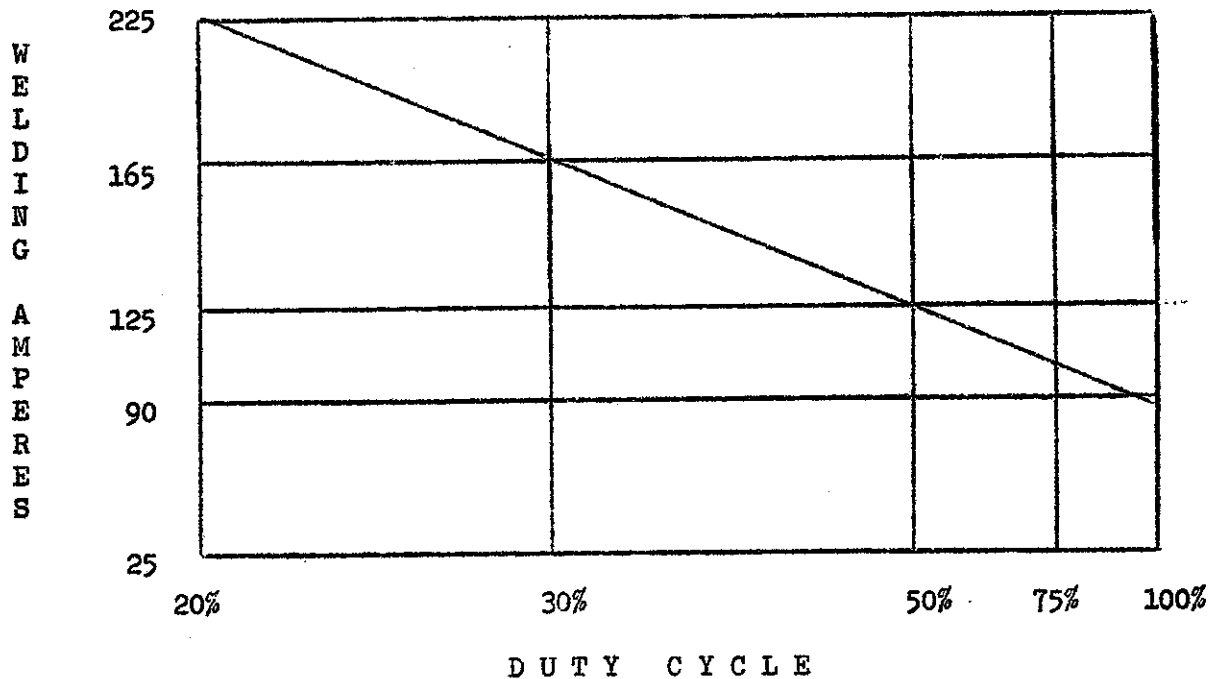
**P. O. BOX 563 FORT COLLINS, COLORADO 80521**



# FORNEY F-225 ARC WELDER OPERATING INSTRUCTIONS

The F-225 is a precision engineered, quality manufactured Arc Welder designed for long life and dependable service. It is an easy to use practical Welder for general repair — especially designed for filling station and garage work -- light manufacturing -- farm repair -- body and sheet metal work.

The F-225 has twelve output welding stages with the correct voltage automatically set for each amperage-welding output. The electrode and ground cables have "plug-in" color coded to match output receptacles on front of machine.



## SPECIFICATIONS

Transformer	- Heavy Duty - Limited Input
Primary Voltage	208 or 230
Primary Max. Input	46 42
Phase	Single
Frequency	60 Cycles
Max. Open Circuit Voltage	80
Welding Range Amps	25 - 225
Power Factor	85%
Dimensions	15"w.x 15½"d.x 38"h. overall
Weight net	105 lbs.

## STANDARD ACCESSORIES

**ELECTRODE HOLDER AND CABLE** - The electrode holder is a fully insulated heavy duty holder allowing a full range of welding rod diameters and has four positions to hold welding rod. The cable is extra flexible five strand welding cable. The plug is machined brass with a molded rubber integral insulation and grip.

**GROUND CLAMP AND CABLE** - The ground clamp is heavy duty cast copper alloy and will clamp to a wide variety of shapes and sizes to be welded. Cable quality and plug-in the same as electrode.

**HELMET** - The helmet is molded rugged fiberglass with semi-flexible headband fully adjustable for comfort fit. Its main features besides the rugged quality is its light weight and snug size. It is especially advantageous to repair around machines, under cars and trucks and other confining repair jobs. Comes complete with Government approved welding arc filter lens and special spatter resistant clear cover lens.

## OPTIONAL ACCESSORIES

**ELECTRIC ARC TORCH** - A very useful accessory for brazing, heavy soldering, preheating, bending, paint and scale removing. Plugs into welding stages and gives up to 9000° F flame. Easy to use. Cat. No. 59500

**SOLDERING IRON** - A deluxe instant heat soldering unit. Uses three ranges of output on the Welder and comes with four tips to give a range of soldering from light electronic soldering through heavy duty galvanized or copper work. Cat. No. 59000

**WELDING ROD - FLUX - BRAZING ROD - SOLDER - SOLDERING TIPS - HARDSURFACING MATERIALS - EXTENSION CABLES - MANY OTHER WELDING SUPPLIES AND EQUIPMENT.**

Send for current literature and prices.

**A COMPLETE WELDING MANUAL IS AVAILABLE.** Easy to read, practical, and easy to understand. Cat. No. \_\_\_\_\_ Price \$ \_\_\_\_\_

**INSTALLATION LOCATION** - The location you pick for your Arc Welder is quite important and certain factors should be considered. Among them are the following:

1. Place your Welder in an area that is free of any volatile liquids, excessive dust, or other easy inflammable items that sparks from welding may ignite.
2. An open area with adequate floor space is important as many times items to be welded need to be laid out on the floor or on a large bench for easier operation.
3. Location of your Welder should be free from damp or wet floor or ground.
4. If it is intended to weld on large equipment such as farm equipment or vehicles that cannot be brought inside the building, it is best to locate the Welder near the door or provide a power receptacle near the door so that your Welder can be used both outside and inside.
5. Your Welder should be located where there is adequate power supply. A F-225 requires a 45 amp fuse or breaker. A power supply wire size for the Welder only over a short distance can be a size #8. If longer distances are required, a #6 wire is recommended to eliminate any excessive voltage drop. If other electrical equipment is to be operated at the same time you are welding, increasingly larger wire size will be necessary and can be figured by your electrician.

WELDING WITH THE F-225 is as easy or easier than with any other Electric Arc Welder. Good strong welds can be easily attained by following these easy procedures.

1. Prepare the joint to be welded making certain that the metal is clean of all foreign material.
2. Select the correct rod type and size to properly weld the joint.
3. Connect the electrode holder and ground clamp cables to the proper output jacks so that the output amperage is matched to the amperage requirements of the rod used.
4. Turn the Welder on and proceed to weld using accepted welding procedures.

BRAZING - with the Forney Carbon Arc Torch is very easy with the F-225. You simply use the regular amperage plugs and grounds with the torch. The torch is designed to use 1/4", 5/16", 3/8", and 1/2" copper coated carbon rods. The most popular sizes for regular work are 5/16" and 3/8" diameters.

The increase in amperage up to a certain point causes the flame to become hotter. The size of the carbon has much to do with this. Listed here are the maximum heats to be used with various sizes of carbons:

3/16" carbon,.....not more than 30 amps    1/4" carbon,.....not more than 50 amps  
 5/16" carbon,.....not more than 90 amps    3/8" carbon,....not more than 120 amps

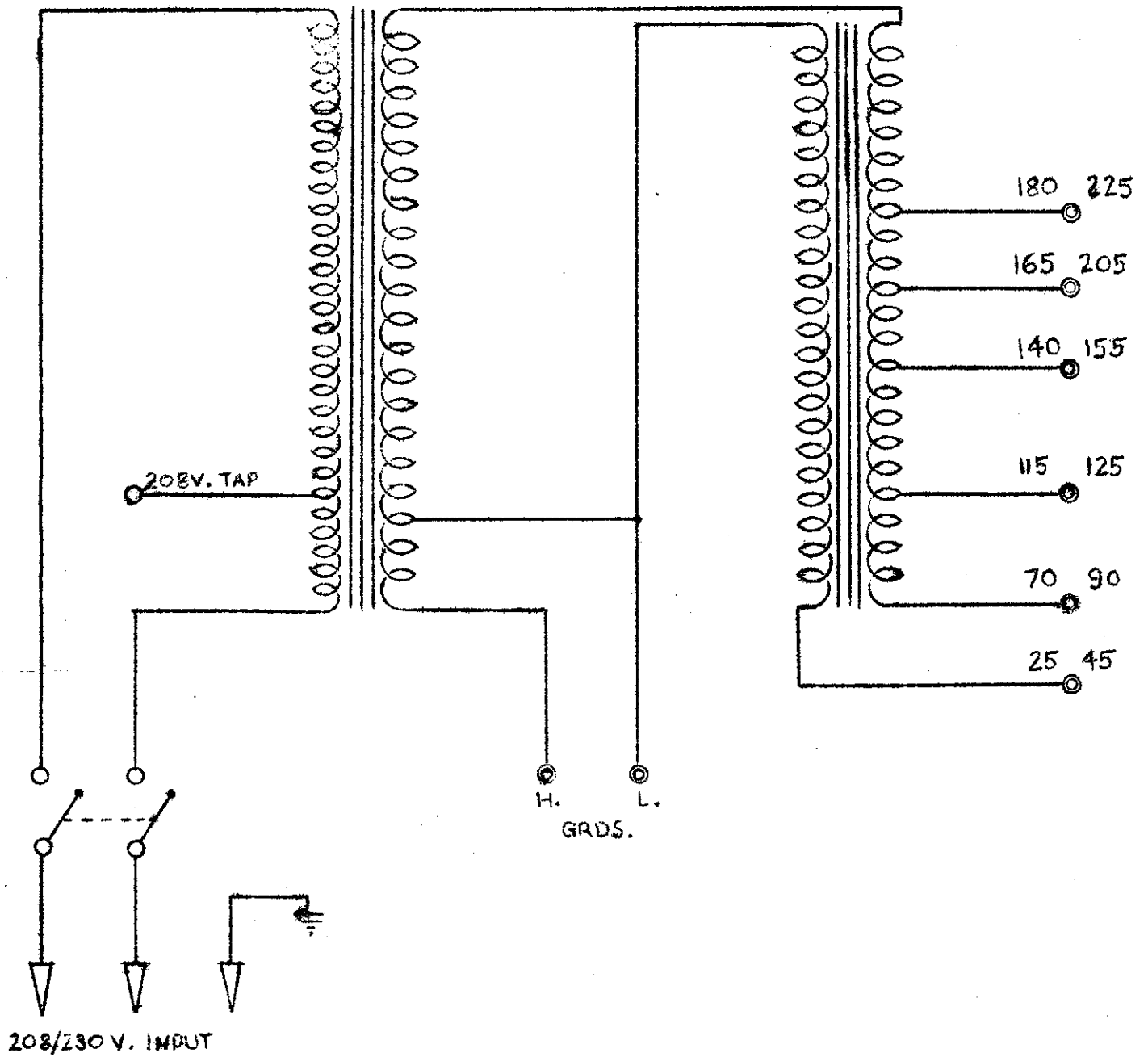
SOLDERING - A complete range of soldering can be accomplished with your F-225. The most desirable method is through the use of optional accessory - the Deluxe Instant Heat Soldering Iron, which plugs into the front of the Welder. Another method is to use the special soldering tips and place them in the electrode holder. The chart below shows which stages can be used for soldering.

	Tip Lead			Ground Lead		
Low - - - - -	25	⊙	45	140	⊙	155
Medium - - - - -	165	⊙	205	180	⊙	225
High - - - - -	Lo	⊙	Gnd.	Hi	⊙	Gnd.

MAINTENANCE - The F-225 does not require any maintenance other than normal care. Keep the Welder case clean and waxed to preserve the original finish. The electrode holder, ground clamp, and plugs should be kept clean to give best performance.

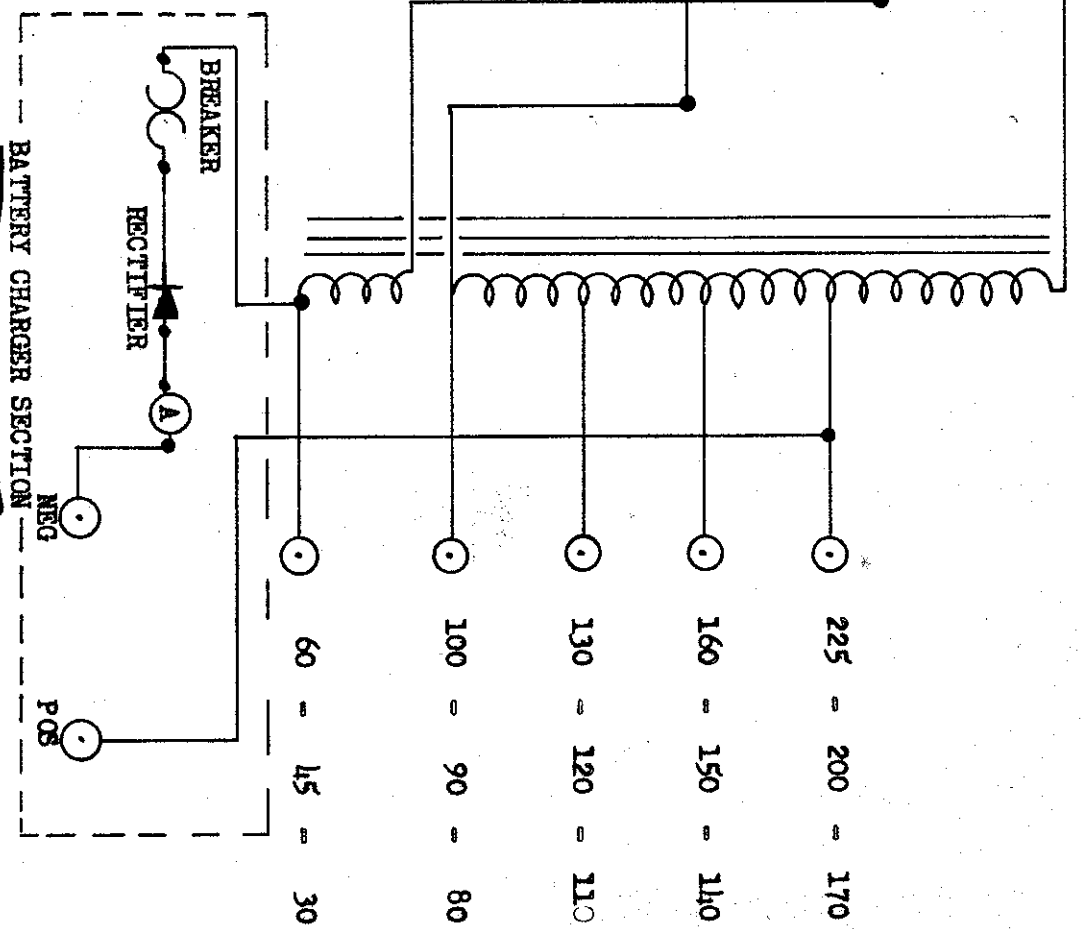
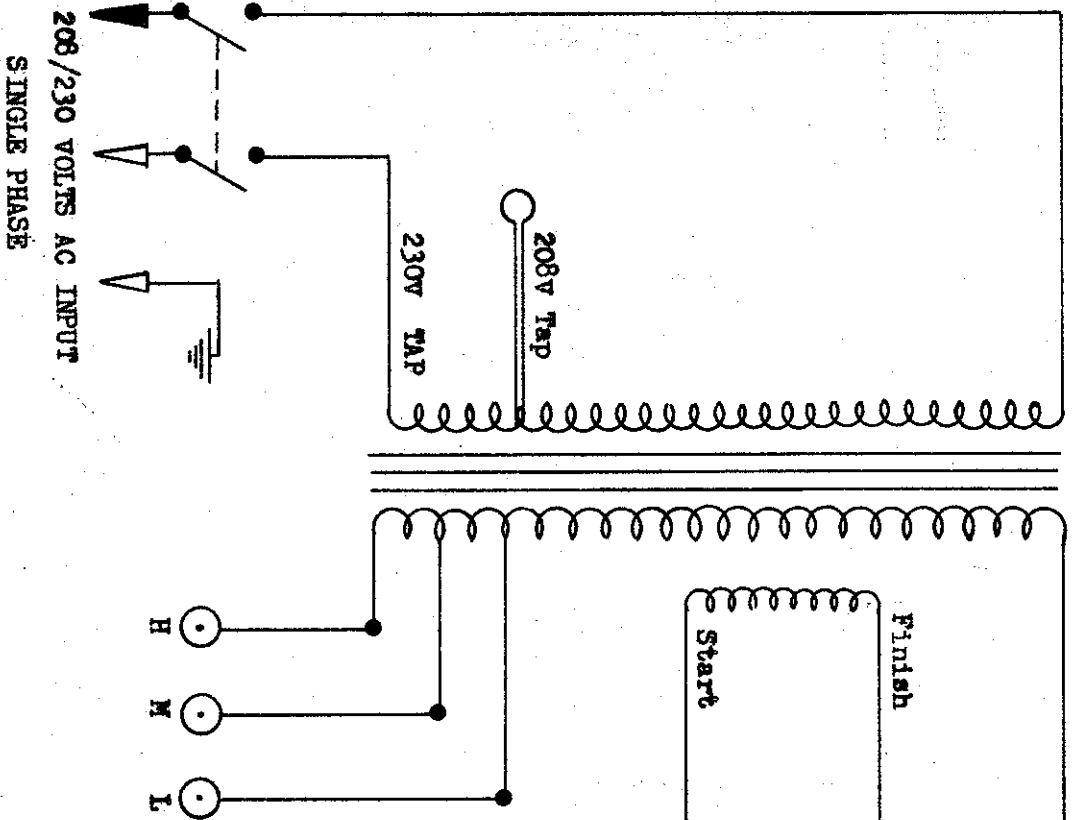
INPUT VOLTAGE CHANGEOVER - The input voltage can be changed to 208 (230) volts by disconnecting lead-in cable from power source and by removing the Welder hood and switching the leads to the desired voltage terminal tap on the main transformer. Unless otherwise specified, all units shipped from the factory are connected for 230 volt operation.

DO NOT connect this Welder to a 3-phase supply as a 3-phase machine. If no 230 volt single phase power is available, the Welder can be used by connecting to only two of the 3-phase connections. However, care must be taken that the third ground safety wire is properly connected to a separate approved ground.



SCHEMATIC, ELECTRICAL  
**FORNEY F-225 ARC WELDER**

FORNEY MFG. CO.  
 FORT COLLINS, COLORADO



*May not be on machine*

<b>SCHEMATIC ELECTRICAL</b>		<b>ARC WELDER</b>	
DRAWN <b>M. C. P.</b>		MODEL # <b>225 - BT.</b>	
DATE <b>6-1-70</b>		SPEC. # <b>146-D-23</b>	
SCALE <b>NONE</b>		FORNEY MANUFACTURING CO.	
TOL. <b>+ .XX .032</b>		DIV. OF FORNEY INDUSTRIES, INC.	
		FORT COLLINS, COLORADO	
		DWG. NO. <b>11302</b>	



Other Miscellaneous "F225"

Flyers & Schematics

**FORNEY**

SUPPLEMENTAL

**F MODEL  
DC EQUIPPED  
UNITS**

**Operating  
and  
Service  
Instructions**



**FORNEY**

**Industries, Inc.** U.S.A.

Box 563 Fort Collins, Colo. 80521 U.S.A.

**Arc Welders Ltd.** CANADA

Box 1040, Regina, Sask. Canada • 45 Shirley Ave., Kitchener, Ontario Canada



O-17D



OPERATING AND SERVICE INSTRUCTIONS  
FOR WELDERS EQUIPPED WITH  
DC OR DC CONVERTERS

This welder is capable of welding on both AC and DC. Welding leads, helmets, arc torch, soldering iron and other accessories for these models will be considered as optional equipment.

DC WELDING:

To weld on DC locate the two DC output jacks on the front of the machine. You will notice the positive jack has a red insulator; the negative jack has a black insulator. When the electrode plug is inserted into the black negative jack and the red ground plug is plugged into the red positive jack, you will be welding on "STRAIGHT polarity" (electrode negative). For "REVERSE polarity" (electrode positive) switch the plugs so that ground plug is in the NEGATIVE jacks.

Generally, reverse polarity gives deeper penetration. STRAIGHT polarity gives higher melt-off rate of electrode. **WARNING - BE SURE BOTH CABLES ARE PLUGGED IN THE DC SECTION FOR DC WELDING OR INTO THE AC SECTION FOR AC WELDING. DO NOT OPERATE WITH ONE CABLE IN DC AND ONE IN AC.**

In order to vary the amperage on the machine, the two permanently attached cables leading from the DC section must be plugged into the AC heat tap desired. One plug should be placed in the AC ground and the other in the desired AC heat tap. **CAUTION - DO NOT WELD ON AC WHEN THE PERMANENTLY ATTACHED DC CABLES ARE PLUGGED INTO THE FRONT OF THE MACHINE.**

The ratio of DC current to AC current is approximately a 5 to 4 ratio. In other words, for every 5 amps of AC current for which the machine is marked, you will realize 4 amps of DC welding current. (For example, if 160 amps of DC is desired, the machine must be set at the 200 amp marking on the machine. A 275 amp AC welder will produce approximately 225 amps of DC power.)

WELDING INSTRUCTIONS:

With the advent of new and special welding electrodes, more emphasis has been placed on utilizing both AC and DC for all-round welding operations.

AC is generally better suited for high speed High Amperage Welding; to overcome "Arc Blow" encountered with DC for most of the iron powder electrodes.

DC is generally better for stainless, some hard facing, sheet metal and non-ferrous welding; also for use with the electrodes sensitive to polarity such as "STRAIGHT polarity" and "REVERSE polarity" welding rods.

The F Series AC-DC utilizes the basic components and controls as the F Series except DC welding diodes and components are added in place of the Battery Charger Section. For this reason the AC-DC cannot be equipped to charge batteries.

The DC section is made up of four large Silicon Diodes mounted on heavy aluminum heat sinks. A fan cools both the diodes, the DC-choke, and the welding transformers.

SERIAL NUMBER REGISTRATION:

Be sure to mail in the serial number card attached to your repair unit to register your guarantee with the factory. This will help prevent any delays in rendering fast factory service should the need arise. Write to the Service Department at the factory for authorization before sending your FORNEY WELDER in for repair. Always give serial number, model, and specification number in your correspondence.

All transportation costs to and from the factory are the responsibility of the owner, and must be paid by him.

# Forney

# 225 AMP

## Model F225

### IDEAL FOR:

- SHOPS
- REPAIR STATIONS
- FARMS—RANCHES
- LIGHT INDUSTRY
- SCHOOLS

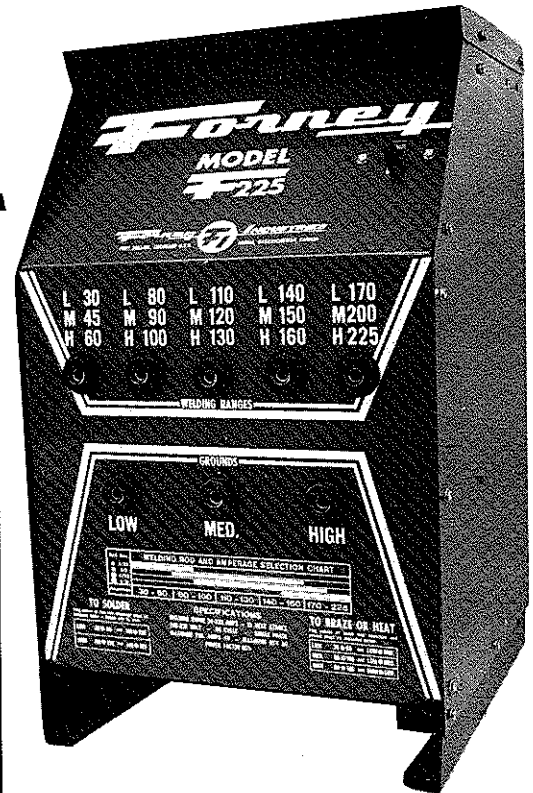
### FEATURES

*20% Duty Cycle.*

1. The easy "plug-in" type, exact amperage every time.
2. Low price without sacrifice of quality.
3. Calibrated voltage for each amperage.
4. Has 15 heat stages, 30 amps to 225 amps.
5. Uses up to 3-16 Electrodes.
6. Easy striking arc.
7. Weld any metal from sheet metal to motor blocks.
8. Also cut metal and bore holes.
9. Can be used for Soldering and Brazing.
10. Also can be used for Hardfacing.

### OPTIONAL EQUIPMENT

Carbon Arc Torch—for Brazing, Preheating,  
Soldering Iron—Instant Heat—large and small tips.



Catalog No. 145

### SPECIFICATIONS

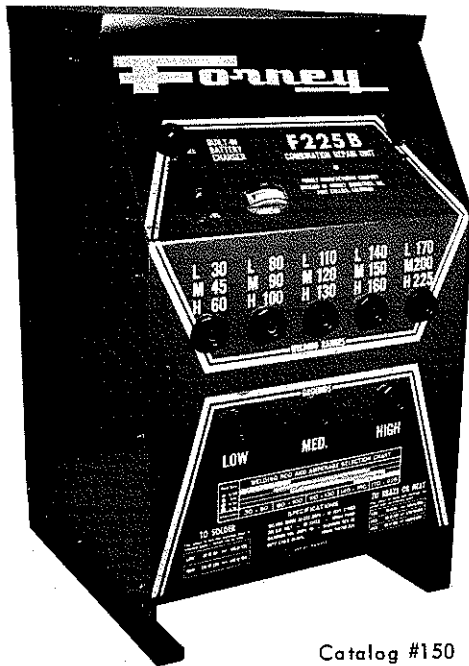
Welding Range 30—225 Amps  
15 Heat Stages  
208-230 Volt  
60-Cycle—Single Phase  
Maximum Primary Amps 40  
Maximum OCV 80  
Power Factor 85%

### LEADS

8 ft. Cable with Ground Clamp  
12 ft. Cable with Electrode Holder

FORNEY ARC WELDERS DIV. OF FORNEY INDUSTRIES, INC. Fort Collins, Colorado, U.S.A. Regina, Sask., Canada

# Forney 225 AMP



Catalog #150

## SPECIFICATIONS

Welding Range 30-225 Amps  
 15 Heat Stages  
 208-230 Volt  
 60 - Cycle - Single Phase  
 Maximum Primary Amps-----40  
 Maximum OCV-----80  
 Power Factor-----85%

## Battery Charger

Charges 6 and 12 volt batteries  
 However, it is recommended for 12 volt  
 battery charging due to excessive charge  
 rate on 6 volt.  
 Charging Rate -- 15 Amp DC

## CHARGER LEADS

1 set of Charger Cables  
 #8-2 x 10' long and #46A  
 Mueller Clamps

## OPTIONAL

Carbon Arc Torch - for brazing pre-  
 heating, etc.  
 Soldering Iron - Instant heat with large  
 and small tips.  
 Wheels and Handle Kit.

## Model F225B

**WITH BUILT-IN CHARGER**  
**IDEAL FOR: SERVICE STATIONS—**  
**SHOPS—SCHOOLS—LIGHT INDUSTRY**  
**FARMS—RANCHES**

## FEATURES

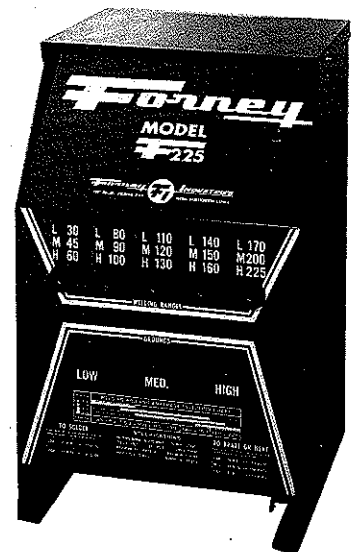
1. The easy plug-in type, exact amperage every time.
2. Low price without sacrifice of quality.
3. Calibrated voltage for each amperage.
4. Has 15 heat stages, 30 amps to 225 amps.
5. Easy striking arc.
6. Uses up to 3/16" electrodes.
7. Weld any metal from sheet metal to motor blocks.
8. Cuts metal and bores holes.
9. NOW WITH A BUILT-IN BATTERY CHARGER!
10. Can be used for soldering and brazing.
11. Can also be used for hardfacing.
12. Portable. Easily transported to any area.

## WARRANTY

The Forney Manufacturing Company  
 warrants all parts against defects in work-  
 manship and material for a period of  
 one year from the date of purchase  
 by the original owner.

## Model F-225

Same features as above unit are found  
 in the Model F-225 except the built-in  
 charger. However, an "Add-A-Charger"  
 unit is available and can be easily at-  
 tached. Even without the charger, the  
 F-225 is an excellent buy.



Catalog #145

**FORNEY ARC WELDERS DIV. OF FORNEY INDUSTRIES, INC. Fort Collins, Colorado, U.S.A. Regina, Sask., Canada**

# Forney

# 225 AMP

## Model **F**225E

### IDEAL FOR:

- SHOPS
- REPAIR STATIONS
- FARMS—RANCHES
- LIGHT INDUSTRY
- SCHOOLS

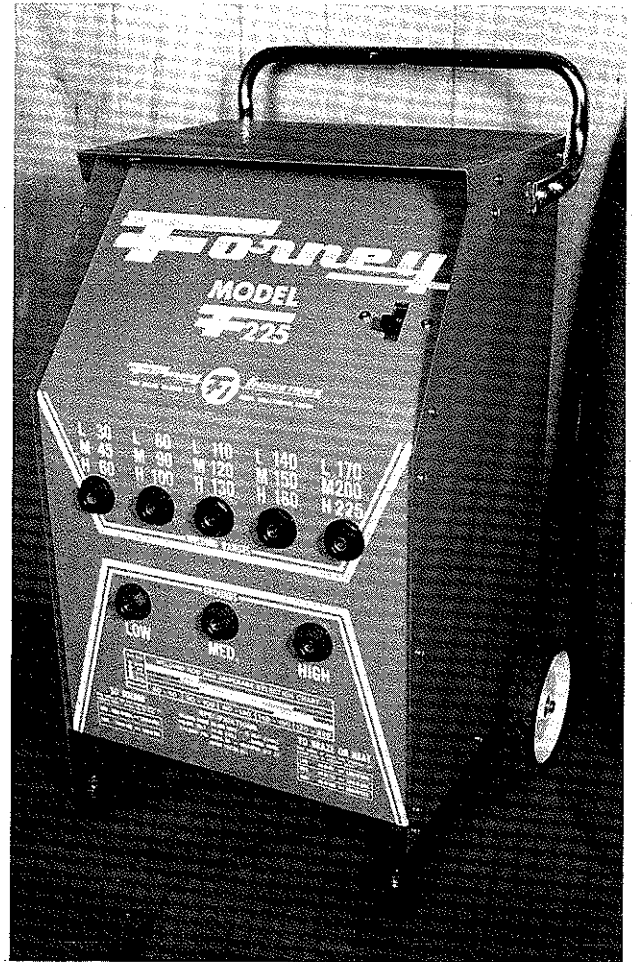
### FEATURES

1. The easy "plug-in" type, exact amperage every time.
2. Engineered and designed for hours of continuous use, and years of service.
3. Low price without sacrifice of quality.
4. Calibrated voltage for each amperage.
5. Has 15 heat stages, 25 amps to 225 amps.
6. Uses up to 3-16 Electrodes.
7. Easy striking arc.
8. Weld any metal from sheet metal to motor blocks. Also cut metal and bore holes.
9. Can be used for Soldering and Brazing.
10. Also can be used for Hardfacing.
11. Portable- Large rubber wheels and chrome handle.

### SPECIFICATIONS

Transformer—Heavy Duty—Limited Input. Primary Voltage 110/220.\* Primary Max Input 46/42. Phase, single. Frequency, 50/60 cycles. Max. Open Circuit Voltage 80. Welding Range, 25-225 Amps Power Factor 85%. Weight net 105 lbs. Dimensions 15" W. x 15½ D. x 38" H. overall.

\*Other Voltages Available.



### ACCESSORIES

#### STANDARD KIT # 212

Fully insulated Electrode Holder w/extra flexible Heavy duty welding cable.  
Rugged Ground Clamp w/extra flexible Heavy duty welding cable.  
Molded Fiberglass Helmet with comfort fit adjustable head band—welding lens and clear protective lens.  
Instruction Booklet.

#### OPTIONAL

Carbon Arc Torch—for Brazing, Preheating, Hard surfacing.

Soldering Iron—Instant heat—large and small tips.

**FORNEY ARC WELDERS DIV. OF FORNEY INDUSTRIES, INC. Fort Collins, Colorado, U.S.A. Regina, Sask., Canada**

# Forney

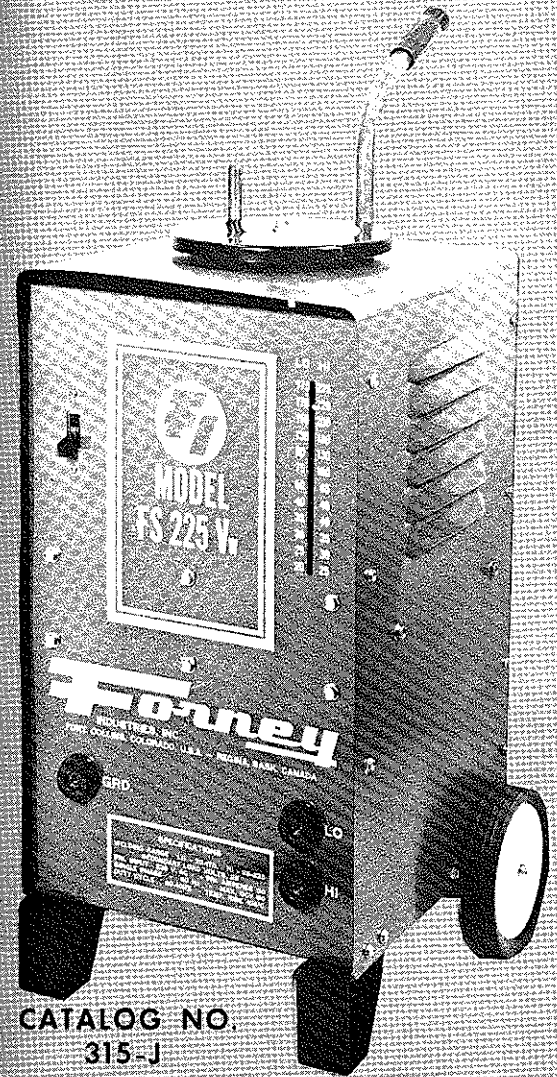
## MODEL FS 225V<sub>w</sub> ALL PURPOSE WELDER

For General Repair and  
Maintenance on Farms, in  
Schools, Body Shops, and  
Vocational Training, etc.

Precision engineered and quality manufactured for long life and dependable service. Excellent for low hydrogen and hardfacing electrodes. May be used for all types of electrodes and for arc cutting, gouging, brazing and soldering.

### FEATURES

1. Direct reading amperage settings with stepless control for infinite amperage selection.
2. Positive amperage control mechanism "holds" at preset amperages selected.
3. Equipped with handle and 5 1/2" wheels for easy portability.
4. Self-tightening all-brass tapered jacks are used on front for sure and tight fit for ground and electrode holder leads.
5. Designed for very quiet operation with little transformer or fan noise.
6. Insulation and windings are double-dipped and double-baked for long-lasting life of the welder.
7. Large size transformer dissipates more heat, requiring less dependence on forced air cooling.
8. Case designed to provide excellent convection ventilation throughout the machine increasing efficiency of the fan.
9. Heavy duty brackets, welded to shrouded transformer, are bolted to the front and back of welder case. This provides exceptional damage resistance, for continued operation even if some case damage is experienced.
10. Engineered and designed for hours of continuous use and years of service!



CATALOG NO.  
315-J

### SPECIFICATIONS

#### WELDING

Range .....	Hi 25-225 Amps
.....	Lo 20-175 Amps
Maximum open circuit volts .....	80
Duty Cycle .....	20 to 100%
Temperature Rise .....	105°C
Secondary Load .....	25 Volts

#### PRIMARY

AC Input .....	110-220 Volts
Fuse @ 220V .....	50 Amperes
Phase .....	1
Hz (Cycles) .....	50/60

#### SIZE

Width 12" — Depth 13"	
Height 25 1/2" (including crank)	
Weight .....	101 lbs

### WARRANTY

All parts are warranted against defects in workmanship and material for a period of one year and transformer is guaranteed against burn-out for 3 years from date of purchase by the original owner.

FORNEY INDUSTRIES INC. Fort Collins, Colorado, U.S.A. Regina, Sask., Canada

# S-225 v W WELDER

WITH ACCESSORIES

**General Repair & Maintenance In Auto Shops, Body Shops, On Farms, In Schools**

## FEATURES

1. Direct reading amperage settings with stepless control for infinite amperage setting.
2. Positive amperage control mechanism "holds" at preset amperages selected.
3. Equipped with handle and 5 1/2" wheels for easy portability.
4. Self-tightening all-brass tapered jacks are used on front for sure and tight fit for ground and electrode holder leads.
5. Designed for very quiet operation with little transformer or fan noise.
6. Insulation and windings are double-dipped and double-baked for long-lasting life of the welder.
7. Large size transformer dissipates more heat, requiring less dependence on forced air cooling.
8. Case designed to provide excellent convection ventilation throughout the machine increasing efficiency of the fan.
9. Heavy duty brackets, welded to shrouded transformer, are bolted to the front and back of welder case. This provides exceptional damage resistance, for continued operation even if some case damage is experienced.
10. Engineered and designed for hours of continuous use and years of service!



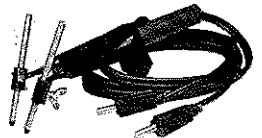
## ACCESSORIES INCLUDE:

- Rugged, one-piece molded fiberglass welding helmet. Equipped with 2" x 4 1/4" dark lens with pit-resistant plastic cover lens and adjustable headgear.
- Assortment of electrodes to serve a variety of welding needs.
- Heavy duty 250 volt wall receptacle. 2 pole, 3 wire pin type for surface mounting.
- Well balanced 200 amp electrode holder with 12' # 4 double-flexible cable.
- Sturdy steel ground clamp featuring good positive connection with wide jaw openings and 8' # 4 double-flexible cable.
- Sure-grip male plugs with snug fiber insulators.

## OPTIONAL ELECTRIC ARC TORCH

Brazing — Heating — Soldering

5 to 160 amps using 3/16" to 1/2" carbons. Arc-Gap thumb control adjusts both barrels. Includes heat shield. Excellent for bending, removing rusted nuts, hardfacing, paint removing, etc.



## SPECIFICATIONS

### WELDING

Range ..... Hi 25-225 Amps  
 ..... Lo- 20-175 Amps  
 Maximum open circuit volts ..... 80  
 Duty Cycle ..... 20 to 100%  
 Temperature Rise ..... 105° C  
 Secondary Load ..... 25 Volts

### PRIMARY

AC Input ..... 230 Volts  
 Fuse ..... 50 Amperes  
 Phase ..... 1  
 Hz (Cycles) ..... 60

### SIZE

Width 12" — Depth 13"  
 Height 25 1/2" (including crank)  
 Weight ..... 101 lbs.

# Forney Arc Welders

## MODELS FS-225 & FS-295

FOR GENERAL REPAIR  
and MAINTENANCE-  
on FARMS, in SCHOOLS,  
VOCATIONAL TRAINING,  
AUTO BODY SHOPS, etc.



### FEATURES

- 1 Stepless current control - for exact amperage required.
- 2 High and Low Ranges for flexibility and ease in handling problem rods. Quick and easy to change.
- 3 Fan cooled - allows long periods of unit in use.
- 4 Designed for quietness of operation.
- 5 Insulation - double dipped and double baked.
- 6 "Quick View" amperage window indicates at a glance the amperage selected.
- 7 On-Off Switch located conveniently on the front of the unit.

### PRECISION BUILT

These new FS models are precision engineered and quality manufactured to the famous Forney standards; designed for long life and dependable service.

### VERSATILE

May be used for all types of arc welding, including cutting, gouging and hardfacing. Carbon Arc Torch (optional) does fine brazing, heating and forming with this unit.

### WARRANTY

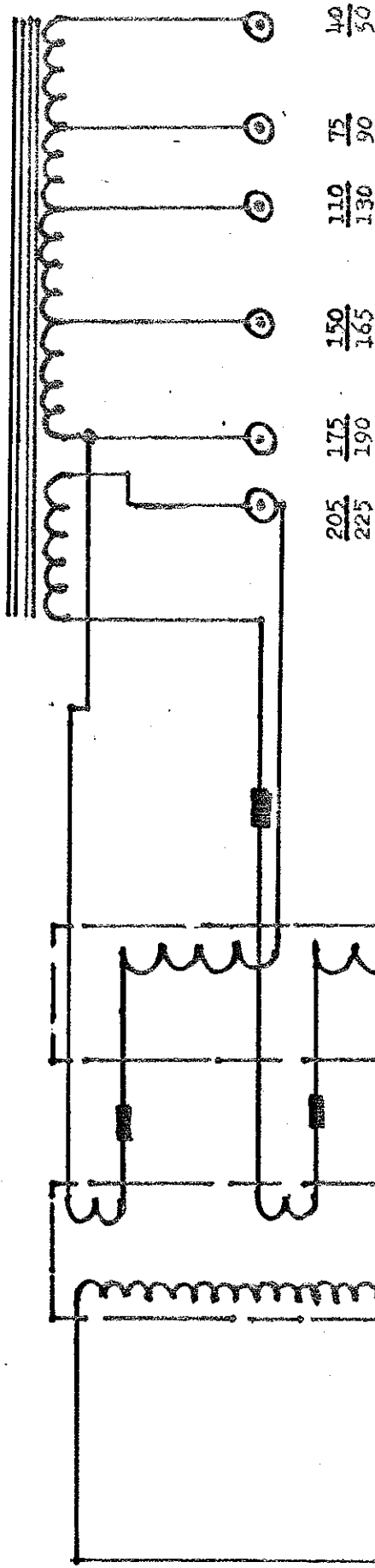
The Forney Manufacturing Company warrants all parts against defects in workmanship and material for a period of one year from the date of purchase by the original owner.

### SPECIFICATIONS

MODEL	WELD. RANGE	PRIMARY VOLTS	PRIMARY INPUT	SEC. VOLTS	MAX. OCV	DUTY CYCLE	PHASE	TEMP. RISE	FREQ.	WGT.	SIZE
FS-225	LO-20-175 HI -25-225	230	50	25	80	20-100%	Single	105° C	60Hz	101#	24½" Long 14¼" Wide
FS-295	LO-25-220 HI -30-295	230	65	30	80	20-100%	Single	105° C	60Hz	123#	11½" High

FORNEY ARC WELDERS DIV. OF FORNEY INDUSTRIES, INC. Fort Collins, Colorado, U.S.A. Regina, Sask., Canada





LO HI  
 GROUND

230 VOLT AC.

SINGLE PHASE  
 60 HZ.

SCHEMATIC ELECTRICAL  
 FORNEY ARC WELDER MODEL FT 225, SPEC. M97-4-3

FORNEY MANUFACTURING CO.

DIV. OF FORNEY INDUSTRIES, INC.

FORT COLLINS, COLORADO

DRAWN	M622	DWG. NO.	30401
DATE	7-22-81		
SCALE			
TOL.	± .XX .032		.XXX .015