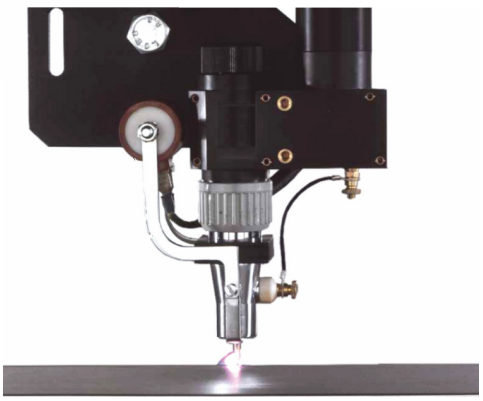
OPTION MAGNETIC ARC OSCILLATOR

OSCILLARC PLUS

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

No P95576001NG



ISSUE	**: EN**	**Instructions for use**	**REF: 8695 5566**
REVISION	**: C**		
DATE	**: 06 - 2023**		**Original instructions**

LINCOLN® ELECTRIC

Thank you for the trust you have expressed by purchasing this equipment, which will give you full satisfaction if you follow its instructions for use and maintenance.

Its design, component specifications and workmanship comply with applicable European directives.

Please refer to the enclosed CE declaration to identify the directives applicable to it.

The manufacturer shall not be liable if the product is used in association with items not recommended by the manufacturer.

For your safety, below is a non-limitative list of recommendations or requirements, many of which appear in the labour code.

Lastly, please inform your supplier of any error you may find in this instruction manual.

Contents

INFORMATION

This technical literature is intended for the following machines or products:

- **Magnetic arc oscillator, 10 metres**
- **Magnetic arc oscillator, 17 metres**
- **P95576001NG ➜ Magnetic arc oscillator, arc 25 metres**

These instructions and the product covered by them refer to the applicable standards.

Please read these instructions carefully before installing, using or maintaining the machine. Keep these instructions in a safe place for future reference. These instructions must accompany the described machine or equipment if there is a change in ownership, up to the time of destruction.

Display and pressure gauge:

Measurement instruments or displays of voltage, intensity, speed, accuracy etc. are to be considered as indicators, whether they are analogue or digital.

For operating instructions, adjustments, troubleshooting and spare parts, please refer to the special instructions for safe operating and maintenance.

REVISIONS

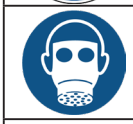
REVISION : B DATE : 06/18

DESCRIPTION	PAGE
Change logos	

REVISION : C DATE : 06/23

DESCRIPTION	PAGE
Update **LINC-MASTER** installation added	

MEANING OF SYMBOLS

	Reading the manual/instructions mandatory.		Indicates a hazard.
	Use of safety shoes mandatory.		Warning of an electrical risk or hazard.
	Use of auditory protection mandatory.		Warning of a risk or hazard due to an obstacle on the ground.
	Use of safety helmet mandatory.		Warning of a risk or hazard of falling, with a level difference.
	Use of safety gloves mandatory.		Warning of a risk or hazard due to suspended loads.
	Use of safety glasses mandatory.		Warning of a risk or hazard due to the presence of a hot surface.
	Use of safety visor mandatory.		Warning of a risk or hazard due to moving mechanical parts.
	Use of safety clothing mandatory.		Warning of a risk or hazard due to the closing movement of moving mechanical parts of a machine.
	Cleaning the working area mandatory.		Warning of a risk or hazard due to the presence of a laser radiation.
	Use of breathing protection mandatory.		Warning of a risk or hazard due to an obstacle at a height.
	Visual inspection required.		Warning of a risk or hazard due to the presence of a pointed part.
	Indicates a lubrication operation.		Wearers of pacemakers may not be admitted in the designated area.
	Requires maintenance action.		

A - IDENTIFICATION

Please enter the number of your equipment in the following box.
Quote this information in all correspondence.

N°.

B - SAFETY INSTRUCTIONS

For general safety instructions, please refer to the specific manual supplied with the equipment.

C - DESCRIPTION

OSCILLARC PLUS is used for direct-current deviation or oscillation of a TIG arc.

Magnetic deviation of the TIG arc towards the front helps extend its impact:
- to raise the electrical power used.
- to make significant increases in the performance speed.
- to improve arc stability, even when the end of the electrode has undergone functional erosion

TIG arc oscillation is used:
- to improve the control of the transfer of energy to the part.
- to push back the limit of the appearance of surface defects.
- to facilitate welding on parts that do not fit perfectly
- to increase the surface of the part subjected to the TIG arc heat flux.

At any given power, the penetration is less than with a stable TIG arc. That is particularly useful while depositing valuable materials with low dilution or for multiple-pass welding or even for a second pass with a high-quality appearance on visible seams on stainless steel parts.

The **OSCILLARC PLUS** system has an advantage over mechanical oscillation systems - it does not put any load into movement.

1 - Principle

A magnetic field displaces the TIG electric arc that is exposed to it.

Also, the impact of the arc is no longer circular, but elongated.

Inverting the direction of the current in the inductor makes the arc move in the opposite direction.

If the inductor is powered with alternating current, the arc will make a to-and-fro movement.

The **OSCILLARC PLUS** magnetic oscillator based on that principle produces an alternating field with an adjustable amplitude or a field with a fixed polarity and an adjustable size at a controlled frequency .

2 - Composition

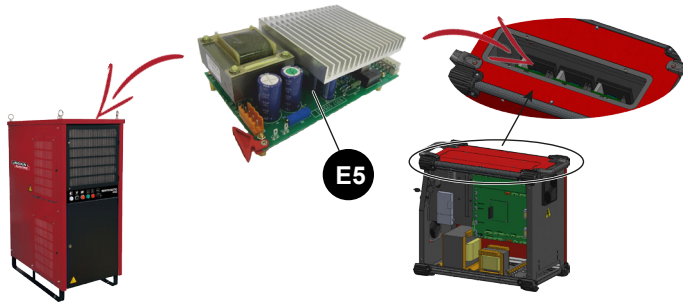
Magnetic arc oscillation system including:	P95576001NG
• 1: 42-Volt power supply harness (**F1**)	W000379474
• 1: 2-metre control harness (**F2**)	W000379472
• 1: 25-metre coil power supply harness (**F3**)	W000379477
• 1: MDO amplification board (**M**agnetic **D**eviation **O**scillation) (**E5**)	W000315540
• 1: Magnetic circuit for **MEC4** torch (**E15**)	W000315604
• 1: **OSCILLARC** coil (**E16**)	S92572688
• 1: Magnetic oscillation nozzle (**E17**)	W000315766

D - ASSEMBLY - INSTALLATION

1 - Conditions of installation

Electrical power supply ☛ 42 Volts alternatif 50 Hz ou 60 Hz 1A.

2 - Assembly

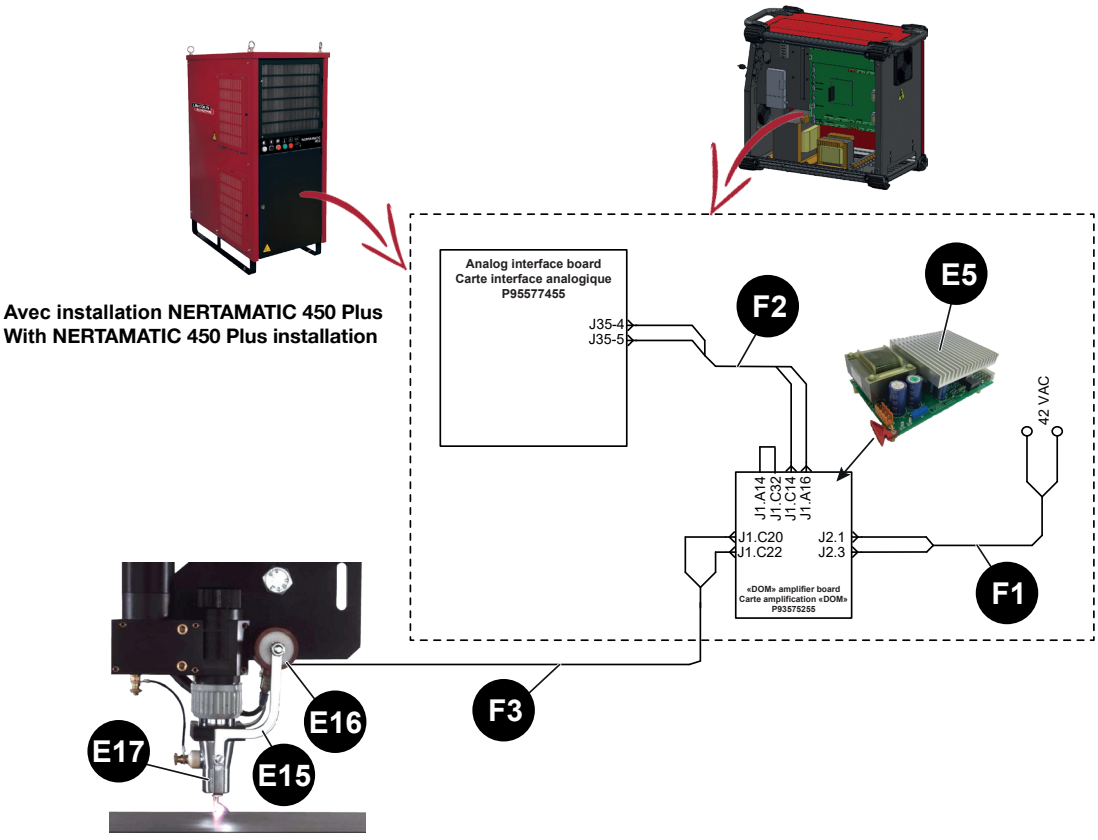


Avec installation NERTAMATIC 450 Plus
With NERTAMATIC 450 Plus installation

Avec Installation LINC-MASTER
With LINC-MASTER installation

3 - Connections

Avec Installation LINC-MASTER
With LINC-MASTER installation



Avec installation NERTAMATIC 450 Plus
With NERTAMATIC 450 Plus installation

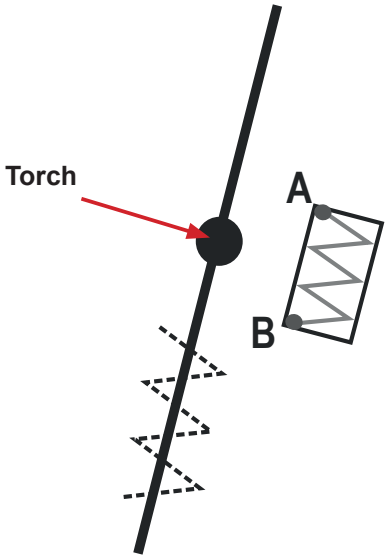
F1	W000379474	42-V power supply harness "**MDO**"
F2	W000379472	2-metre control harness "**MDO**"
F3	W000379475	10-metre coil power supply harness "**MDO**"
	W000379476	17-metre coil power supply harness "**MDO**"
	W000379477	25-metre coil power supply harness "**MDO**"

For configuration, programming and use of the Oscillarc function, Please refer to the document:

- **86955510**: **Nertamatic 450 Plus** installation
- **86955520**: **Linc-Master** installation

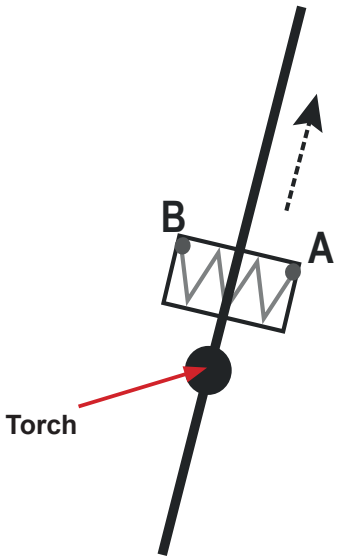
1 - Coil position

Coil position for oscillation

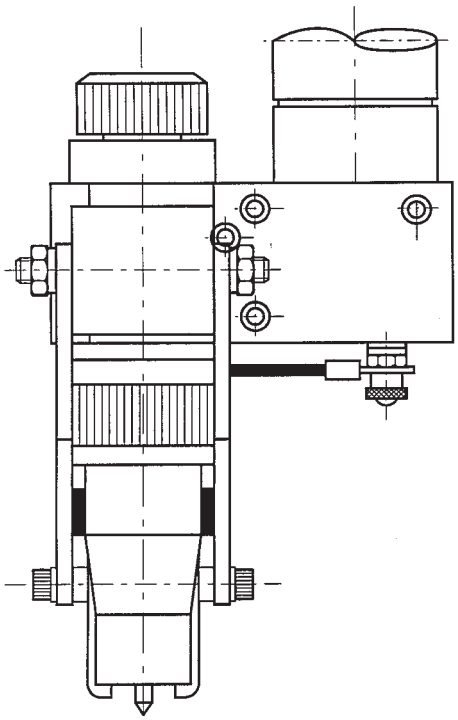


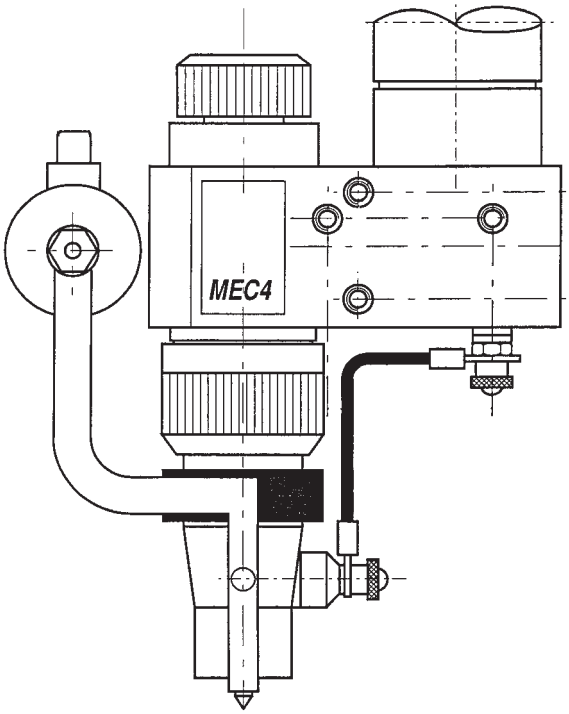
The pole centre line is aligned with the centre line of the joint to be welded.

Coil position for deviation



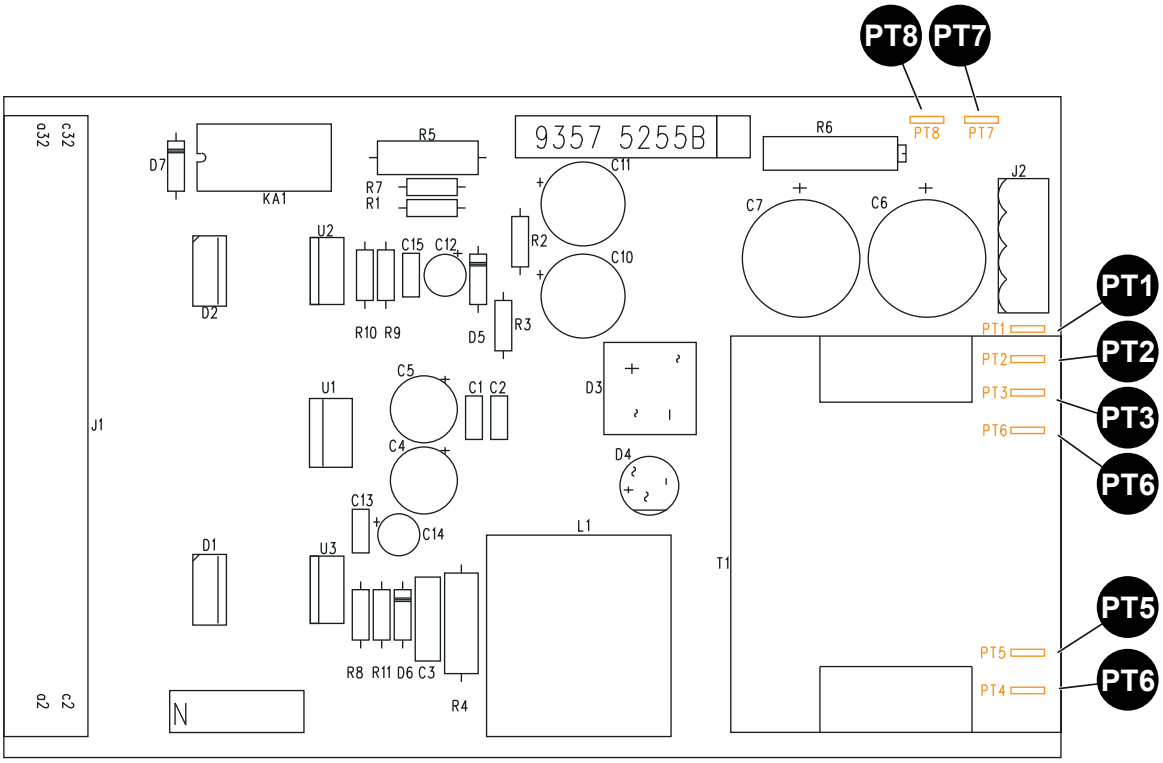
The pole centre line is perpendicular to the line to be welded. The arc deviation must precede welding. Otherwise, revert the current flow direction in the inductor by inverting lugs **A** and **B**.





1 - Troubleshooting

1.1 OSCILLARC amplifier board



PT1	Intensity in the coil (100 mV per A)
PT2	+ 8.5 VOLTS +/- 1
PT3	- 8.5 VOLTS +/- 1
PT4	+ 14 VOLTS +/- 0.2
PT5	- 14 VOLTS +/- 0.2
PT6	0 VOLT common
PT7	0 setpoint input at +/- 10 VOLTS (PT6 0 VOLT)
PT8	+14 VOLTS amplifier on (PT6 0 VOLT).

Ordering procedure:

Almost all the parts of a machine or installation are referenced in the photographs and sketches.

The descriptive tables contain three types of item:

- items normally held in stock: ✔
- items not held in stock: ✘
- items upon request: no reference

(For such parts, please complete the list of parts page and send us a copy. In the Order column, state the number of parts required and indicate the type and number of your equipment.)

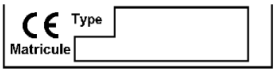
For items referenced in the photographs or sketches but not included in the tables, please send us a copy of the relevant page and highlight the relevant reference.

Example:

✔	normally held in stock.
✘	not in stock
	upon request.

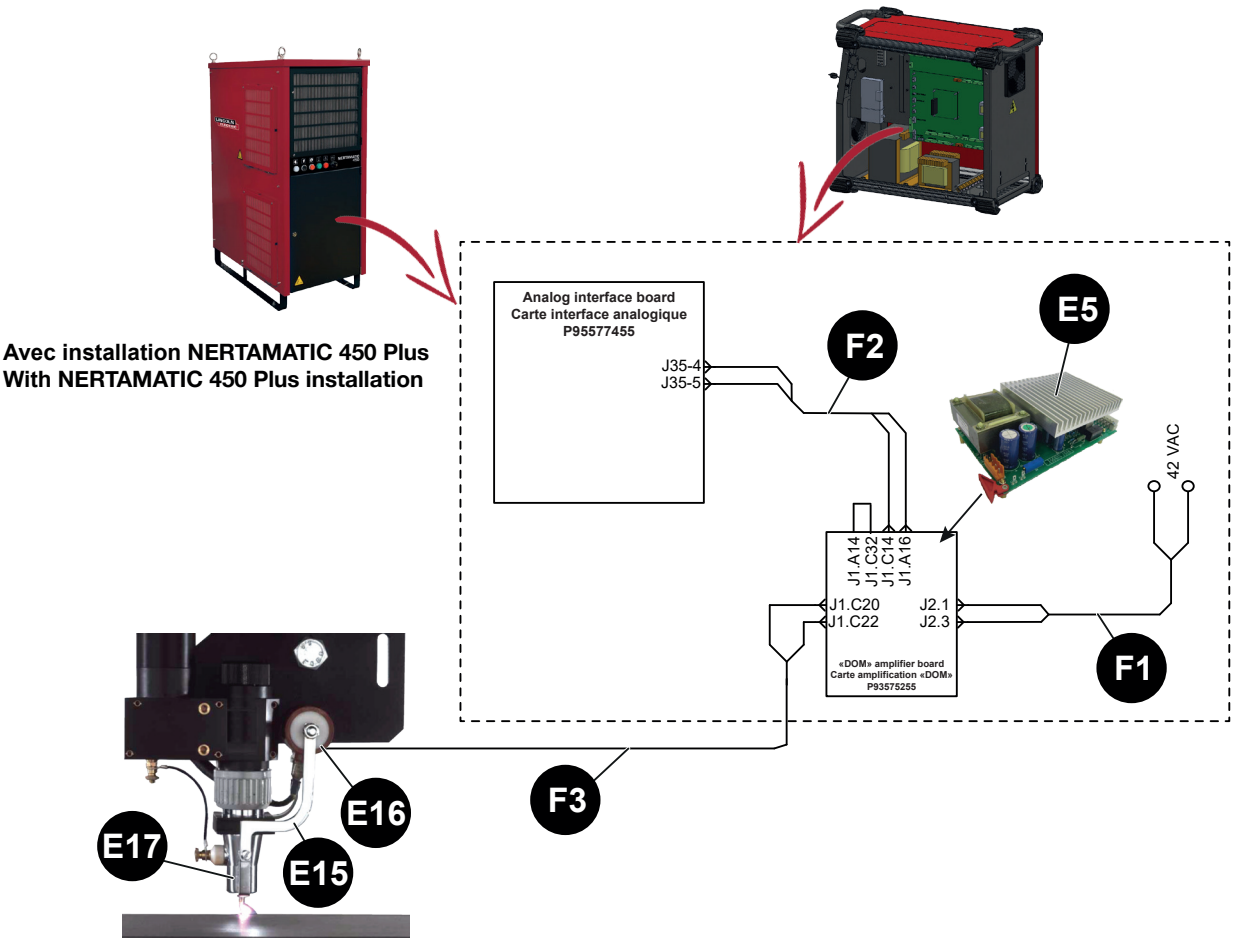
Ref.	Part no	Stock	Order	Description
E1	W000XXXXXX	✔		Machine interface board
G2	W000XXXXXX	✘		Flow meter
A3	P9357XXXX			Printed front plates

- While ordering parts, please indicate the quantity and note the number of your machine in the box above.



TYPE:
Number:

Avec Installation LINC-MASTER
With LINC-MASTER installation



✔	normally held in stock.
✘	not in stock
	upon request.

Ref.	Part no	Stock	Order	Description
E5	W000315540	✔		**OSCILLARC** amplifier board
E15	W000315604	✔		Magnetic circuit for **MEC4** torch
E16	S92572688	✔		**OSCILLARC** coil
E17	W000315766	✔		Magnetic oscillation nozzle
F1	W000379474	✘		42-V power supply harness ”**MDO**”
F2	W000379472	✘		2-metre control harness “**MDO**”
F3	W000379475	✘		10-metre coil power supply harness “**MDO**”
	W000379476	✘		17-metre coil power supply harness “**MDO**”
	W000379477	✘		25-metre coil power supply harness “**MDO**”

- While ordering parts, please indicate the quantity and note the number of your machine in the box above.

CE Type
Matricule

TYPE:
Number:

PERSONAL NOTES

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