IM1023-A

LN-27

OPERATOR'S MANUAL

The LINCOLN machine covered by this manual is CE marked and is in conformity with:
- COUNCIL DIRECTIVE of May 3, 1989 on the approximation of the law of the Member States relating to **ElectroMagnetic Compatibility (89/336/EEC).**
- COUNCIL DIRECTIVE of February 19, 1973 on the harmonization of the laws of the Member States relating to electrical equipment designed for use with **low voltage limits (73/23/EEC).**
This LINCOLN machine is manufactured in conformity with the following European standard that implement a harmonized standard:
- EN50199 Electromagnetic compatibility and applicable standards of the EN 60974 serie.

LINCOLN ELECTRIC FRANCE
Avenue Franklin Roosevelt
76121 Le Grand Quevilly cedex
France
Tél : 02 32 11 40 40
Fax : 02 32 11 40 11
www.lincolnelectric.fr

TABLE OF CONTENTS

Electromagnetic Compatibility (EMC)

This machine has been designed in accordance with all relative directives and norms. However, it may still generate electromagnetic disturbances that can affect other systems like telecommunications (telephone, radio, and television) or other safety systems. These disturbances can cause safety problems in the affected systems. Read and understand this section to eliminate or reduce the amount of electromagnetic disturbance generated by this machine.

WARNING: This machine has been designed to operate in an industrial area. To operate in a domestic area it is necessary to observe particular precautions to eliminate possible electromagnetic disturbances. The operator must install and operate this equipment as described in this manual. If any electromagnetic disturbances are detected the operator must put in place corrective actions to eliminate these disturbances with, if necessary, assistance from Lincoln Electric. Do not modify this machine without the written approval of Lincoln Electric.

Before installing the machine, the operator must check the work area for any devices that may malfunction because of electromagnetic disturbances. Consider the following.
* Input and output cables, control cables, and telephone cables that are in or adjacent to the work area and the machine.
* Radio and/or television transmitters and receivers.
* Computers or computer controlled equipment.
* Safety and control equipment for industrial processes.
* Personal medical devices like pacemakers and hearing aids.
* Equipment for calibration and measurement.
* Check the electromagnetic immunity for equipment operating in or near the work area. The operator must be sure that all equipment in the area is compatible. This may require additional protection measures.
* The dimensions of the work area to consider will depend on the construction of the area and other activities that are taking place.

Consider the following guidelines to reduce electromagnetic emissions from the machine.
* Connect the machine to the input supply according to this manual. If disturbances occur if may be necessary to take additional precautions such as filtering the input supply.
* The output cables should be kept as short as possible and should be positioned together.
* If possible connect the work piece to ground in order to reduce the electromagnetic emissions. The operator must check that connecting the work piece to ground does not cause problems or unsafe operating conditions for personnel and equipment.
Shielding of cables in the work area can reduce electromagnetic emissions. This may be necessary for special applications.

SAFETY

ATTENTION

This equipment must be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified individuals. Read and understand this manual before operating this equipment. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment. Read and understand the following explanations of the warning symbols. Lincoln Electric is not responsible for damages caused by improper installation, improper care or abnormal operation.

	WARNING: This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or damage to this equipment. Protect yourself and others from possible serious injury or death.
	READ AND UNDERSTAND INSTRUCTIONS: Read and understand this manual before operating this equipment. Arc welding can be hazardous. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment.
	ELECTRIC SHOCK CAN KILL: Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is on. Insulate yourself from the electrode, work clamp, and connected work pieces.
	FUMES AND GASES CAN BE DANGEROUS: Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. To avoid these dangers the operator must use enough ventilation or exhaust to keep fumes and gases away from the breathing zone.
	ARC RAYS CAN BURN: Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing. Use suitable clothing made from durable flame-resistant material to protect you skin and that of your helpers. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.
	WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION: Remove fire hazards from the welding area and have a fire extinguisher readily available. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjacent areas. Do not weld on any tanks, drums, containers, or material until the proper steps have been taken to insure that no flammable or toxic vapors will be present. Never operate this equipment when flammable gases, vapors or liquid combustibles are present.
	ELECTRICALLY POWERED EQUIPMENT: Turn off input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.
	ELECTRICALLY POWERED EQUIPMENT: Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. No not place the electrode holder directly on the welding table or any other surface in contact with the work clamp to avoid the risk of accidental arc ignition.
	ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS: Electric current flowing through any conductor creates electric and magnetic fields (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before operating this equipment.
	CYLINDER MAY EXPLODE IF DAMAGED: Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. Always keep cylinders in an upright position securely chained to a fixed support. Do not move or transport gas cylinders with the protection cap removed. Do not allow the electrode, electrode holder, work clamp or any other electrically live part to touch a gas cylinder. Gas cylinders must be located away from areas where they may be subjected to physical damage or the welding process including sparks and heat sources.
	WELDED MATERIALS CAN BURN: Welding generates a large amount of heat. Hot surfaces and materials in work area can cause serious burns. Use gloves and pliers when touching or moving materials in the work area.
	CE COMPLIANCE: This equipment complies to the European Communities directives.

SAFETY PRECAUTIONS

ATTENTION

Disconnect or shut off welding power source before making connections or installation of the LN-27.
Welding gun should be stored in the insulated gun holder, located near the rear, on the top of the LN-27 case to avoid accidental arcing.

ATTENTION

ELECTRIC SHOCK can kill.

- Only qualified personnel should perform this installation.
- Turn the input power OFF at the disconnect switch or fuse box before working on in this equipment.
- Turn the Power switch off before opening case for servicing or anything else. .
- Do not touch electrically live parts.
- Always connect the Power souce grounding terminal to a good ground.

The LN-27 come in 3 models and are lightweight portable semi-automatic wire feeders designed without a control cable for use with recommended constant voltage DC power sources.
They are constant speed wire feeders dedicated for Gas metal arc welding (MIG / MAG), Gas shielded flux cored welding (Outershield) and Self shielded flux cored welding (Innershield).
LN-27 are available in the following models with a 2-roll wire drive system.

- LN-27 Standard type (K10264-1)
- LN-27H - Hi-Speed type (K10264-2)
- LN-27 Innershield type (K10264-10)

Simply connect the LN-27 to the cable electrode, clip it to work and it is ready to weld using a 30 Lb. coil or a 14 Lb Innershield coil.
The wire drive, controls and wire reel are fully enclosed in a rugged molded plastic case providing a compact and versatile welding package ideally suited to “On-the go” field welding applications in virtually any environment.

The LN-27 provides stabilized wire feed speed for use with constant voltage (CV) power sources with 42 VAC auxiliary power and 14-pin connector receptacle

RECOMMENDED PROCESSES & POWER SOURCES

Power sources recommended for use with the LN-27 wire feeders include:

- CV300-I
- CV400-I
- CV500-I
- DC400
- Invertec V300-I

LN-27 Standard (K10264-1): Gas metal arc welding (Mig/Mag) & Gas shielded flux cored welding (Outershield) processes.

LN-27H (Hi-Speed) (K10264-2): Gas metal arc welding (Mig/Mag) & Gas shielded flux cored welding (Outershield) processes with higher wire feed speed.

LN-27 INNESHIELD (K10264-10): Self-shielded flux cored welding (Inneshield) process only.

WELDING CAPABILITY

The LN-27 will handle up to 500 Amp. 60% duty cycle welding current.

TECHNICAL FEATURES

The LN-27’s electrode circuit (including wire, wire drive system and welding mechanism) is electrically “HOT” ONLY when feeding with the gun trigger. Wire feed is also controlled by gun trigger.
The LN-27’s keypad panel provides finger control for welding procedure parameters. In addition, a knob allows you to set arc voltage easily. A unique arc starting control system allows you to set Run-in wire feed speed and acceleration for smooth and clean arc starts.

The LN-27’s digital meter can be set for English or metric display, allowing either inches per minute (IPM) ou meter per minute (m/m) procedure setting.

Variable wire run-in speed and acceleration provide controlled arc starting.

Dynamic braking system stops wire feeder motor quickly to minimize sticking problems.

Solid state control compensates for wire drag & input line variation to maintain accurate wire feed speed.

Tool-less quick released wire drive tension system and gun cable connection for easy wire and gun change.

LN-27 wire feeders can be taken through a 16 inches diameter manhole.

POWER-DOWN SAVE

All settings, including mode, inch speed, weld speed, timer and acceleration are automatically saved when power is removed. This feature does not require batteries and, when power is restored, it will automatically return all settings to the state they were in when power soure was removed.

LN-27 are delivered with a short cable with fast mate for easy connection.

LN-27 are 3 year warranted on parts & labor.

LN-27 are manufactured under a worldwide quality system certified ISO 9002 requirements.

MISCELLANEOUS ITEMS INCLUDED IN THE LN-27

- One adapter coil K10158-1
- One inlet guide tube
- One drive roll collar assembly
- One key
- one sems screw.

SPEED AND WIRE SIZE RANGE

K number	Model	Drive	Speed range (meter per minute)	Wire size range (millimetre) Solid wire	Cored wire
K10264-1	LN-27 standard	2-roll	1.25 - 19.5	0.6 - 1.6	1.2 - 2.0
K10264-2	LN-27H (Hi-speed)	2-roll	2.0 - 30.5	0.6 - 1.2	1.2
K10264-10	LN-27 Innershield	2-roll	1.25 - 19.5	_____	1.2 - 2.4

WARNING

LECTRIC SHOCK can kill.

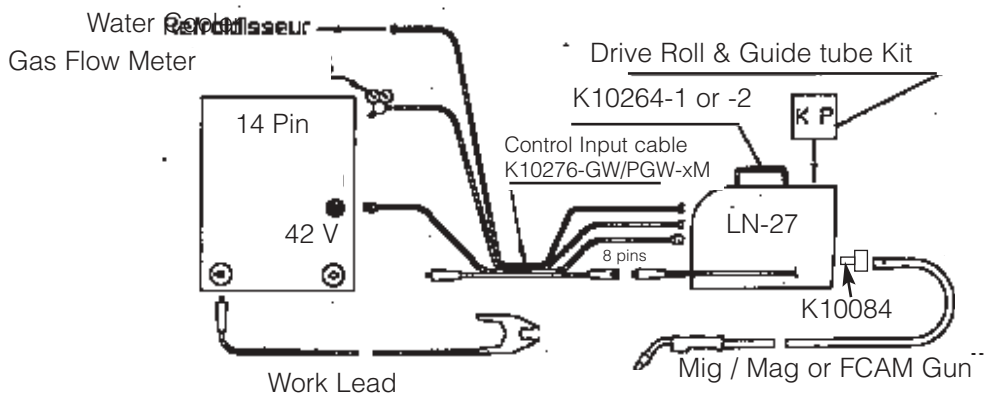
- Only qualified personnel should perform this installation.
- Turn the input power OFF at the disconnect switch or fuse box before working on in this equipment.
- Turn the Power switch off before opening case for servicing or anything else. .
- Do not touch electrically live parts.
- Always connect the Power souce grounding terminal to a good ground.

WARNING

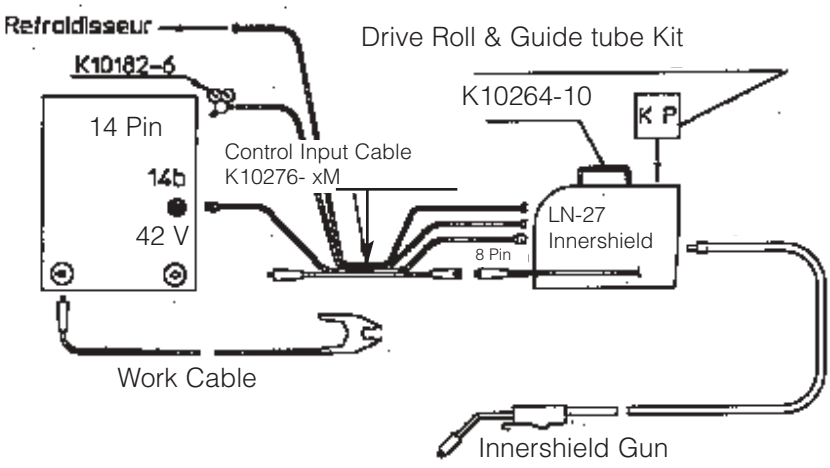
• Couper l'alimentation réseau à l'aide du compteur ou du sectionneur avant d'effectuer le branchement du dévidoir sur le générateur.

Le pistolet de soudage, en dehors des périodes de soudage, doit toujours être mis dans son support isolé situé à la partie supérieure arrière des LN-27, ceci afin d'éviter la création accidentelle d'arc électrique.

Installation: LN-27 Standard (K10264-1) & LN-27H Hi-Speed (K10264-2) to Power Source



Installation: LN-27 Innershield (K10264-10) to Power Source



LN-27Standard & LN-27-H
Gun cable connection - Wire feeder to Gun (for GMA Gun & cable)

a) Check that drive roll(s), feeder guide tube and gun connector guide tube are appropriate for the electrode size being used. Change them if necessary.
b) Change gun connector to Euro-connector on wire feeder making sure all pins and gas tubes line up with appropriate cavities in connector.
Push it gently and tighten gun connector by turning large nut on gun clockwise.

LN-27 Innershield
Gun cable connection - Wire feeder to gun (For Innershield Gun & cable)

Lay the cable out straight . Insert the connector on the welding conductor cable into the brass conductor block on the front of the wire drive unit. Make sure it is all the way in and tighten the hand wheel clamp. Keep this connection clean and bright.

Weld cable connection

The size of the electrode cable & work cable must be sufficient for the maximum weld current and total cable length to be used.

Duty cycle 60%	Length Cables 15-30meters
200A	35 mm^2
300A	50 mm^2
400A	70 mm^2
500A	70 mm^2

Work cable connection

Connect work lead of sufficient size between the proper output stud on the power source and the work. Be sure the connection to the work makes tight metal-to-metal electrical contact. Poor work lead connection can result in poor welding performance.

PROCEDURE TO INSTALL DRIVE ROLL & GUIDE TUBES

1) Turn off welding power source.
2) Release the idle roll presurre arm by rotating latch knob to “Open”.
3) Remove clamping screw & collar from the drive shaft.
4) Install key & drive roll. Double grooved drive rolls are to be installed with side stencilled for correct wire size facing out and with slotted spacer on top of roll. Two piece drive rolls use a spacer between the rolls for .068” (1,7mm) and larger wire size. (Do not exceed maximum wire size rating of the wire drive). Replace collar and tighten clamping screw.
5) Loosen the molded handscrew on the front of the wire drive and pull the gun connector out of the connector block. The guide tube provided in the gun connector is for .045” (1,2mm) or smaller wire sizes (marked with one ring).
The guide tube is secured with a set screw on the bottom of the brass hex so that guide tube is flush with the incoming end of the gun connector.
6) With the gun connector removed, loosen the thumb screws for the ingoing and outgoing guide tubes of the wire drive.
7) Install longer guide tube in rear hole, and the other guide tube through the front hole. Fine wire chisel point tube must have larger radius next to drive roll.
8) With both guide tubes properly seated, tighten the thumbscrews.
9) Reinstall the gun connector into the conductor block and tighten molded handscrew.
10) Re-latch the idle roll pressure arm.

To set idle roll pressure, see idle roll pressure setting.

Idle Roll Pressure setting

The idle roll pressure is set at the factory backed out two turns from full pressure . This is an approximate setting. For small wire sizes and aluminium wire, the optimum idle roll pressure varies with type of wire, surface condition, lubrication and hardness. The optimum idle roll setting can be determined as follows:

1) Press end of gun against a solid object that is electrically isolated from the welder output and press the gun trigger for several seconds.
2) If the wire “birdnests”, jams or breaks at the drive roll, the idle roll pressure is too great. Back the pressure setting out 1/2 a turn, run new wire through gun, and repeat above steps.
3) If the only result is drive roll slippage, disengage the gun locking nut , pull the gun cable forward about six inches. There should be a slight waviness in the exposed wire. If there is no waviness, the pressure is too low. Increase the pressure setting 1/4 turn, reconnect the gun, tighten locking nut and repeat the above steps.

Feeding electrode

1) Turn the reel until the free end of the electrode is accessible. While tightly holding the electrode, cut off the bent end.
2) Straighten the first six inches (150mm) and cut off the first 1” (25mm). Insert the free end through the incoming guide tube. Press the cold inch key or the gun trigger and push the electrode into the drive roll. Feed the electrode through the gun. (if the electrode is not properly straightened, it may not feed or may not enter the outgoing guide tube causing a “birdnest”).

WHEN FEEDING WITH THE GUN TRIGGER, THE ELECTRODE AND WIRE FEEDING SYSTEM ARE ALWAYS "HOT" TO WORK AND GROUND AND COULD REMAIN "HOT" SEVERAL SECONDS AFTER THE GUN TRIGGER IS RELEASED.

LN-27 Standard The maximum wire size the K 10264-1 will satisfactorily feed is 1/16"(1.6mm) solid electrode and 5/64"(2.0 mm) cored electrode wire.

LN-27 H The maximum wire size the K10264-2 will satisfactorily feed is .045" (1.2 mm) solid electrode and .045" (1.2 mm)cored electrode .

LN-27 Innershield The maximum wire size the K10264-10 will satisfactorily feed is 5/64"(2.0 mm) Innershield electrode.

The electrode sizes that can be fed with each roll and guide tube are stencilled on each part. Check the kit for proper components.See the intructions included with the Drive roll & Guide tube kit to install these parts on new machine or replace them on used machine. Refer to "Drive roll and guide tube kits" in the "Optional features " paragraphe

LN-27 (K10264-1 & -2 only)
WATER CONNECTION (for water cooled gun)
Using male 5/8 - 18 UNF left hand threaded fittings, connect the appropriate water hose of the input cable assembly to the coolant inlet and outlet on the back panel of the LN-27. Connect the other ends (see sketch page 10) of these hoses to the appropriate parts on your water cooling unit.

GMAW Shielding gas
Customer must provide a cylinder of shielding gas , a pressure regulator, a flow control valve.
Connect the appropriate gas hose of the input cable assembly from the gas cylinder flow to the 5/8-18 female gas fitting on the back panel of the LN-27.

WIRE REEL LOADING - Readi- reel and Spool

To mount a 30 Lbs (14 Kg) Readi-Reel package using the molded plastic K10158 type adapter

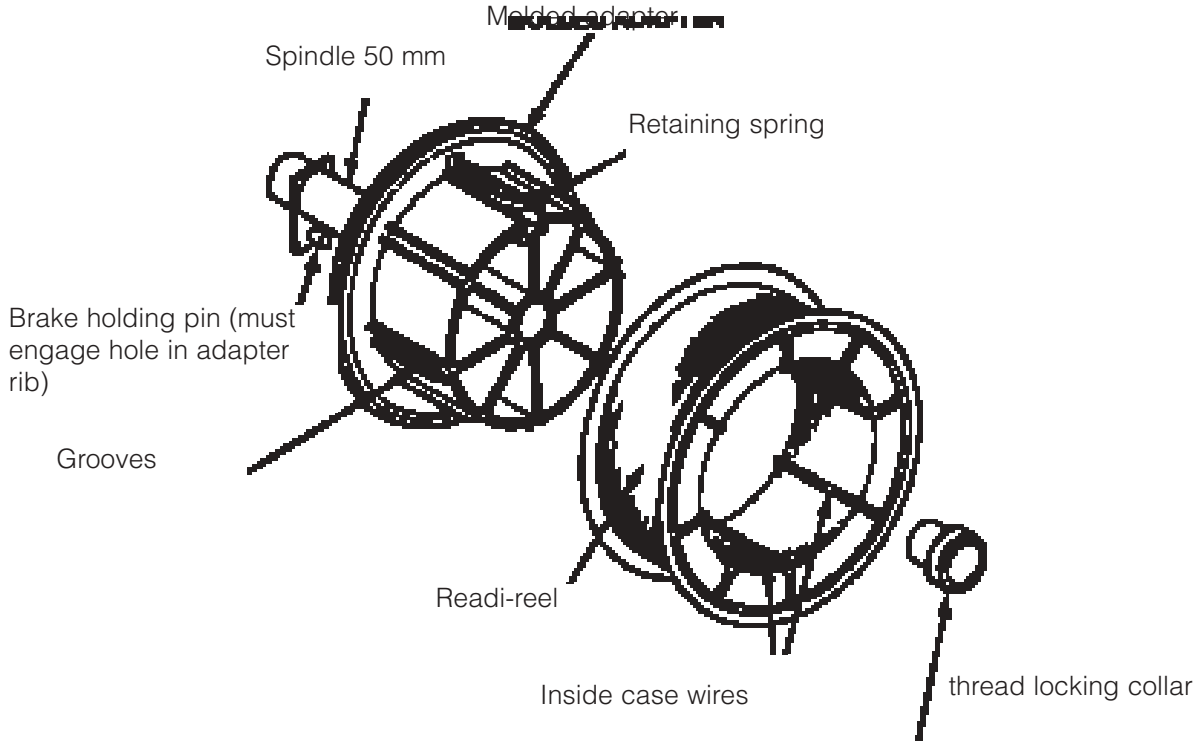
The LN-27 should be factory equipped with a K10158 Readi-Reel adapter which is required to load Lincoln 30Lbs (14 Kg) Readi-Reel coils.
a- Make certain that the threaded locking collar is tight and securely locks the adapter on the spindle (see figure next page).
b- Rotate the spindle and adapter so the retaining spring is at the 12 o'clock position.
c- Position the Readi-Reel so that it will rotate in a clockwise direction when feeding (wire is to be dereeled from **bottom** of the coil).
d- Set one of the Readi-Reel inside cage wires on the slot in the retaining spring tab.
e- Lower the Readi-Reel to depress the retaining spring and align the other inside cage wires with the grooves in the molded adapter.
f- Slide cage all the way onto the adapter until the retaining spring "pops up" fully.

ATTENTION Check to be sure that the retaining spring has fully returned to the locking position and has securely lock the Readi-Reel cage in place. Retaining spring must rest on the cage, not the welding electrode.

To mount a 14 Lbs (4.5 Kg) Innershield Coil
(Requires Optional K435 Spindle Adapter for 14 Lbs Coils)

a- Mount K435 Spindle Adapter and Innershield coil per the instructions (S18256) included with the K435.

READI-REEL INSTALLATION



FEEDING ELECTRODE AND BRAKE ADJUSTMENT

1- Turn the Readi-Reel or spool until the free end of the electrode is accessible.

2- While tightly holding the electrode, cut off the bent end and staighten the first 6" (150mm).
Cut off the first 1" (25mm) . (if the electrode is not properly straightened, it may not feed or may not go into the outgoing guide tube causing a "birdness".)

3- Insert the free end through the incoming guide tube.

4- Press the cold inch key or the gun trigger and push the electrode into the drive roll.

WARNING:
WHEN FEEDING WITH THE GUN TRIGGER, THE ELECTRODE AND DRIVE MECHANISM ARE ALWAYS "HOT" TO WORK AND GROUND AND COULD REMAIN "HOT" SEVERAL SECONDS AFTER THE GUN TRIGGER IS RELEASED.

5- Feed the electrode through the gun.

6- Adjust the brake tension with the thumb screw on the spindle hub, until the reel turns freely but with little or no overrun when wire feeding is stopped. Do not overtighten.

WIRE REEL CHANGING

At the end of a coil, remove the last of the old electrode coil from the conducteur cable by either pulling it out at the nozzle end of the gun or by using the following procedure:
1 - Cut the end of the electrode off at the gun end. Do not break it off by hand because this puts a slight bend in the wire making it difficult to pull it back through the nozzle.

2 - Disconnect the gun cable from the gun conector on the LN-27 drive unit and lay the gun and cable out straight

3 - Using pliers to grip the wire, pull it out of the cable from the connector end.

4 - After the electrode has been removed, reconnect the gun cable to the LN-27.

WIRE FEED OVERLOAD PROTECTION

The LN-27 has solid state overload protection of the wire drive motor. If the wire drive motor becomes overloaded for an extended period of time, the protection circuitry turns off the power source., wire feed and solenoid and then display H-30. This indicates the wire drive motor is overloaded and the number indicates the time remaining in seconds before the unit will be automatically reset. The number continues to decrement every second until it reaches 0. At that time, the unit reset automatically and the previous display will return indicatiing the unit is ready to operate again. Overload can result from improper tip size, drive rolls, or guide tubes, obstructions or bends in the gun cable, feeding wite that is larger than the rated capacity of the feeder or any other factors that would impede normal wire feeding.

EXPLANATION OF PROMPTING AND ERROR MESSAGES

HI Indicates arc voltage is above 44VDC

--- Indicates inch speed is off and that inch speed will be the same as the weld speed. To re-enable inch speed simply press the increase arrow key

HXX Indicates wire feed overload. **XX** indicates time remaining in seconds before units resets automatically. See Maintenance section for maintenance and trouble shooting guide problem 17.

EP indcates problem in EPROM assembly. See trouble shooting guide problem 17.

uP Indicates problem in microprocesseur RAM. See trouble shooting guide problem 17.

EXX Indicates various system problems. XX will be a number from 01 to 10. Turn off power to feeder. Wait 5 seconds. Turn power back on. if error persists see trouble shooting guide problem 17. If error does not reoccur, be sure to check all wire feed speed, acceleration and timer settings before you proceed.

ER EPROM error. Usually occurs at power up. Indicates one or more of the recalled settings is out of acceptable limits. Press any key toreturn to normal operation. Be sure to check all wire feed speed, acceleration and timer settings before you proceed.

SPECIFICATION FOR LN-27, LN-27H AND LN-27 INNERSHIELD

	LN-27 (K10264-1) 2-Roll	LN-27H (K10264-2) 2-Roll	LN-27 INNERSHIELD (K10264-10) 2-Roll
Rated Current		350 Amperes 60%	
Wire Speed Range			
IPM meter per minute	50-770 1.25 - 19.5	80-1200 2.0 - 30.5	50-770 1.25 - 19.5
Wire Size Capabilities			
Solid Steel wire	.025 - 1/16” (0.6 - 1.6 mm)	.025 - .045” (0.6 - 1.2 mm)	_____
Cored Wire	.045 - 3/32” (1.2 - 2.0 mm)	.045” (1.2 mm)	_____
Cored electrode (Innershield)	_____	_____	.045 - 3/32” (1.2 - 2.0 mm)
Aluminium Wire	.040 - 1/16” (1.0 - 1.6 mm)	.040 - .045” (1.0 - 1.2 mm)	_____
Input Power (All models)	40/42 V +/- 10%; 50 / 60 Hz ; 4 A		
Temperature Rating (All Models)			
Operating		-20° to +40°	
Storage		- 40° to +40°	
Dimensions (Height x Width x Length)		14” X 8” X 23” (350 mm x 190 mm x 350 mm)	
Weight		14 Kg	

OPTIONAL ACCESSORIES

A - Drive Roll & Guide tube Kits

LN-27 (K 10264-1)

Solid Steel Wire sizes

.023" (0.6 mm)	KP653 - 025S
.030" (0.8 mm)	KP653 - 030S
.035" (0.9 / 1.0 mm)	KP 653- 035S
.045" / .052" (1.2 & 1.4 mm)	KP653- 052S
1/16" (1.6 mm)	KP653 - 1/16

Cored Wire sizes

.045" (1.2 mm) / .052" (1.4mm)	KP653 - .052C
1/16" (1.6mm)	KP653 - 1/16
.068" (1.8mm)	KP653 - 3/32
5/64" (2.0mm)	KP653 - 3/32

Aluminium Wire size

.040" (1.0 mm)	KP688-040A
.045" (1.2 mm)	KP688-3/64
1/16" (1.6 mm)	KP688-1/16A

N-27H (K 10264-2)

Solid Steel Wire sizes

.023" (0.6 mm)	KP653 - 025S
.030" (0.8 mm)	KP653 - 030S
.035" (0.9 / 1.0 mm)	KP 653- 035S
.045" / .052" (1.2 mm)	KP653- 052S

Cored Wire sizes

.045" (1.2 mm)	KP653 - 052C

Aluminium Wire size

.040" (1.0 mm)	KP688-040A
.045" (1.2 mm)	KP688-3/64

LN-27 Innershield (K 10264-10)

Cored Wire sizes

.045" (1.2 mm) / .052" (1.4 mm)	KP653 - 052C
1/16" (1.6 mm)	KP653 - 1/16
.068" (1.8 mm)	KP653 - 3/32
5/64" (2.0mm)	KP653 - 3/32

B - Control cable assembly (Twist-mate connection) (See installation of LN-27 to Power Source page 10)

1) LN-27 and LN-27H:

Two kinds of control cable assembly can be used:

1a) Control cable assembly K10276 - GW (twist-mate connection) includes:

- Electrode cable rated up to 500 Amps, 60% duty cycle.
- Control cable with pin connector at both end.
- Water hose with male quick connect on wire feeder's end.
- Gas hose with one connector on wire feeder's end.

K10276 - GW is available in the following lengths:

K10276 - GW - 8M	8 meter long
K10276 - GW - 15M	15 meter long
K10276 - GW - 23M	23 meter long
K10276 - GW - 30M	30 meter long

1b) Sheathed control cable assembly K10276 - PGW (Twist-mate connection) includes:

- Electrode cable, control cable, water hose and gas hose as before but the whole is covered and protected with a protection sheath.

K10276 - PGW is available in the following length:

K10276 - PGW - 8M	8 meter long
K10276 - PGW - 15M	15 meter long
K10276 - PGW - 23M	23 meter long
K10276 - PGW - 30M	30 meter long

2) LN-27 INNERSHIELD (K10264-10)

Only four control cable assemblies are available for this wire feeder:

K10276 - 8M, - 15M, -23M,- 30M: 8, 15, 23 or 30 meter long

C) Adapter for coil

K10158: Molded plastic adapter for 30 Lbs Readi-reel coil

K10158-1: Light weight molded plastic adapter for 30 Lbs Readi-reel coil.

K435: Spindle adapter for 14 Lbs Innershield coil.

D) Welding gun:

K115-2,-4,-6,-8,-10,-12: Innershield gun - 450A - 4.5 meter long.
K116-2,-4: Innershield gun - 600A - 4.5 meter long
K126-1,-2: Innershield gun - 350A - 3 and 4.5 meter long
K478-1,-3,-4,-5,-7,-8: European MIG/MAG welding torches - 300A - fast mate - 3, 4.5, 3.5 meter long
K479- 1,-2,-3,-4,-5,-7,-8,-9,-14: European MIG/MAG welding torches - 400A - 3, 3.5, 4.5, 7.5 meter long
K10157- 3M, -4M, -5M - Europan MIG/MAG welding torches - 500A - Water cooled - 3, 4, 5 meter long.

E) Water Cooler:

K873-1: Magnum cooler 400A

K879-1: Magnum cooler 600A

F) Gas pressure regulator:

K10182-6: Gas pressure regulator - 30 L.

G) Optional Wire Feed Speed manual control:

Optional potentiometer assembly for the manual control of wire feed speed . Designed for the operators who dislikeS using keypad fingertouch control. Mounted just below arc voltage control.

DUTY CYCLE

The LN-27, LN-27H & LN-27 Innershield are rated(*) at 60% duty cycle for a maximum current of 500Amps.

(*) based on 10 minutes time period, at 6 minutes ON and 4 minutes OFF.

Description

The LN-27 are lightweight portable wire feeders designed for use with constant voltage DC power Sources. They are constant speed wire feeders dedicated for MIG and gas shielded flux-cored arc welding (Outershield) for the LN-27 and LN-27H and dedicated to Self-shielded flux-cored welding (Innershield) for the LN-27 Innershield.
Designed for flexibility and simplicity in procedure set up, the LN-27's key pad panel allows touch control of welding parameters. Voltage control is by means of a potentiometer. Included in a unique system that provides facilities for the adjustment of both the run in wire feed speed and acceleration. Consistent smooth clean starts are therefore possible on critical applications where starting precision is essential.

The LN-27 digital meter may be set to display either IPM or m/min wire feed speed.

The LN-27 have 3 trigger mode selections :

- 2-step trigger
- 4-step trigger
- Spot mode

Three welding functions can be selected :

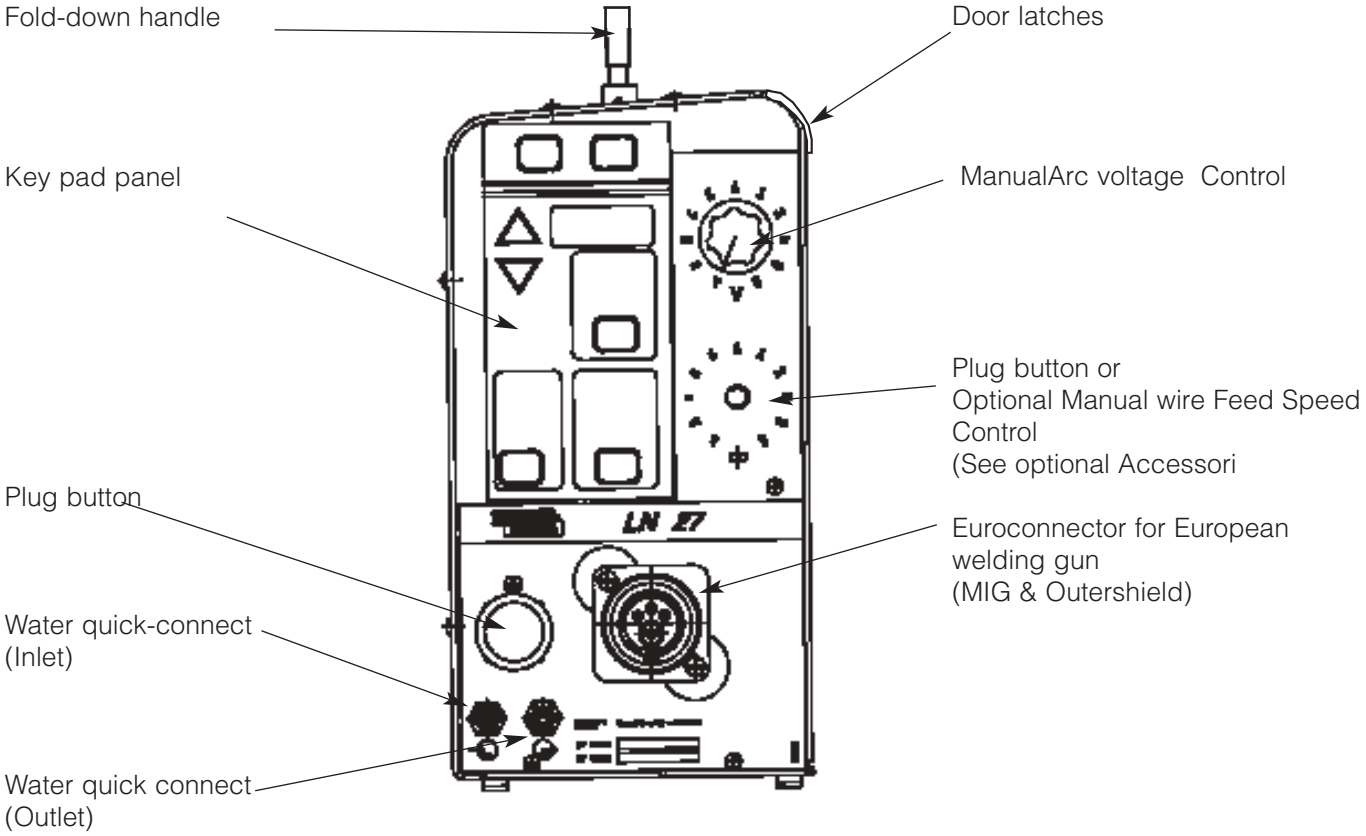
- Arc voltage function (display)
- Wire run-in feed speed function
- Wire acceleration function
- Wire feed speed function

* Not operating on LN-27 Innershield (K10264-10)

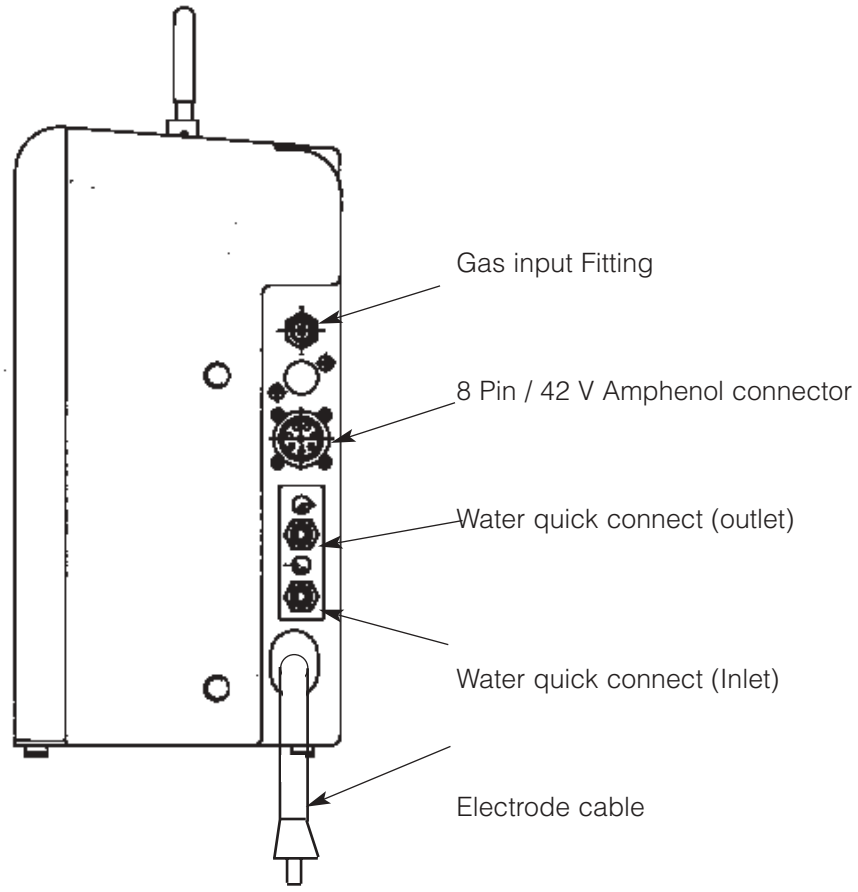
LN-27 - Standard Equipment

- Manual arc voltage control
- Euroconnector for European welding gun (LN-27 & LN-27H only)
- Water cooling circuit with Inlet & Outlet connectors (LN-27 & LN-27H only)
- Key pad panel for set up & operation
- Shielding gas circuit with Input fitting (LN-27 & LN-27H only)
- 8-pin / 42 volts - Input Amphenol connector
- Delivered with a cable and Fast-mate terminal for easy connection
- Large bright red digital display of welding conditions
- 5-pin Gun trigger Amphenol connector (LN-27 Innershield only)
- Selection of English or Metric Speed Display Units
- Power-down save - All settings automatically saved when power is removed.
- Solid state dynamic breaking quickly stops the motor to minimize overrun and to prevent crater sticking problem.
- Tachometer feedback for precise control of wire feed speed and acceleration independent of wire loading and line voltage fluctuations.
- Easy change of wire spool & Readi-reel
- Quick release wire feed system allows release of idle roll pressure arm, adjustment of roll pressure, and changing of input and output guide tubes without tools.
- Presetable wire feed speed, run-in speed and cold inch speed.

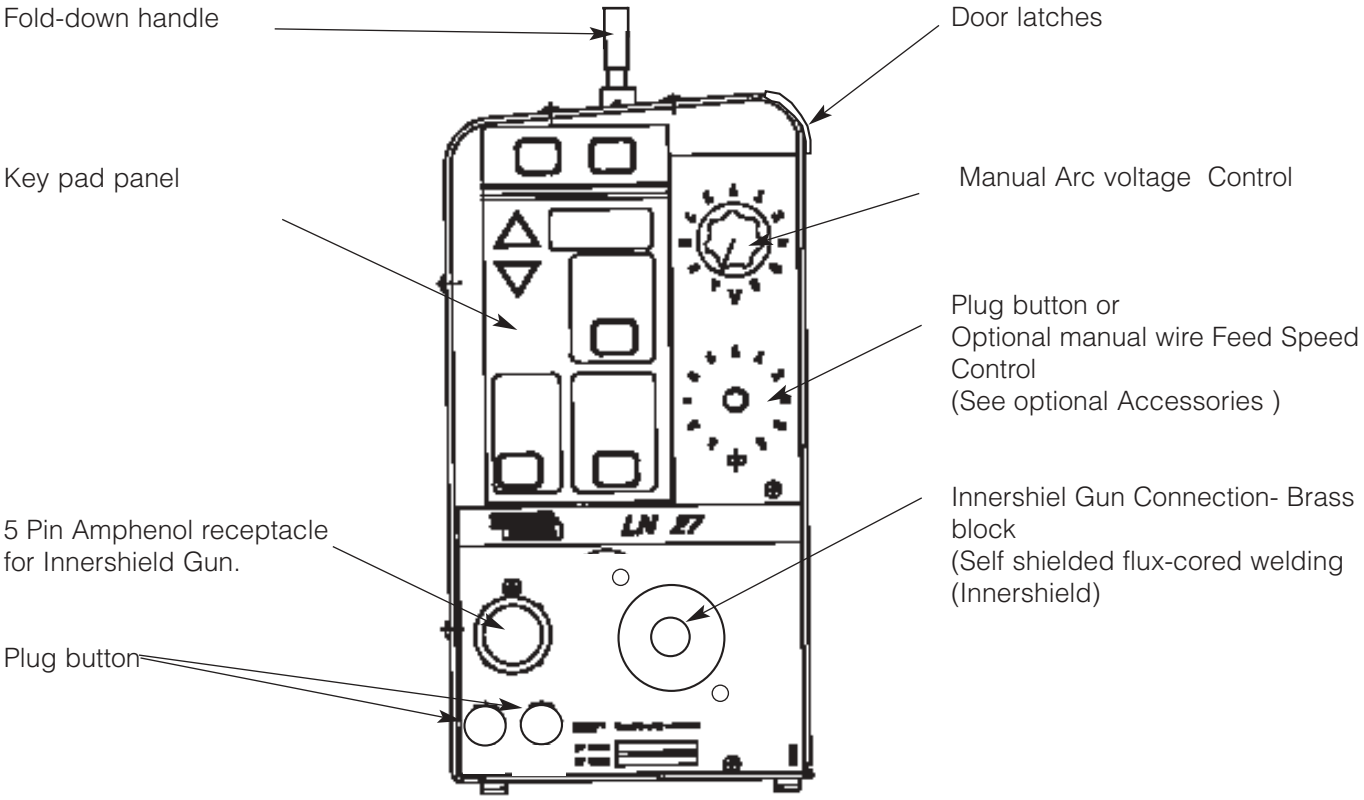
LN-27 STANDARD (K10264-1) & LN-27H (K10264-2) - Instruments and Controls



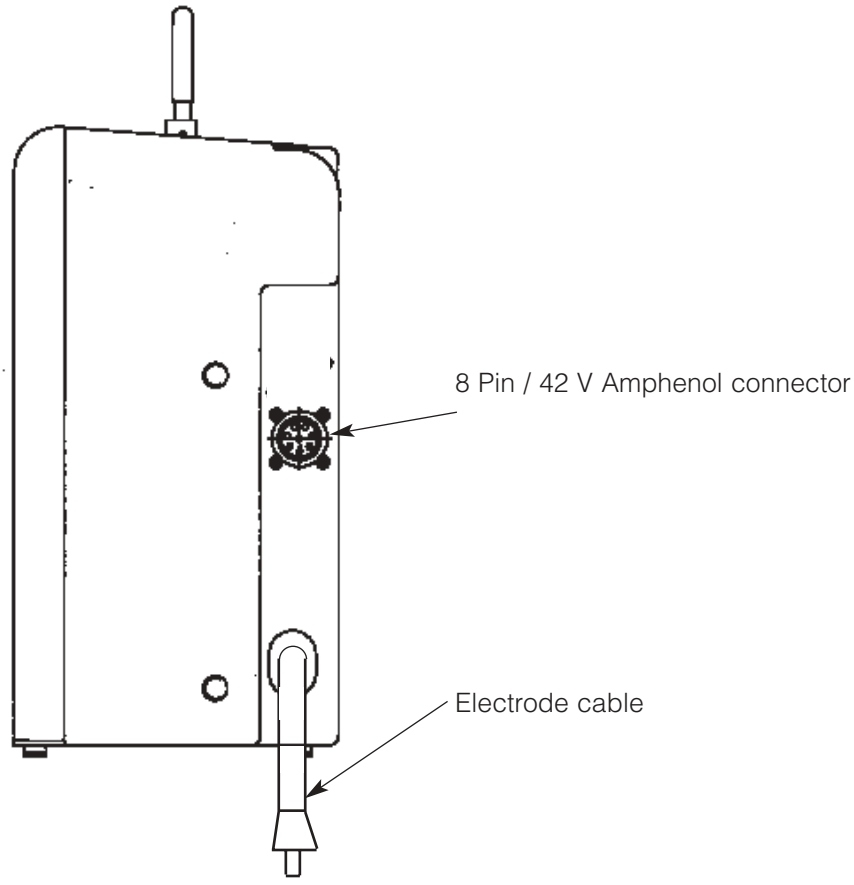
WARNING :
When feeding with the gun trigger the electrode and wire feeding system are always “Hot” to work and ground and could remain “Hot” several seconds after the gun trigger is released.



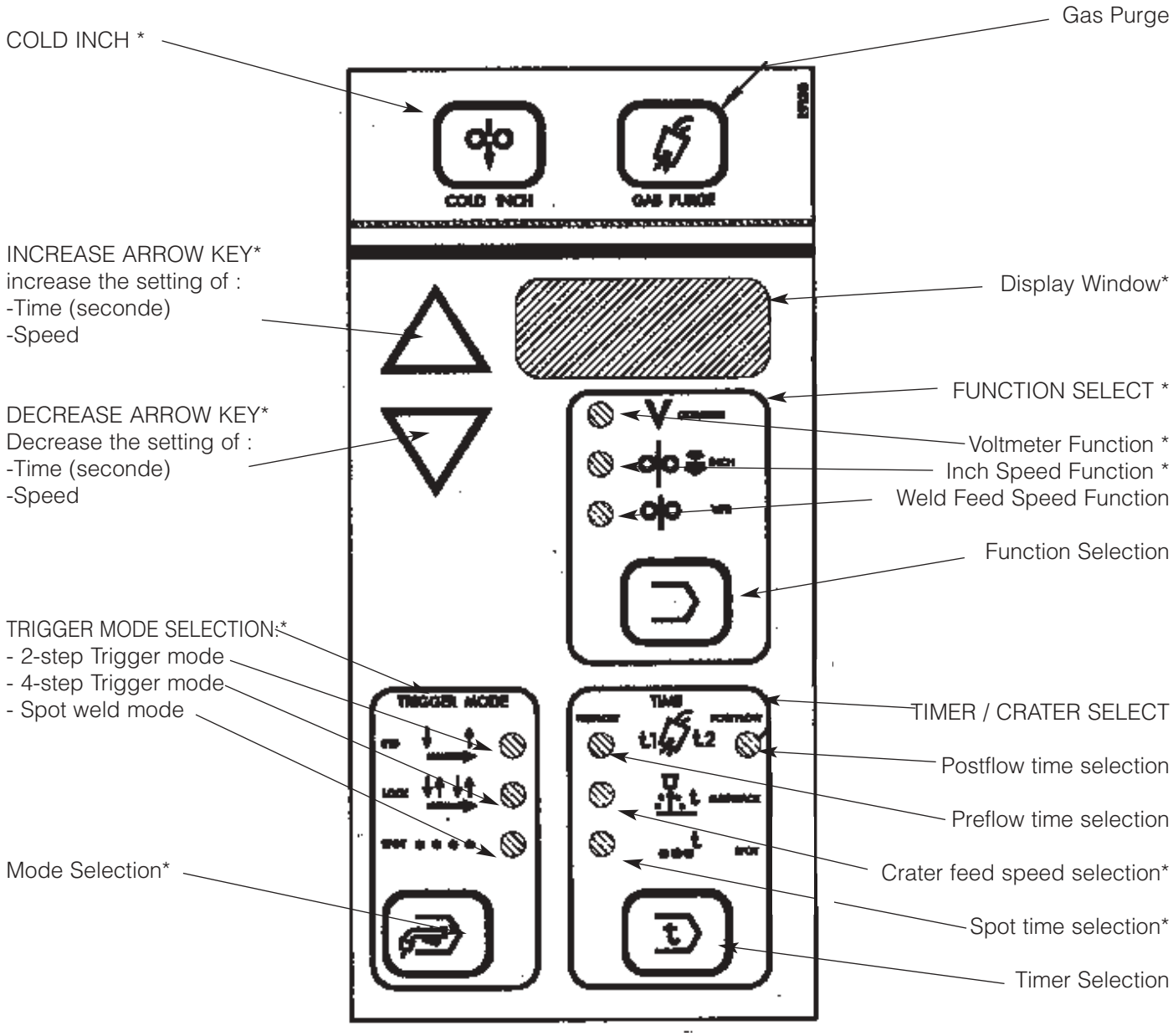
LN-27 INNERSHIELD (K10264-1O) - Instruments and Controls



WARNING :
When feeding with the gun trigger the electrode and wire feeding system are always “Hot” to work and ground and could remain “Hot” several seconds after the gun trigger is released.



KEY PAD PANEL - OPERATION KEYS



* Operating on all models

□ Operating on all models - LN-27 Innershield excepted (K10264-10)

OPERATING INSTRUCTIONS

a) COLD INCH

Cold Inch key energizes the wire feeder but not the power source or solenoïd valve. Wire feeds at Inch speed setting. (See operating instructions, Section entitled "Display Control Keys".

b) TOUCHE PURGE DE GAZ

Gas purge key energizes the solenoid valve but not the wire feeder or power source

c) SELECTION MODE

Mode select key enables operator to choose mode of operation shown by the indicator lights. Pressing key causes lights to sequence (top to bottom) starting from the current indicated position.

C-1: Top light
Indicates 2-step (standard) trigger mode. Trigger closure energizes th solenoid valve, then the wire feeder and the power source after preflow time (see operating instructions). Releasing the trigger turns off the wire feeder and the power source, then the solenoid valve after postflow time.

C-2: Middle light
Indicates 4-step (lock) welding mode. Trigger closure energizes only the solenoid. Trigger release energizes the wire feeder and the power source after preflow time (see operating instructions). Closing the trigger a second time turns off the wire feeder then the power source after burnback time (see operating instructions). Releasing the trigger turns off the solenoid fter postflow time.

C-3: Bottom light
Indicates spot weld mode. trigger closure energizes the solenoid valve, then the wire feeder and the power source. The spot on timer starts when current flows. The wire feeder and power source then solenoid valve are all turned off when the spot on timer out even though the trigger is still closed.

d) DISPLAY CONTROL KEYS

Function key enables operator to choose which function will be displayed as indicated by the appropriate light. Pressing the key causes lights to sequence (top to bottom) starting from the current indicated position. If a timer is being displayed when the function SELECT key is pressed, then the indicator light of the last function selected before the timer was chosen will come on and become the starting point for the sequencing.

Top light
Indicates Voltmeter Function has been selected and arc voltage (in volts) is being diplayed along with electrode polarity.

Memory voltmeter: If this light is flashing then the voltage being displayed is the last arc voltage used before the welding arc went out. The last weld voltage is displayed for five seconds after the trigger is released or anytime either arrow key is pressed when the voltmeter function is selected when not welding. This allows you to see the actual arc voltage you were last welding at so proper adjustments can easily and quickly be made. If HI is displayed then the arc voltage is above 44 VDC.

Middle light

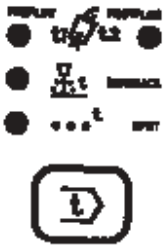
Indicates Inch Speed Function has been selected and the inch (run-in) speed setting is being displayed in IPM or m/min. Wire will be fed at the inch speed rate until arc current begins to flow. Once arc current flows wire will be fed at the weld speed rate. Decreasing inch speed below its lower limit (using the down arrow key causes the display to read "- - - " . This indicates that the inch function has been removed and the inch speed will be the same as the weld speed.

You can reinstall the inch function simply by pressing the up arrow key.

Bottom light

Indicates Weld Feed Speed (WFS) function has been selected and the weld speed setting is being displayed in IPM or m/min.

e) TIMER SELECT



Timer select key enables operator to choose which timer will be displayed as indicated by the appropriate light; Pressing keys causes lights to sequence (left to right, top to bottm) starting from the current indicated position. Any timers not available in the mode selected are skipped over. If a function is being displayed when the Timer Select key is pressed, then the light of the last timer selected before the function was chosen will come on and become the starting point for the sequencing.

Top left light

Indicates preflow time is being displayed in seconds. This is the time the shielding gas flows before the wire feed and power source are activated.

Top right light

Indicates preflow time is being displayed in seconds.This is the time the shielding gas flows after the wire feed and power source are activated.

Middle light

Indicates burnbck time is being displayed in seconds. This is the time the arc power is displayed at the top of the weld and should be set to the lowest time reqired to prevent the wire from sticking in the weld.

Bottom light

Indicates spot on time is being displayed in seconds.NOTE : if unit is NOT in spot mode, then this light will be skipped over in the selection sequence.

Touches-flèches

Increase arrow key increases the setting of the parameter selected to be displayed, using the Quick-Set feature for fast and accurate setting.

Decrease arrow key decreases the setting of the parameter selected to be displayed, using the Quick-Set feature for fast and accurate setting.

Quick Step

Quick-Set feature permits the arrow keys to control each display digit one at a time. The display digits blink in sequence from left to right. Pressing an arrow key immediately after a digit blinks will cause that digit to be altered by the arrow key that was pressed. Releasing the arrow key causes the left to right sequencing to resume.

ACCELERATION SELECTION

Pressing both the gas purge key and function select key at the same time causes the acceleration setting to be displayed. The display will be a number from 1 through 5, with 5 being the fastest acceleration. This number can be adjusted using the arrow keys. To exit this function press BOTH these keys again or press any other key except the arrow keys.

SELECTION OF ENGLISH OR METRIC SPEED DISPLAY UNITS

Pressing both the gas purge key and the timer select key at the same time causes the speed display units to toggle between IPM (no decimal point displayed) and m/m (a decimal point displayed). If the speed display units were IPM, then they will change to m/m. If the display is showing the voltmeter or one of the timers when the keys are pressed, the display will be changed to weld speed to indicate the selected speed display units.

MAINTENANCE
Routine Maintenance

Drive Rolls & Guide tubes

After feeding every coil of wire, inspect visually the drive roll section. Clean it as necessary. Do not use a solvent for cleaning the idle roll because it may wash the lubricant out of the bearing. The drive rolls and guide tubes are stamped with the wire sizes they will feed. If a wire size other than that stamped on the roll(s) is to be used, the roll(s) and guide tubes must be changed.

The drive rolls for .045" (1.2mm) and .052" (1.3mm) cered electrode and 1/16" (1.6mm), .068" (1.7mm), 5/64" (2.0mm), and 3/32" (2.4mm) electrode have a double set of teeth so they can be reversed for additional life. Beetwen the two Knurled rolls (except 1/16" (1.6mm) and smaller rolls)is a shim washer which limits the damage to the electrode if wire feeding problems occur. Drive rolls for .023" (0.6mm) through .052" (1.3mm) solid electrode have no teeth.

Avoiding Wire Feeding Problems.

Wire feeding problems can be avoided by observing the following gun handling procedure:

a) Do not kink or pull cable aroud sharp corners.
b) Keep the electrode cable as straight as possible when welding or loading electrode through cable.
c) Do not allow dolly wheels or trucks to run over cables.
d) Keep cable clean by following maintenance instructions.
e) Use only clean, rust-proof electrode. The Lincoln electrode has have proper surface lubrication.
f) Replace contact tip when the arc starts to become unstable or the contact tip end is fused or deformed.
g) Do not use excessive wire spindle brake setting.

Periodic Maintenance

Wire Drive Motor and Gear∫box

Every year inspect the gear box and coat the gear teeth with Molly-disulfide filled grease. DO NOT use graphite grease.

Every 6 months check the motor brushes. Replace them if they are less than 1/4" long.

PROCEDURE FOR REPLACING PC BOARDS

Before replacing a PC board which is suspected of being defective, visually inspect the PC board in question for any electrical or mechanical damage to any of its components and conductors on the back of the board.

a. If there is no visible damage to the PC board, install a new one and see if this remedies the problem. If the problem is remedied, reinstall the od PC board to see if the problem still exists. If it does no longer exist with old PC board:

1. Check the PC board harness connector pins for corrosion, contamination, or looseness.
2. Check leads in the plug harness for loose or intermittent connection.

b. If PC board is visibly damaged electrically, before possibly subjecting the new PC board to the same cause of failure, check for possible shorts, opens, or grounds caused by¸

1. Frayed or pinched lead insulation.
2. Poor lead termination, such as a poor contact or a short to adjacent connection or surface.
3. Shorted or open motor leads, or other external leads.
4. Foreign matter or interference behind the PC boards.

c. If PC board is visibly damaged mechanically, inspect for cause, then remedy before installing a replacement PC board.

If there is damage to the PC board or if replacing PC board corrects problem, return it to the local Lincoln Electric Field Service Shop.

Observe all Safety Guidelines detailed throughout this manual

HOW TO USE THE TROUBLESHOOTING GUIDE

Service and Repair should only be performed by Lincoln Electric Factory Trained Personnel. Unauthorized repairs performed on this equipment may result in danger to the technician and machine operator and will invalidate your factory warranty. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed throughout this manual.

Step 1. LOCATE PROBLEM (SYMPTOMS).

Look under the column labeled "PROBLEMS". This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting.

Step 2. PERFORM EXTERNAL TESTS.

The second column labelled "POSSIBLE CAUSE" lists the obvious external possibilities that may contribute to the machine symptom. Perform these tests/checks in the order listed. In general, these tests can be conducted without removing the case wraparound cover.

Step 3. PERFORM COMPONENT TESTS.

If you have exhausted all of the recommended tests in Step 2, Consult your Local Authorized Field Service Facility.

IF FOR ANY REASON YOU DO NOT UNDERSTAND THE TEST PROCEDURE OR ARE UNABLE TO PERFORM THE TEST / REPAIRS SAFELY, CONTACT YOUR LOCAL LINCOLN AUTHORIZED FIELD SERVICE FACILITY FOR TECHNICAL TROUBLE SHOOTING ASSISTANCE BEFORE YOU PROCEED.

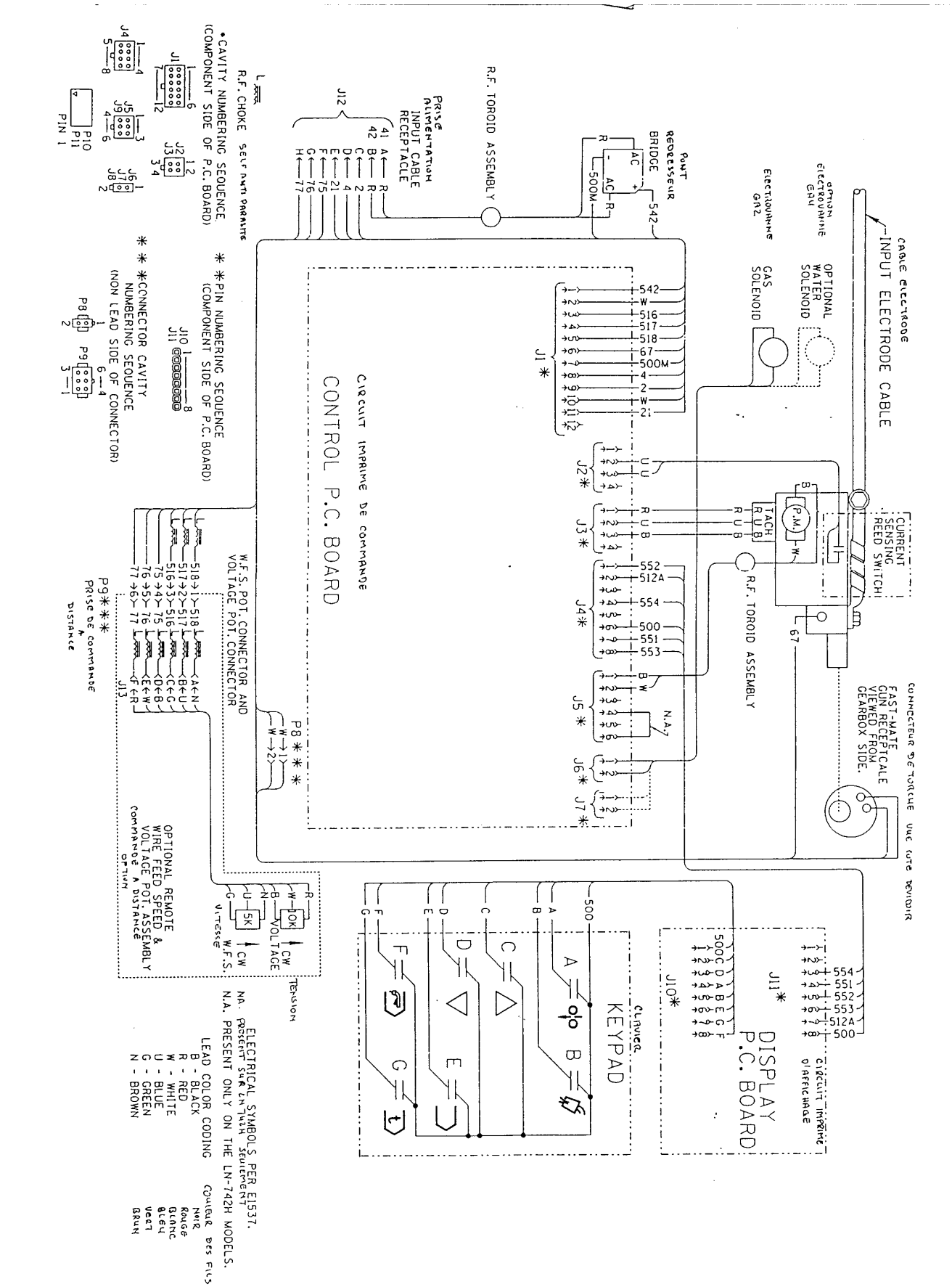
PROBLEMS	POSSIBLE CAUSE	WHAT TO DO
1. Rough wire feeding or wire not feeding but drive rolls turning.	a. Gun cable kinked and/or twisted b. Wire jammed in gun and cable c. Incorrect position of drive roll with grooves. d. Drive roll loose e. Gun cable dirty f. Worn drive roll g. Electrode rusty h. Worn nozzle or cable liner i. Partialy flashed or melted contact tip j. Incorrect idle roll pressure k. Improper liner, tip or guide tube	a. Inpect gun cable and replace if necessary b. Remove wire from gun and cable-Feed in new wire. Note any obstruction in gun and cable. Replace gun and cable if necessary. c. See “Preliminary operations” page 21 and 22. d. Remove, clean, install and tighten. e. Clean cable or replace liner f. Replace g.Replace h. Replace i. Replace contact tip j. Set idle roll pressure according to page 12 or 13 k. Install proper equipment
2. Variable or hunting arc	a. Wrong size, worn and/or melted contact tip b. Worn work cable or poor work connections c. Loose electrode	a. Replace tip - remove any spatter and replace if necessary b. Inspect - repair or replace as necessary c. Be sure electrode lead is tight, gun cable tight in wire feeder contact block, gun nozzle and gun tip tight.

PROBLEMS	POSSIBLE CAUSE	WHAT TO DO
3) Poor arc striking with sticking or “blast-offs”, weld porosity, narrow and ropy looking bead, or electrode stubbing into plate while welding	a. Improper gas shielding	a) a. Clean gas nozzle. Make certain that gas diffuser is not restricted. Make certain that gas cylinder is not empty or turned off. Make certain that gas solenoïd valve is operating and gas flow rate is proper. Remove gun liner and check rubbber seal for any sign of deterioration or damage. Be sure set screw in brass connector is in place and tightened against the liner bushing.
4. Tip seizes in diffuser	a. Tip overheating due to prolonged or excessive high current and / or duty cycle welding .	a. Do not exceed current and duty cycle rating of gun. A light application of high temperature antiseize lubricant (such as graphite grease) may be applied to tip thread.
5) Units shuts off while welding and“HXX” appears on display	a) see problem 1. b) Defective wire feed motor or gearbox.	a) Correct problems causing motor overload. b) Replace.
6) Drive roll does not turn although arc voltage is present and solenoïd is on.	a. Defective wire feed motor	a. Set inch WFS to maximum. Disconnect wire drive plug P5 from PC board. Measure voltage across pin (+) of J5 and pin 2 (-) of J5 on PC board with trigger closed. If voltage is > 24VDC, then replace motor assembly. If <24 VDC, elace control PC board..
7) No control of wire speed	a) Defective wire feed motor tach or control PC board	a) Measure voltage across pin 2 (+) of J3 and pin 3 (-) of J3 on PC board ith motor running. If voltage is 1,5-3,5V then replace control PC board. If not, then replace tachometer
8) Wire feed motor runs and solenoid turns on but no arc voltage is present.	a) Power source is defective b) Defective control PC board or gun connector. c) Control PC board is defective	a) Disconnect input cable from power source and place a jumper across sockets C & D of 14-socket receptacle at power source. If no arc voltage is present tehn power source is defective. b) Disconnect input cable from power source and check continity between socket C of 8-socket plug and pin C of 14-pin plug of the input cable and socket D of 8-socket plug and pin D of 14-pin plug of the inpit cable. Replace cable if no continuity. c) Replace control PC bord

PROBLEMES	CAUSES POSSIBLES	REMÈDE
9) Speed does not change when weld current flows.	a) Inch and weld speeds are set to the same value or inch is set to _ b) Current sensor assembly or control PC board is defective	a) Set inch and weld speeds to desired settings b) Disconnect plug P2 and check continuity across pins 2 and 3 plug P2. There should be no continuity until weld current flows. If not then replace current sensor switch assembly. If so then replace control PC board.
10) Voltmeter does not function or read properly when arc voltage is present	a) Control PC board is defective or 21 or 67 circuits is defective.	a)Check voltage at cavities 6 (67) and 11 (21) of P1 at control PC board when arc voltage is present. If voltage does not match arc voltage within +/- 0,3V, then check 67 and 21 circuits. Otherwise, replace control PC board.
11) Arrow keys do not change weld speed	a) Remote control is connected	a) Use WFS pot on remote control to adjust weld speed or disconnect remote control and use arrow keys.
12) Purge key does not turn on solenoid but trigger closure does	a) Defective keypad or display PC board is defective.	a) Check continuity between sockets 5 and 1 of keypad connector when purge key is closed. If not, then replace keypad, otherwise replace display PC board.
13) Cold inch key does not turn on wire feed motor but trigger closure does	a) Defective keypad or display PC board is defective.	a) Check continuity between sockets 4 and 1 of keypad connector when Cold Inch key is closed. If not, then replace keypad, otherwise replace display PC board.
14) Display and/or indicator lights do not change when the arrow or select keys are pressed.	a) Defective keypad or display PC board is defective	a) Ring out keypad. Replace if defective. If not, then replace Diplay PC board.
15) Display is blank	a) power source is off b) Feeder supply fuse or circuit breaker at power sorce is blown or tripped c) Display or control PC board is bad	a) Turn ON power source. b) Check input cable and feeder unit for short in 41 and 42 circuit. Check for shorted motor. Replace fuse or reset circuit breaker. c) Observe LED mounted on Control PC board. It should blink on and off at a controlled rate of 1 second ON and 1 second OFF. If so, then replace Display PC board. If not, replace control PC board
16) Display shows any of the following : HI _	 a) Votmeter function is selected and arc voltage is >44VDc a) Inch speed is selected but is desabled	 a) Normal operation. Voltmeter only reads 0-44 VDC. a) Inch speed is now = weld speed. To re-enable inch speed simply press the increase arrow key.

PROBLEMES	CAUSES POSSIBLES	REMEDE
	c) Le circuit imprimé de commande est défectueux.	c) Remplacer le circuit imprimé de commande.
10) La vitesse ne varie pas lorsque le courant de soudage passe.	a) les vitesses d'approche et de soudage de fil sont réglées à la même valeur ou la vitesse d'approche affiche "---" b)Le Reed switch ou le circuit imprimé de commande est défectueux	a) Régler la vitesse d'approche et la vitesse de soudage aux valeurs désirées. b) Débrancher la prise mâle P2 et vérifier la continuité entre les broches 2 et 3. Il ne doit pas y avoir de continuité jusqu'à ce que le courant de soudage passe. Si ce n'est pas le cas, remplacer le Reed switch. Si c'est le cas, remplacer le circuit imprimé de commande.
11) Le voltmètre ne fonctionne pas ou n'affiche pas correctement la tension d'arc.	a) Le circuit imprimé de commande est défectueux ou les circuits 21 et 67 sont défectueux.	a) Vérifier la tension entre les cavités 6 (67) et 11 (21) de P1 du circuit imprimé de commande lorsque la tension d'arc est présente. Si la tension ne correspond pas à la tension d'arc à + ou - 0,3 volt, vérifier alors les circuits 67 et 21. Autrement, remplacer les circuits imprimés de commande.
12) Les touches- flèches ne modifient pas la vitesse de soudage.	a) La commande à distance est branchée.	a) Utiliser le potentiomètre de commande de vitesse de dévidage de fil sur la commande à distance pour régler la vitesse de soudage ou, alors, débrancher la commande à distance et utiliser les touches-flèches.
13) La touche purge (Gas Purge) n'active pas l'électrovanne mais la gâchette l'active.	a) Touche défectueuse ou circuit imprimé d'affichage défectueux	a) Vérifier la continuité entre les cavités 5 et 1 du connecteur de clavier lorsque la touche purge est enfoncée. S'il n'y a pas de continuité, remplacer le circuit imprimé d'affichage.
14) La touche dévidage de fil froid sans gaz (Cold Inch) n'active pas le moteur du dévidoir, mais la gâchette l'active.	a) Touche défectueuse ou circuit imprimé d'affichage défectueux	a) Vérifier la continuité entre les broches 4 et 1 du connecteur de clavier lorsque la touche Cold Inch est enfoncée. S'il n'y a pas continuité, remplacez le circuit imprimé d'affichage.
15) L'affichage et/ou les voyants lumineux ne changent pas quand on appuie sur les touches-flèches ou de sélection.	a) Touche défectueuse ou circuit imprimé d'affichage défectueux.	a) Contrôler le clavier. Le remplacer s'il est défectueux. Sinon, remplacer le circuit imprimé d'affichage.

PROBLEMES	CAUSES POSSIBLES	REMEDE
HXX	a) See problem 5 or “wire feed overload protection”	a) XX indicates time in seconds before unit will automatically reset
Er	a) EPROM error	a) Parameter recalled at power-up out of range. Presse any key to reset. Check all settings before proceeding to weld. If this condition persists then replace control PC board.
EXX	a) Where XX is a number from 1-10. System error	a) Turn off power to feeder. Wait 5 seconds. Turn power back on. If EXX is displayed again then replace control PC board
EP	a) EPROM checksumerror	a) Turn off power to feeder. Wait 5 seconds. Turn power back on. If EP is displayed again then replace EPROM assembly. if problem still persists then replace Control PC board.
uP	a) Microprocessor RAM error	a) Turn off power to feeder. Wait 5 seconds. Turn power back on. If uP is displayed again then replace Control PC board.



97-064		LINCOLN ELECTRIC FRANCE B.P. 214 - Avenue Franklin Roosevelt 76121 LE GRAND QUEVILLY CEDEX	Type :
96-158			Sujet : SCHEMA ELECTRIQUE WIRING DIAGRAM
Modifications	Date	Date : 18/01/93 Echelle :	Dessiné par : R. TERIAC Vérifié par : N°

LN 27

DEVIDOIR PORTABLE SEMI-AUTO A VITESSE CONSTANTE
CONSTANT SPEED PORTABLE SEMIAUTOMATIC WIRE FEEDER

K10264

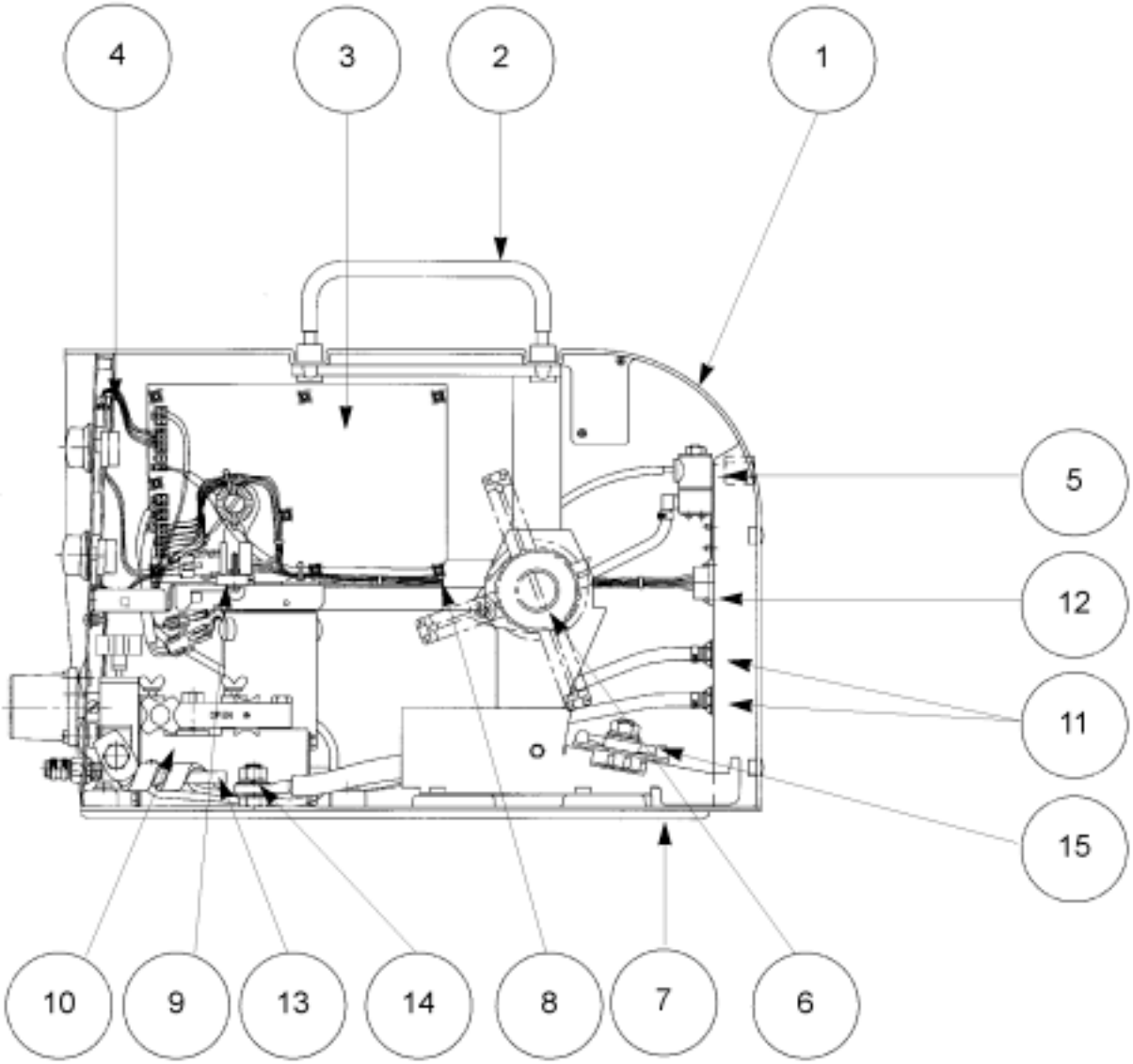
Utiliser cette liste de pièces pour les machines dont le code est cité ci-dessous.
Dans le cas contraire,contacter le département Pièces de rechange.
Do not use this parts list for a machine if its code is not listed.
Contact the Service Department for any code numbers not listed.

Utiliser seulement les pièces marquées "X" dans la colonne indiquée de cette page index.
Use only the parts marked "X" in the column under the heading number called for in the model index page.

TITRES LISTES DE PIECES → *PARTS LIST TITLES*	Assemblage général *General assembly*	Ensemble panneau avant *Front panel assembly*	Ens. syst. entrainement de fil 2 roll *Wire drive assembly 2 roll*	Ens. syst. entrainement de fil 2 roll *Wire drive assembly 2 roll*						
PAGE No. → / CODE No. ↓	FP1031-C	FP1031-D	P175-H	P228-F						
F784	1	1	.	2						
F789	1	1	3&4	.						
F814	1	1	3&4	.						
F863	1	1	3&4	.						
F864	1	1	.	2						
F866	1	1	3&4	.						
F908	2	1	3&4	.						
F909	2	1	.	2						
F911	2	1	3&4	.						
F926	2	1	3&4	.						
F927	2	1	.	2						
F928	2	1	3&4	.						
F1057	2	1	3&4	.						
F1058	2	1	3&4	.						

Date: Nov. 2001

ASSEMBLAGE GENERAL
GENERAL ASSEMBLY



L N 2 7

Date : Sept 2001

Utiliser seulement les pièces marquées "X" dans la colonne indiquée de la page index.
Use only the parts marked "X" in the column under the heading number called for in the model index page.

Indique un changement dans cette page. *# Indicates a change this printing*

Rep. *Item*	Description *Part Name*	N° Pièce *Part N°.*	Qté *Qty*	1	2	3	4	5	6	7	8	9	10	11
1	Carrosserie *Case*	G2342-2	1	X	X									
	Porte *Door*	L7370-1	1	X	X									
	Charnière *Hinge*	T8755-BT	1	X	X									
	Isolant de charnière *Hinge insulator*	S20196	1	X	X									
	Verrou *Door latch*	S18137	2	X	X									
	Ecrou plastique *Insulated nut*	T15090	2	X	X									
	Vis *Screw*	S8025-62	4	X	X									
2	Poignée *Handle*	S18170	1	X	X									
	Isolant de poignée *Insulator*	T15104	2	X	X									
	Vis *Screw*	S8025-62	4	X	X									
3	Circuit de commande *Control PC Board*	G2615-1	1	X	.									
3	Circuit de commande *Control PC Board*	G3190-2	1	.	X									
4	Circuit afficheur *Display PC Board*	L9122-1	1	X	X									
	Faisceau du circuit afficheur *Harness*	S18250-229	1	X	X									
5	Ens. electrovanne,compr.: *Gas solenoid, asbly,including:*	S51531	1	X	X									
	Electrovanne *Gas Solenoid .*	S18127	1	X	X									
	Connecteur femelle *Female connector .*	T11591-3	1	X	X									
6	Axe assemblé, comprenant: *Axle assembly,including:*	M14935	1	X	X									
	Axe *Spindle .*	M14560	1	X	X									
	Rondelle de friction *Friction washer .*	S17435	1	X	X									
	Axe interieur *Spindle shaft .*	S18138	1	X	X									
	Collier de serrage *Retaining collar (old) .*	M14587-1	1	X	X									
	Bague de retenue *Retaining clamp (new) .*	S23811	1	X	X									
	Vis (frein) *Thumb screw .*	T14813-A	1	X	X									
	Ressort *Spring .*	T11862-14	1	X	X									
	Rondelle frein *Keyed washer .*	T12965	1	X	X									
	Vis *Screw*	HHS1/2-13X1.5	1	X	X									
	Rondelle frein *Lock washer*	E106A-15	1	X	X									
	Rondelle plate *Plain washer*	S9262-14	1	X	X									
7	Patin *Skid*	S20195	2	X	X									
	Clip *Fastener*	T15088	8	X	X									
8	Panneau intermediaire *Middle panel*	L50652	1	X	X									
9	Pont de diodes *Rectifier bridge*	T13637-1	1	X	X									
10	Ens. moto-reducteur *Wire drive asbly*	L7333-2	1	X	X									
	Codes F789/F814/F928 *Codes F789/F814/F928*													
	Liste de pièces *Parts list*	Voir/See P175-H												
10	Ens. moto-reducteur *Wire drive asbly*	L7333-3	1	X	X									
	Codes F863/F866/F908/ *CodesF863/F866/F908/*													
	F911/F926/F1057/F1058 *F911/F926/F1057/F1058*													
	Liste de pièces *Parts list*	Voir/See P175-H												
10	Ens. moto-reducteur *Wire drive asbly*	L8767-2	1	X	.									
	Code F784 *Code F784*													
	Liste de pièces *Parts list*	Voir/See P228-F												
10	Ens. moto-reducteur *Wire drive asbly*	L8767-6	1	X	X									
	Codes F864/F909/F927 *Codes F864/F909/F927*													
	Liste de pièces *Parts list*	Voir/See P228-F												
11	Raccord rapide et écrou *Quick fitting and nut*	S19664	2	X	X									
	Raccord mâle (non fourni) *Male connector(not included)*	S19663	2	X	X									
12	Prise amphenol mâle *Amphenol plug 8 pins*	S12021-43	1	X	X									
13	Spire de commande *Reed switch energizer*	M15173	1	X	X									
	Interrupteur bi-lame *Reed switch*	S12334-52	1	X	X									

Date : Nov. 2001

Utiliser seulement les pièces marquées "X" dans la colonne indiquée de la page index.
Use only the parts marked "X" in the column under the heading number called for in the model index page.

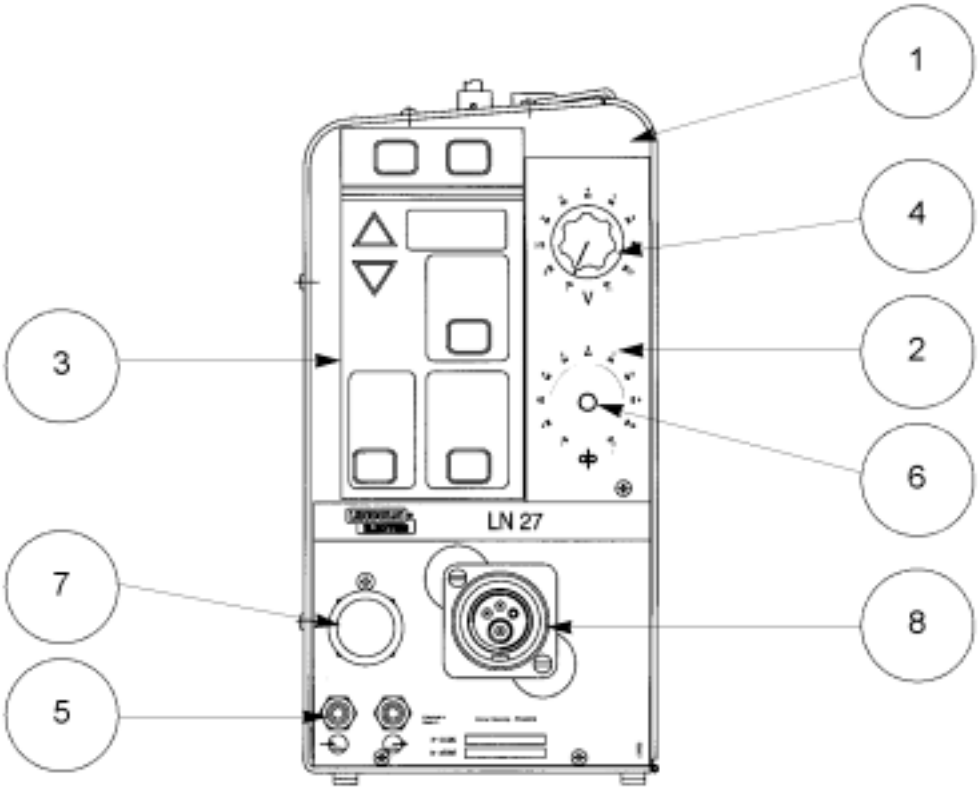
Indique un changement dans cette page. *# Indicates a change this printing*

Rep. *Item*	Description *Part Name*	N° Pièce *Part N°.*	Qté *Qty*	1	2	3	4	5	6	7	8	9	10	11
14	Vis *Screw*	V-HM12X25	1	X	X									
	Ecrou *Nut*	V-HM12	1	X	X									
	Rondelle frein *Lock washer*	V-WL12	1	X	X									
	Rondelle plate *Plain washer*	V-M12U	1	X	X									
15	Borne de sortie *Output terminal*	M13900	1	X	X									
	Vis *Screw*	S8025-65	2	X	X									
	PIECES NON-ILLUSTREES: *PARTS NOT ILLUSTRATED:*													
	Plaque indicatrice arr. eau *Rear nameplate water*	S19648	1	X	X									
	Ens. cable et prise 1/4 tour *Fast mate adapter asbly*	S51502-2	1	X	X									
	Prise 1/4 tour *Fast mate plug*	T50647-M	1	X	X									
	Porte pistolet *Gun holder*	M15469	1	X	X									

Date :Sept. 2001

FP1031-D

ENSEMBLE PANNEAU AVANT
FRONT PANEL ASSEMBLY



L N 2 7

Date : Sept 2001

Utiliser seulement les pièces marquées "X" dans la colonne indiquée de la page index.
Use only the parts marked "X" in the column under the heading number called for in the model index page.

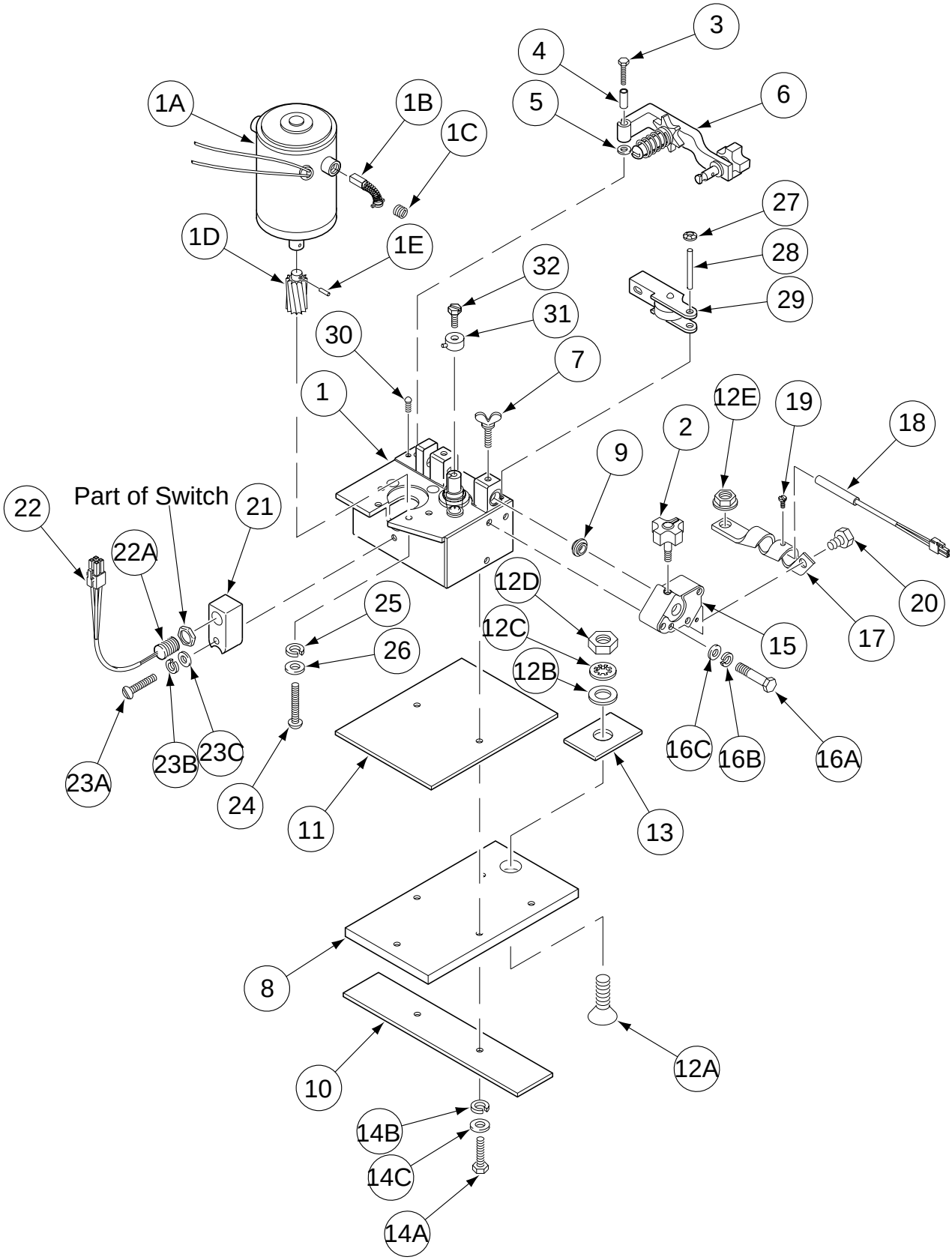
Indique un changement dans cette page. *# Indicates a change this printing*

Rep. *Item*	Description *Part Name*	N° Pièce *Part N°.*	Qté *Qty*	1	2	3	4	5	6	7	8	9	10	11
1	Panneau avant *Front panel*	S51622-3	1	X										
2	Plaque indicatrice *Nameplate*	L50552	1	X										
3	Clavier *Keypad*	L9120	1	X										
4	Bouton *Knob*	T10491	1	X										
	Potentiomètre *Potentiometer*	T10812-40	1	X										
	Support potentiomètre *Mounting*	S18280	1	X										
	Rondelle feutre *Washer*	T14034-10	1	X										
5	Raccord rapide et écrou *Quick fitting and nut*	S19664	2	X										
	Raccord mâle (non fourni) *Male connector(not included)*	S19663	2	X										
6	Bouchon *Cap*	T13597-5	1	X										
	Bouton (Non illustré) *Cap (Not shown)*	T10491	1	X										
	Potentiomètre vitesse fil (Non illustré) *Potentiometer speed (Not shown)*	T10812-37	1	X										
7	Bouchon *Cap*	T10397-19	1	X										
8	Euro connecteur ass.,comp.: *Euro-connector asbly,incl.:*	-												
	Euro connecteur *Euro connector* .	M16871	1	X										
	Carter plastique *Plastic housing* .	M15812-4	1	X										
	Guide tube (0,6-1,2) *Guide tube (0,6-1,2)* .	S19372-5	1	X										
	Guide tude (1,3-2,4) *Guide tube (1,3-2,4)*	S19372-8	1	X										

Date : Nov. 2001

P-228-F

Wire Drive Assembly (2 Roll)



P-228-F.1

# Indicates a change this printing.

* Recommended Spare Part

Use only the parts marked “x” in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9	
1	Gear Box Assembly, Includes: LN742 Standard (Code 9937 Export)	L8767-1	1	•	X								
1	Gear Box Assembly, Includes: LN742-H (Code 9938 Export)	L8767-2	1	•	X								
1	Gear Box Assembly, Includes: LN742 Standard (Code 10029 Export)	L8767-3	1 1	•	X								
1	Gear Box Assembly, Includes: LN742 Standard (Code 10027 Domestic)	L8767-3 ø	1	X	•								#
1	Gear Box Assembly, Includes: LN742-H (Code 10028 Domestic)	L8767-4	1	X	•								
1	Gear Box Assembly, Includes: LN742-H (Code 10030 Export)	L8767-4	1	•	X								
1	Gear Box Assembly, Includes: LN742 Standard (Code 10234 Export)	L8767-5	1	•	X								
1	Gear Box Assembly, Includes: LN742-H (Code 10235 Standard)	L8767-6	1	•	X								
1	Gear Box Assembly, Includes: LN742 Standard (Code 10238 Domestic)	L8767-7	1	X	•								
1	Gear Box Assembly, Includes: LN742-H (Code 10239 Domestic)	L8767-8	1	X	•								
1A	Drive Motor Assembly, Includes:	M16763-1	1	X	X								
1A	Drive Motor Assembly, Includes: (High Speed)	M16763-2	1	X	X								
1B	Brush	M16718-F	2	X	X								
1C	Brush Cap	M14907-G	2	X	X								
1D	Pinion Gear	S17980-2	1	X	X								
1D	Pinion Gear (High Speed)	S17980-1	1	X	X								
1E	Roll Pin	T9967-33	1	X	X								
1F	Toriod Assembly (Not Shown)	See P-228-C	1	X	X								
2	Knob	T13858	1	X	X								
3	1/4-20 x 1.25 Hex Head Cap Screw	CF000069	1	X	X								
4	Pivot Spacer	S10918-7	1	X	X								
5	Plain Washer	S9262-103	1	X	X								
6	Quick Release Assembly	M15023-1	1	X	X								
7	Thumb Screw	T15046	2	X	X								
8	Gear Box Mounting Plate	S20656	1	X	X								
9	Locator Bushing	T14031	1	X	X								
10	Gear Box Insulation	S16139-2	1	X	X								
11	Gear Box Insulation	M16995	1	X	X								
12A	Screw (1/2-13 x 1.75 Hex Head Brass)	CF000026	1	X	•								
12A	Metric Screw	T14731-32	1	•	X								
12B	Plain Washer	S9262-1	1	X	X								
12C	Lock Washer	T9695-8	1	X	X								
12D	Hex Jam Nut (1/2-13)	CF000054	1	X	•								
12D	Metric Hex Nut	T14815-8	1	•	X								
12E	Flange Nut (1/2-13)	T3960	1	X	•								
12E	Metric Flange Nut	S20664-1	1	•	X								
13	Insulation	S20655	1	X	X								
14A	1/4-20 x .75 Hex Cap Screw	CF000014	2	X	X								
14B	Lock Washer	E106A-2	2	X	X								
14C	Plain Washer	S9262-98	2	X	X								
15	Conductor Block	M13972-2	1	X	X								

Ø This part is obsolete and no longer available.

P-228-F.2

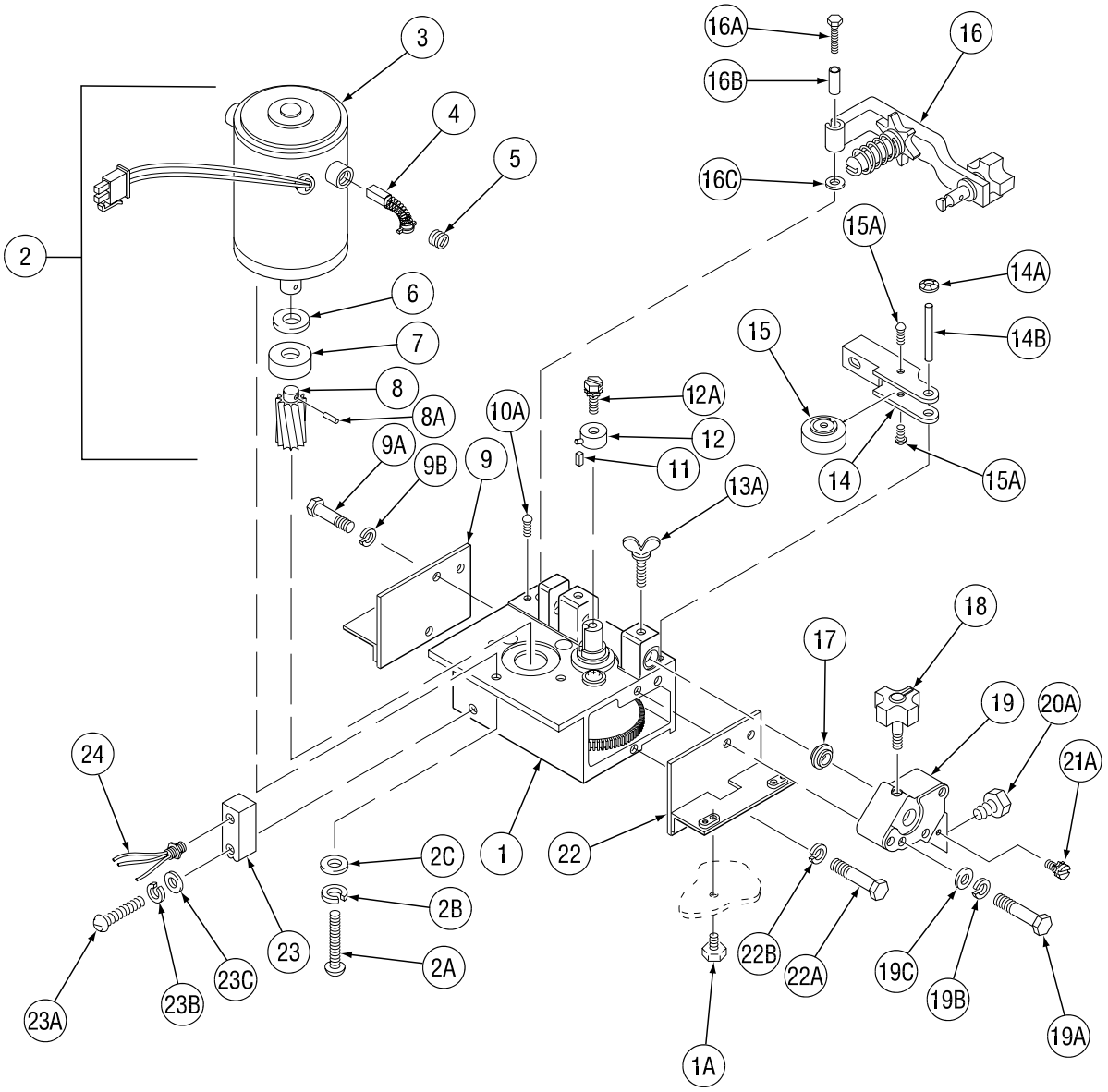
# Indicates a change this printing.

* Recommended Spare Part

Use only the parts marked “x” in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9
16A	1/4-20 x 1.75 Hex Head Cap Screw	CF000016	2	X	X							
16B	Lock Washer	E106A-2	2	X	X							
16C	Plain Washer	S9262-23	2	X	X							
17	Reed Switch Energizer	M15173	1	X	X							
18	Reed Switch Assembly	S12334-52	1	X	X							
19	Self Tapping Screw	S8025-13	1	X	X							
20	1/2-13 x .750 Hex Head Cap Screw	CF000020	1	X	X							
21	Switch Mounting Plate	S21227	1	X	X							
22	Hall Effect Switch Assembly	S20374	1	X	X							
22A	Hall Effect Switch	S18012	1	X	X							
23A	#10-24 x 1.000 Round Head Screw	CF000038	1	X	X							
23B	Lock Washer	E106A-1	1	X	X							
23C	Plain Washer	S9262-27	1	X	X							
24	#10-24 x .50 Round Head Screw	CF000047	3	X	X							
25	Lock Washer	E106A-1	3	X	X							
26	Plain Washer	S9262-27	3	X	X							
27	Idle Roll Assembly	S16666-1	1	X	X							
28	Speed Clip	T10982-7	1	X	X							
29	Groove Pin	T10580-9	1	X	X							
30	Drive Screw	S8025-19	1	X	X							
31	Collar Assembly (Below Code 10050)	T12341	1	X	X							
31	Collar Assembly (Above Code 10050)	S21193	1	X	X							
32	Sems Screw	T10082-26	1	X	•							
32	Sems Screw (Metric)	T14731-31	1	•	X							
33	Key (Below Code 10050) (Not Shown)	M8776-82	1	X	X							

WIRE DRIVE ASSEMBLY



# Indicates a change this printing.

* Recommended Spare Part

Use only the parts marked “x” in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9	10	11	
	WIRE DRIVE ASSEMBLY (ABOVE CODE 10200) (Includes items 1, 10A, 13A-14B, & 16-20A)	L7333-3	1	•	•	x	x								
	WIRE DRIVE ASSEMBLY (BELOW CODE 10200) (Includes items 1, 10A, 13A-14B, & 16-20A)	L7333-2	1	•	•	x	x								
	WIRE DRIVE ASSEMBLY (Includes items 1, 10A, 13A-14B, & 16-20A)	L7333	1	x	x	•	•								
1	MOTOR AND GEARBOX ASSEMBLY (Includes items 2-2C, 9-9B, & 22-24) (ABOVE CODE 10200)	L7332-3	1	•	•	x	x								
1	MOTOR AND GEARBOX ASSEMBLY (Includes items 2-2C, 9-9B, & 22-24) (BELOW CODE 10200)	L7332-2	1	•	•	x	x								
1	MOTOR AND GEARBOX ASSEMBLY (Includes items 2-2C, 9-9B, & 22-24)	L7332-1	1	x	x	•	•								
1A	INSULATED FASTENER	T15088	4	x	x	x	x								
2	DRIVE MOTOR ASSEMBLY (Includes 3-8A)	M15078-4	1*	•	•	x	x								
2	DRIVE MOTOR ASSEMBLY (Includes 3-8A)	M15078-2	1*	x	x	•	•								
2A	ROUND HEAD SCREW, #10-24 1/2” long	CF000047	3	x	x	x	x								
2B	LOCKWASHER, #10	E106A-1	3	x	x	x	x								
2C	PLAIN WASHER, #12	S9262-27	3	x	x	x	x								
3	DRIVE MOTOR	Not Sold Separately	1*	x	x	x	x								
4	BRUSH AND SPRING ASSEMBLY	M16718-F	2	x	x	x	x								
5	BRUSH CAP	M14907-G	2	x	x	x	x								#
6	PLAIN WASHER	S9262-70	1	x	x	x	x								
7	RING MAGNET	S18011	1	x	x	x	x								
8	PINION GEAR	S17980-2	1	x	x	x	x								
8A	ROLL PIN	T9967-33	1	x	x	x	x								
9	COVER AND FLANGE ASSEMBLY	S18119	1	x	x	x	x								
9A	HEX HEAD CAP SCREW, 1/4-20 1/2” long	CF000012	2	x	x	x	x								
9B	LOCKWASHER, 1/4	E106A-2	2	x	x	x	x								
10A	DRIVE SCREW, #6 5/16” long	S8025-19	1	x	x	x	x								
11	KEY (BELOW CODE 10200)	M8776-82	1	x	x	x	x								
12	COLLAR ASSEMBLY (BELOW CODE 10200)	T12341	1	x	x	x	x								
12	COLLAR ASSEMBLY (ABOVE CODE 10200)	S21193	1	x	x	x	x								
12A	SEMS SCREW, 5/16-18 5/8” long	T10082-26	1	x	x	x	x								
13A	THUMBSCREW	T15046	2	x	x	x	x								
14	IDLE ROLL ASSEMBLY (Includes 15 & 15A)	S16666-1	1	x	x	x	x								
14A	SPEED CLIP	T10982-7	1	x	x	x	x								
14B	GROOVE PIN	T10580-9	1	x	x	x	x								
15	BEARING AND SHAFT ASSEMBLY	T13244	1	x	x	x	x								
15A	DRIVE SCREW, #6 5/16” long	S8025-19	2	x	x	x	x								
16	QUICK RELEASE ASSEMBLY	M15023-1	1	x	x	x	x								
16A	HEX HEAD CAP SCREW,	CF000069	1	x	x	x	x								
16B	PIVOT SPACER	S10918-7	1	x	x	x	x								
16C	PLAIN WASHER, 0.26” - 0.27”	S9262-103	1	x	x	x	x								

# Indicates a change this printing.

* Recommended Spare Part

Use only the parts marked “x” in the column under the heading number called for in the model index page.

ITEM	DESCRIPTION	PART NO.	QTY.	1	2	3	4	5	6	7	8	9	10	11	
17	LOCATOR BUSHING	T14031	1	x	x	x	x								
18	MOLDED HAND SCREW	T13858	1	x	x	x	x								
19	CONDUCTOR BLOCK	M13972-2	1	x	x	x	x								#
19A	HEX HEAD CAP SCREW, 1/4-20 1 3/4” long	CF000016	2	x	x	x	x								
19B	LOCKWASHER, 1/4	E106A-2	2	x	x	x	x								
19C	PLAIN WASHER, 0.28”-0.30”	S9262-23	2	x	x	x	x								
20A	HEX HEAD CAP SCREW, 1/2-13 3/4” long	CF000014	1	x	x	x	x								
21A	SEMS SCREW, #10-24 3/8” long	T10082-4	1	x	•	x	•								
22	COVER AND FLANGE ASSEMBLY	S18118	1	x	x	x	x								
22A	HEX HEAD CAP SCREW, 1/4-20 1/2” long	CF000012	1	x	x	x	x								
22B	LOCKWASHER, 1/4	E106A-2	1	x	x	x	x								
23	SWITCH MOUNTING HOUSING ASSEMBLY	S21227	1	x	x	x	x								
23A	ROUND HEAD SCREW, #10-24 1” long	CF000038	1	x	x	x	x								
23B	LOCKWASHER, #10	E106A-1	1	x	x	x	x								
23C	PLAIN WASHER, #12	S9262-27	1	x	x	x	x								
24	HALL EFFECT SWITCH ASSEMBLY	S21419	1*	•	•	x	x								
24	HALL EFFECT SWITCH ASSEMBLY	S18160-1	1*	x	x	•	•								

Wire Size	Outgoing Conversion Kit	Outgoing Drive Roll	No. Req’d	Spacer	Incoming Guide Tube	Guide Tube Insert	Guide Tube Assembly	
.023/.035	KP653-.035S	M17301-025	1	T14984	S14352-035	S14349-045	T13467-035	
.030S	KP653-.030S	M17301-030 Ø	1	T14984	S14352-035	S14349-045	T13467-035	#
.035S	KP653-.035S	M17301-.035	1	T14984	S14352-035	S14349-045	T13467-035	
.035A	KP654-.035A	M17303-035A	1	T14984	S24479-35A	-	S21273-3/64	
.045/.052S	KP653-.052S	M17302-052	1	T14984	S18033-052	S14349-.052	T13467-052	
.045C/.052C	KP653-.052C	M17302-052	2	-	S18033-052	S14349-.052	T13467-052	
3/64A	KP654-3/64A	M17303-3/64A	1	T14984	S24479-3/64A	-	S21273-3/64	
1/16 Cored S	KP653-1/16	S14541-1/16	2	-	S14352-1/16	S14349-1/16	T13467-1/16	
1/16A	KP654-1/16A	M17303-1/16A	1	T14984	S24479-1/16A	-	S21273-1/16	
.068, 3/32 Cored S	KP653-3/32	M17302-3/32	2	-	S14352-3/32	S14349-7/64	T13467-7/64	

Ø This part is obsolete and no longer available.

LINCOLN ELECTRIC FRANCE
AVENUE FRANKLIN ROOSEVELT
BP 214
76121 LE GRAND QUEVILLY CEDEX
TEL : 02 32 11 40 40
FAX : 02 32 11 40 11

FAX BUREAU COMMERCIAL : 02 32 11 40 12
FAX EXPORT DEPARTMENT : 02 32 11 40 08
FAX SERVICE APRES-VENTES / AFTER SALES DEPARTMENT : 02 32 11 52 08
FAX PIECES DETACHEES / SPARE PARTS DEPARTMENT : 02 32 11 40 13