

A black and white photograph showing a hand holding a Forney Spot Arc welding unit. The unit is a handheld device with a trigger and a nozzle. The hand is positioned to use the unit on a metal surface. The Forney logo is visible on the side of the unit.

Forney

SPOT ARC

PATENT PENDING

MODEL-2400

*the finest precision spot
welding unit for sheet metal fabricating
and product repair . . .*

SPOT ARC IS EASY TO OPERATE

Previous welding experience is not needed to do professional quality spot welding with the Forney Spot Arc Unit. Just press the Spot Arc Gun firmly against the metal surface, squeeze the trigger and the controlled heat instantly bonds the pieces with a strong, smooth weld.

The specially designed arc shield eliminates the arc flash so no goggles or helmet is needed for glare protection. This means you can locate your weld in even the most difficult places without "blind fumbling".

SPOT ARC IS IDEAL FOR

- Body Repair Shops
- Sheet Metal Fabricating
- Plumbing and Heating
- Air Conditioning
- Implement Dealers
- Garages
- Used Car Lots
- Farm Shops
- Fleet Owners
- Industrial Maintenance

HIGH PENETRATION SPOT WELD...FROM ONE SIDE

SPOT ARC IS DESIGNED TO PERFORM BETTER

The Forney Spot Arc Gun is an efficient, compact, light weight spot welding machine that produces strong spot welds from one side of the operation.

Fifteen feet of braided flexible cable allows maximum portability in maneuvering around jobs. The Forney Spot Arc will spot weld metals from 22 gauge to 14 gauge. Light gauges may be welded to metals of greater thickness.

The Spot Arc Gun spot welds have higher tensile strength than welds made with other guns. The patented heat chamber of the Spot Arc Gun anneals its own welds to produce top quality bonds that are tough and reliable. Spot Arc welds are smooth. Most jobs require no grinding or dressing to finish.

Work stops to replace burned out carbons are minimized—hundreds of welds can be produced from one carbon with the Forney Spot Arc Gun.

MANUFACTURED BY
FORNEY MANUFACTURING CO. — DIVISION OF FORNEY INDUSTRIES, INC.
FORT COLLINS, COLORADO

Forney SPOT ARC CONTROL

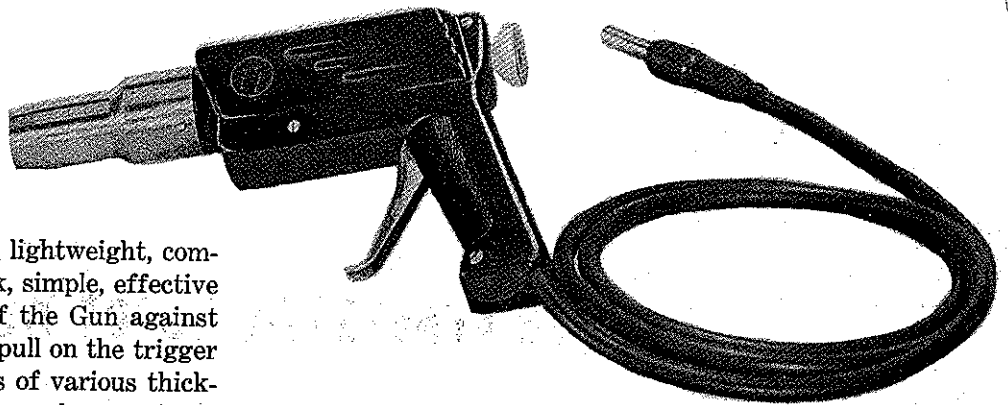


DESIGNED TO WORK with the Forney Spot Arc Gun when connected to Welders which have maximum heat outputs of above 80 amperes. Direct connection of the Spot Arc Gun to conventional AC Welders is not recommended since they do not have the volt-ampere ratios which are necessary for proper spot welding.

IDEAL ARC CHARACTERISTICS for operation of the Spot Arc Gun are provided by this Forney Spot Arc Control. It is a unit built to convert the Welder output to the optimum volt-ampere ratios for automatic operation of the Spot Arc Gun, giving the best possible spot welding results.

SIX AMPERE SETTINGS for spot welding all gauge steels without changing Welder taps. The Gun taps on the Spot Arc Control range from "low" at tap No. 1 to "high" at tap No. 6 with the assurance that the proper volt-ampere ratios are maintained.

Forney SPOT ARC GUN



PISTOL GRIP SPOT ARC GUN is a lightweight, compact, portable unit designed for quick, simple, effective spot welding. Just press the nose of the Gun against the material to be spot welded and a pull on the trigger begins the welding operation. Metals of various thicknesses or of more than one thickness can be spot welded together. Sheet steel up to 3/32" thick can be spot welded with the Gun. The ceramic lined Arc Shield concentrates the intense heat in a very small area and this virtually eliminates any distortion or warping of the work.

WELDS CAN BE MADE IN ANY POSITION

flat, vertical or overhead and no back up is required. The spot welds are made from one side giving an easy, effective method of joining "gauge" thickness sheet metals together. The compact Gun will fit into corners and other tight places. The Spot Arc Gun is so easy to use that even an unskilled operator with no previous welding experience can quickly learn to make consistently good, strong welds.

FORNEY SPOT ARC GUN MODEL 2400 *
and
FORNEY SPOT ARC CONTROL MODEL 2450 *

* Patent Pending

INSTRUCTION MANUAL

FORNEY MANUFACTURING COMPANY
Div. of Forney Industries, Inc.
Fort Collins, Colorado

OPERATING INSTRUCTIONS

FORNEY SPOT ARC GUN MODEL 2400 *

and

FORNEY SPOT ARC CONTROL MODEL 2450 *

* Patent Pending

FORNEY SPOT ARC GUN

Pistol Grip Spot Arc Gun is a lightweight, compact, portable unit designed for quick, simple, effective spot welding. Just press the nose of the gun against the material to be spot welded and a pull on the trigger begins the welding operation. Metals of various thicknesses or of more than one thickness can be spot welded together. Sheet steel up to 3/32" thick can be spot welded with the gun. The ceramic lined Arc Shield concentrates the intense heat in a very small area and this virtually eliminates any distortion or warping of the work.

Welds can be made in any position...flat, vertical or overhead and no back up is required. The spot welds are made from one side only giving an easy, effective method of joining "gauge" thickness sheet metals together. The compact gun will fit into corners and other tight places. The spot arc gun is so easy to use that even an unskilled operator with no previous welding experience can quickly learn to make consistently good, strong welds.

FORNEY SPOT ARC CONTROL

Compact Spot Arc Control is designed to work with the Spot Arc Gun when connected to those Welders which have maximum heat outputs of above 80 amperes. Direct connection of the Spot Arc Gun to these conventional AC Welders is not recommended since they do not have the volt-ampere ratios which are necessary for proper spot welding.

Ideal Arc Characteristics for operation of the Spot Arc Gun are provided by this Forney Spot Arc Control--a unit built to convert the Welder output to the optimum volt-ampere ratios for automatic operation of the Spot Arc Gun, giving the best possible spot welding results.

Six Amp Settings for welding all gauge steels without changing Welder output taps. The output taps on the Spot Arc Control range from "low" at tap #1 to "high" at tap #6 with the assurance that the proper volt-ampere ratios are maintained.

The Spot Arc Gun has a serial number located just ahead of the trigger and the Forney Spot Arc Control has a serial number stamped on the case back. Write the serial numbers and date of purchase below. Always give this information when writing the Company about your Spot Arc Gun and/or Control Unit.

Spot Arc Gun Serial Number _____

Spot Arc Control Serial Number _____

PLEASE READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING TO USE YOUR FORNEY SPOT ARC GUN AND CONTROL UNIT

CONNECTING THE SPOT ARC GUN TO
A FORNEY WELDER

MODEL C-5 and C-B SERIES WELDERS USING THE SPOT ARC CONTROL

Connect the Spot Arc Control Cable to the Welder output tap which has a maximum output of 180 amps. Connect the Welder Ground Cable to the "HI" ground tap and attach the ground clamp to the work to be spot welded. Be sure that this connection is tight and clean for optimum operation of the Spot Arc Gun. The Spot Arc Gun can then be plugged into the desired heat stage of the Spot Arc Control.

The ⁷⁵ amp tap and the "LOW" ground should be used on the Model C-B Welders.

MODEL F-100 OR OTHER LOW AMPERAGE WELDERS

These Welders are designed with volt-amperage ratios which are well suited to spot welding. Use of the Spot Arc Control is not necessary with these units. Plug the Spot Arc Gun directly into the desired Welder output taps of 80 amps or lower. Connect the ground clamp directly from the Welder to the work.

OTHER MODEL FORNEY WELDERS AND WELDERS OF OTHER MAKES

The Spot Arc Gun may be used in other make and model Welders providing the volt-amperage ratios are satisfactory for proper spot welding operation. THE SPOT ARC CONTROL SHOULD NEVER BE PLUGGED INTO HEAT TAPS ABOVE 180 AMPERES AND THE SPOT ARC GUN SHOULD NEVER BE PLUGGED DIRECTLY INTO ANY TAP HIGHER THAN 80 AMPERES.

The ideal Welder output operating conditions for the Forney Spot Arc Gun is 45 volts - open circuit, - and 60 amperes. The Forney Welder - Spot Arc Control combinations given above provide these optimum conditions. Prior to using the Spot Arc Gun with any other make Welder, check carefully to determine which combination of output taps with the Spot Arc Control will give these ideal conditions.

CAUTION

NEVER CONNECT THE SPOT ARC GUN TO ANY WELDER OUTPUT TAP WHICH HAS AN AMPERAGE RATING HIGHER THAN 80 AMPS. HEAVIER AMPERAGES WILL NOT ONLY SHORTEN THE LIFE OF THE GUN, BUT WILL OVERHEAT THE CERAMIC LINING IN THE NOSE PIECE AND WILL NECESSITATE FREQUENT REPLACEMENT.

LIKewise, THE SPOT ARC CONTROL SHOULD NEVER BE PLUGGED IN WELDER OUTPUT TAPS OF AMPERAGE ABOVE 180 AMPS LEST THE SAME DAMAGE WILL BE INFLICTED UPON THE GUN.

SPOT WELDING WITH THE FORNEY SPOT ARC GUN

INSTALLING AND ADJUSTING ELECTRODE

The Spot Arc Gun comes equipped with one of the special Spot Welding Electrodes 4 " long installed and adjusted to operating position.

To install a new electrode, depress the trigger and insert the electrode in the arc shield, flat end first. Press the electrode firmly into its holder and then adjust it to position.

For normal spot welding, the tapered end of the electrode should be even with the end of the arc shield when the trigger is depressed almost as far as it will go. The electrode can be adjusted to operating position by turning the white knob above the handle. A clockwise turning of the knob increases the electrode projection and a counter-clockwise motion decreases the amount of projection. Thinner metals require a shorter arc length, therefore the electrode should be even with the end of the arc shield slightly before the trigger is fully depressed. Thicker metals require longer arcs and this requires the trigger to be completely depressed when the electrode end is even.

ADJUST THE TRIGGER RELEASE SPRING

A small Allen wrench is provided with your Spot Arc Gun. This wrench is used to turn the trigger spring adjusting screw located on the underside of the gun just ahead of the trigger. The triggers are pre-adjusted when the gun is tested at the factory. This screw adjusts the "hang" of the trigger when it is released after being depressed fully. This is called the arc position, a necessary feature in the drawing of the arc which serves to spot weld the metal.

Adjust this screw should this "hang" not be apparent, or if it is so strong as to hold the carbon in the forward position after the trigger has been released. To be so would mean that the arc drawn by the carbon would not break properly and unnecessary wear on the nose piece will occur.

SELECT THE AMPERAGE OUTPUT STAGE ON THE SPOT ARC CONTROL

The six amp settings on the control allow the operator a wide range of amp selections to meet the needs of all spot welding applications. A little practice spot welding scraps of sheet metal will quickly acquaint the operator with the feel of the Spot Arc Gun and enable him to select the ideal amp setting by instinct.

The majority of the cases will spot weld satisfactorily if the #4 tap is used, as this tap gives an output of about 60 amps when the control is correctly connected. The most often normally encountered cases are those which involve sheet metal of 20 - 24 gauge. The higher numbered taps will be required for spot welding the thicker sheet metals of around 12 gauge. Light-weight metals of 26 gauge or thinner will require amperage outputs from the lower numbered taps. It should be remembered that a low amp arc held for a longer duration will give as good or better spot weld as will a short duration, high amp weld. ~~High amperages cause more rapid heating of the surface area, result in less penetrating welds and will cause burn-outs of the surface metal.~~

BEGIN SPOT WELDING

1. Connect the Spot Arc Control to the Welder and plug the Spot Arc Gun into the desired amp setting.
2. Turn the Welder ON and then press the nose of the gun against the metal to be spot welded.
3. Depress the trigger fully until the electrode touches the metal and begins the preheating of the area.

NOTE: If the electrode does not touch the metal then turn the adjusting knob until the electrode touches and heating begins. If the electrode comes out so far that it raises the arc shield, then shorten the electrode as needed to prevent this raising action.

4. Hold the trigger fully depressed for the preheat cycle. After a count of two or three, release the trigger to the arc position. This draws the arc and spot welds the metal together. A count of 6 or 8 in the arc position is normally sufficient to spot weld most metals together. The trigger is then fully released and this breaks the arc and allows the weld to cool. The Forney Spot Arc Gun is designed to allow pressure to remain on weld area permitting the weld to cool to maximum strength. Sometimes the two pieces to be spot welded are slightly separated before spot welding. Firmly press the arc shield against the metal during the entire spot welding cycle. The spot weld will provide an excellent fastener with considerable holding power.
5. From time to time it will be necessary to change the length of the carbon rod and to alter the heat and arc counts as conditions warrant. A little practice and you can be an expert spot weldor.

WARNING: WHEN SPOT WELDING UNEVEN SURFACE OR DURING PROLONGED USE OF THE GUN, REFLECTION OF THE ARC MAY OCCUR AND IT IS RECOMMENDED THAT ADEQUATE DARK GLASSES OR GOGGLES BE WORN.

GENERAL INSTRUCTIONS

ELECTRODES

Electrodes 4 " in length are furnished with the gun. They are made special for Forney and are the exact length necessary to fit your Forney Spot Arc Gun. Each electrode may be used until the adjusting knob will no longer turn to expose more electrode. Although this used electrode is still about 3" long, this length is necessary to hold the intense heat away from the precision working parts of the gun itself.

CHANGING ELECTRODES

When it is necessary to change the electrodes, the used piece may be ejected by turning the adjusting knob counter-clockwise until the used electrode drops out. Then turn the knob clockwise about 2 turns and insert the new electrode. The flat end of the electrode goes in first and the tapered end is in the nose piece. Depress the trigger and push the new electrode firmly into its holder.

CLEANING ARC SHIELD

As the Spot Arc Gun is used, metal and arc deposits will form in the arc shield and hamper the operation of the gun. These deposits may be removed from the ceramic lining by scraping with an old knife or other flat metal object. Do not force against the electrode when removing these deposits; a good idea is to first retract or remove the electrode with the adjusting knob.

REPLACING THE ARC SHIELD

The arc shield is designed for rugged use and, with normal cleaning, it will have a prolonged life. A replacement arc shield is furnished with the gun and can be installed as a replacement when the original arc shield no longer holds the arc heat properly.

Installing the replacement arc shield is easily accomplished. Remove the holding screws on the arc shield collar and slide the assembly off the gun body. Slide the collar off the front of the arc shield and place it on the replacement arc shield. Replace all asbestos washers in the same position as they were originally. Replace the assembly on the Spot Arc Gun and install the holding screws.

RETURNING ARC SHIELD TO FACTORY FOR REPLACEMENT

The used arc shield can be returned to the factory for replacement of the ceramic liner. The liner will be replaced and the arc shield returned the same day as received. Some Spot Arc Gun users may desire to have additional arc shields on hand, especially if the unit is to be used steadily as a production tool in use every day. Consult the price list for part number and cost.

The charge for factory replacement of the arc shield is given in the Parts - Price List. The used arc shield should be sent to: Forney Manufacturing Company, Spot Arc Gun Repair, Fort Collins, Colorado. Be sure to include your name, address and the Spot Arc serial number, along with your remittance for the arc shield replacement charge. This amount includes the charge for return postage and handling.

FORNEY MODEL 2400

SPOT ARC GUN

Parts - Price List

Item No.	Part No.	Part Name	Price Each
1	2426	Arc Shield Assembly	13.45
2	2427	*Arc Shield Exchange (all types)	7.85
3	2428	Special Package of 10 Forney Spot Welding Electrodes	3.65
4	2429	Extension Cable 15' long (accessory item)	
5	2445	Arc Shield Assembly, 90° Outside Corner	14.75
6	2446	Arc Shield Assembly, 90° Inside Corner	14.75

* Includes all charges for postage and handling. Order must be accompanied by used arc shield.

Prices subject to change without notice:

Effective July 1, 1961

FORNEY INDUSTRIES, INC., FORT COLLINS, COLORADO

FORNEY MANUFACTURING COMPANY

Div. of Forney Industries, Inc.

Fort Collins, Colorado

SPOT ARC GUN WARRANTY POLICY

This is to certify that this FORNEY SPOT ARC GUN, Model _____
Serial Number _____ is precision-built of quality materials and
rigorously tested in our laboratories. We, therefore, make the following
warranty:

"If within 90 days from the date of purchase, the FORNEY SPOT ARC GUN
fails to operate satisfactorily because of defects in workmanship or
materials, authorized repair without charge shall be made at our Fort
Collins, Colorado factory, provided it is still the property of the
original owner.

"This warranty policy does not cover the replacement of the Arc Shield
nor Electrodes as these are expendable items. Any unit which has been
subjected to abuse due to incorrect operation will not be protected
under the terms of this warranty."

SPOT ARC CONTROL GUARANTEE POLICY

This is to certify that this FORNEY SPOT ARC CONTROL, Model _____
Serial Number _____ is precision-built of quality materials and
rigorously tested in our laboratories. We, therefore, make the following
guarantee:

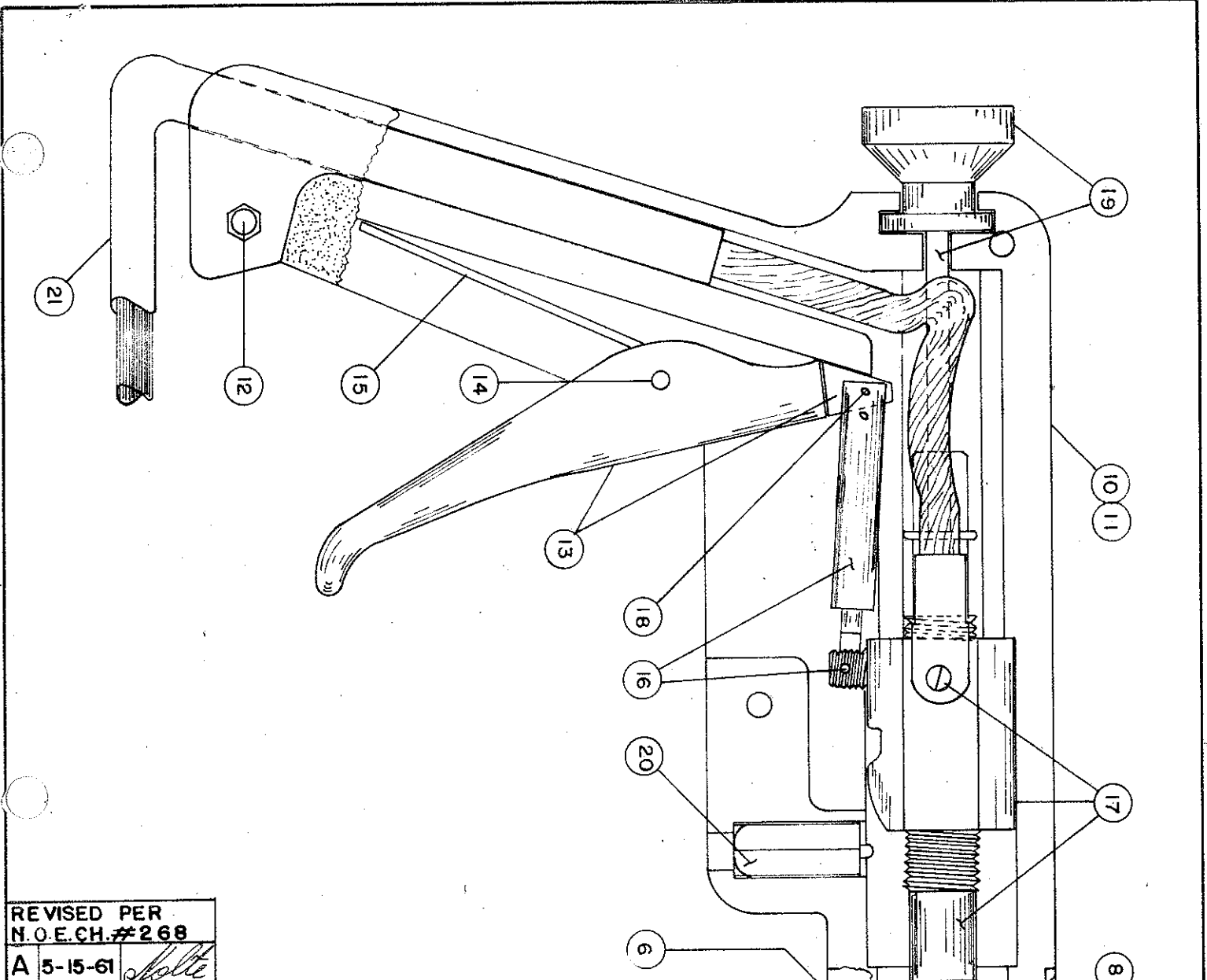
TWO-YEAR UNCONDITIONAL GUARANTEE-----"The Forney Manufacturing Company
agrees to repair or replace the FORNEY SPOT ARC CONTROL without charge
to the original owner if for any reason whatsoever, it fails to give
satisfactory service within a period of two years from date of purchase."

EIGHT-YEAR SERVICE WARRANTY-----If, within eight years after the
expiration date of the two-year guarantee, this FORNEY SPOT ARC CONTROL
fails to operate satisfactorily, the FORNEY MANUFACTURING COMPANY
will repair it at cost of actual hourly labor and material used, pro-
vided it is still the property of the original owner.

FORNEY MANUFACTURING COMPANY
Div. of Forney Industries, Inc.
Fort Collins, Colorado

By:

J. D. Forney
J. D. Forney, President



ITEM	PART N°	PART NAME
1	2426	ARC SHIELD ASS'Y.
2	2427	ARC SHIELD EXCHANGE
3	2428	ELECTRODE (4" LONG) 10 IN PKG.
4	2429	EXTENSION CABLE
5	2411	ARC SHIELD COLLAR
6	2400-4	COLLAR SCREW
7		
8	2434	ASBESTOS WASHER (WIDE)
9	2416	ASBESTOS WASHER (NARROW)
10	2401	HANDLE RIGHT HAND
11	2402	HANDLE LEFT HAND
12	2400-1/2	HANDLE SCREW W/ NUT
13	2435	TRIGGER (W/ EXTENSION)
14	2410	TRIGGER PIN
15	2409	TRIGGER SPRING
16	2431	RETRACTION SPRING ASS'Y WITH PIN #2408
17	2430	ELECTD. HOLDER ASS'Y W/ SCREW 2400-3
18	2406	LINK PIN (3/8" LONG)
19	2432	ADJUSTMENT KNOB W/ BAR ASS'Y
20	2433	SPRING PLUNGER ADJ. ASS'Y WITH ALLEN WRENCH
21	2420	POWER CABLE ASS'Y

REVISED PER
N.O.E.CH.#268
A 5-5-61

FORNEY SPOT ARC GUN

MAR. 29, 61
G. E. W.
FORNEY MFG. CO.
DIV. OF FORNEY IND. INC.
FORT COLLINS, CO.

MODEL 2400