

IM3049  
05/2016  
REV05

# SPEEDTEC<sup>®</sup> 200C

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## OPERATOR'S MANUAL



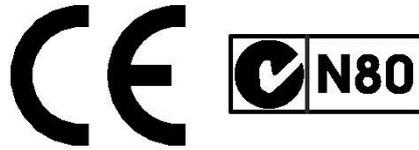
ENGLISH

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**LINCOLN<sup>®</sup>**  
**ELECTRIC**

Lincoln Electric Bester Sp. z o.o.  
ul. Jana III Sobieskiego 19A, 58-263 Bielawa, Poland  
[www.lincolnelectric.eu](http://www.lincolnelectric.eu)

Declaration of conformity



**Lincoln Electric Bester Sp. z o.o.**

Declares that the welding machine:

**K14099-2 SPEEDTEC<sup>®</sup> 200C**

conforms to the following directives:

**2014/35/EU, 2014/30/EU**

and has been designed in compliance with the  
following standards:

**EN 60974-1:2012, EN 60974-5:2013,  
EN 60974-10:2014**

A handwritten signature in black ink, appearing to be 'Piotr Spytak', is written over a light gray grid background.

20.04.2016

Piotr Spytak  
Operations Director

Lincoln Electric Bester Sp. z o.o., ul. Jana III Sobieskiego 19A, 58-263 Bielawa, Poland

12/05



**THANKS!** For having chosen the QUALITY of Lincoln Electric products.

- Please Examine Package and Equipment for Damage. Claims for material damaged in shipment must be notified immediately to the dealer.
- For future reference record in the table below your equipment identification information. Model Name, Code & Serial Number can be found on the machine rating plate.

Model Name:	
.....	
Code & Serial Number:	
.....	.....
Date & Where Purchased	
.....	.....

## ENGLISH INDEX

Safety .....	1
Introduction .....	2
Installation and Operator Instructions .....	2
Electromagnetic Compatibility (EMC) .....	12
Technical Specifications .....	13
WEEE .....	14
Spare Parts .....	14
Electrical Schematic .....	14
Accessories .....	15



## WARNING

This equipment must be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified person. 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.

	<p><b>WARNING:</b> 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.</p>
	<p><b>READ AND UNDERSTAND INSTRUCTIONS:</b> 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.</p>
	<p><b>ELECTRIC SHOCK CAN KILL:</b> 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.</p>
	<p><b>ELECTRICALLY POWERED EQUIPMENT:</b> 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.</p>
	<p><b>ELECTRICALLY POWERED EQUIPMENT:</b> Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. Do 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.</p>
	<p><b>ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS:</b> Electric current flowing through any conductor creates electric and magnetic fields (EMF). EMF fields may interfere with some pacemakers and welders having a pacemaker shall consult their physician before operating this equipment.</p>
	<p><b>CE COMPLIANCE:</b> This equipment complies with the European Community Directives.</p>
	<p><b>ARTIFICIAL OPTICAL RADIATION:</b> According with the requirements in 2006/25/EC Directive and EN 12198 Standard, the equipment is a category 2. It makes mandatory the adoption of Personal Protective Equipment (PPE) having filter with a protection degree up to a maximum of 15, as required by EN169 Standard.</p>
	<p><b>FUMES AND GASES CAN BE DANGEROUS:</b> 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.</p>
	<p><b>ARC RAYS CAN BURN:</b> 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.</p>
	<p><b>WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION:</b> 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.</p>

	<p><b>WELDED MATERIALS CAN BURN:</b> 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.</p>
	<p><b>CYLINDER MAY EXPLODE IF DAMAGED:</b> 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. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a 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.</p>
	<p><b>MOVING PARTS ARE DANGEROUS:</b> There are moving mechanical parts in this machine, which can cause serious injury. Keep your hands, body and clothing away from those parts during machine starting, operating and servicing.</p>
	<p><b>SAFETY MARK:</b> This equipment is suitable for supplying power for welding operations carried out in an environment with increased hazard of electric shock.</p>

The manufacturer reserves the right to make changes and/or improvements in design without also changing the operator's manual.

## Introduction

The welding machines **SPEEDTEC® 200C** enables welding:

- GMAW (MIG/MAG)
- FCAW-SS
- SMAW (MMA)
- GTAW (arc ignition using lift TIG)

The following equipment is included with the **SPEEDTEC® 200C**:

- Work lead – 3m
- An electrode holder with lead – 3m
- Gas cooled welding gun (LG 250 G) – 3m

- Gas regulator
- Gas hose – 2m
- Driving roll V0.8/V1.0 for solid wire (mounted in the wire feeder).

For GMAW and FCAW-SS process, the technical specification describes:

- Type of welding wire
- Wire diameter

Recommended equipment, which can be bought by user, was mentioned in the chapter "Accessories".

## Installation and Operator Instructions

Read this entire section before installation or operation of the machine.

### Location and Environment

This machine will operate in harsh environments. However, it is important that simple preventative measures are followed to assure long life and reliable operation:

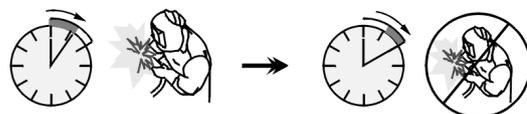
- Do not place or operate this machine on a surface with an incline greater than 15° from horizontal.
- Do not use this machine for pipe thawing.
- This machine must be located where there is free circulation of clean air without restrictions for air movement to and from the air vents. Do not cover the machine with paper, cloth or rags when switched on.
- Dirt and dust that can be drawn into the machine should be kept to a minimum.
- This machine has a protection rating of IP23. Keep it dry when possible and do not place it on wet ground or in puddles.

- Locate the machine away from radio controlled machinery. Normal operation may adversely affect the operation of nearby radio controlled machinery, which may result in injury or equipment damage. Read the section on electromagnetic compatibility in this manual.
- Do not operate in areas with an ambient temperature greater than 40°C.

### Duty cycle and Overheating

The duty cycle of a welding machine is the percentage of time in a 10 minute cycle at which the welder can operate the machine at rated welding current.

Example: 60% duty cycle



Welding for 6 minutes.

Break for 4 minutes.

The machine is protected from overheating by a temperature sensor. Excessive extension of the duty cycle will cause the thermal protection circuit to activate. The image is shown by the display [7].



## Input Supply Connection

### WARNING

Only a qualified electrician can connect the welding machine to the supply network. Installation had to be made in accordance with the appropriate National Electrical Code and local regulations.

Check the input voltage, phase and frequency supplied to this machine before turning it on. Verify the connection of ground wires from the machine to the input source. The welding machine **SPEEDTEC® 200C** must be connected to a correctly installed plug-in socket with an earth pin.

The allowable input voltage is 230V, 50/60Hz. For more information about input supply refer to the technical specification section of this manual and to the rating plate of the machine.

Make sure that the amount of mains power available from the input supply is adequate for normal operation of the machine. The necessary delayed fuse (or circuit breaker with "B" characteristic) and cable sizes are indicated in the technical specification section of this manual.

### WARNING

The welding machine can be supplied from a power generator of output power at least 30% larger than input power of the welding machine. Generator frequency in the range of 50Hz and 60Hz. AC RMS voltage 170V - 280V. Out of this range undervoltage and overvoltage protection will trigger.

### WARNING

When powering welder from a generator be sure to turn off welder first, before generator is shut down, in order to prevent damage to welder!

## Output Connections

Refer to points [1], [2] and [3] of the Figures below.

## Controls and Operational Features

1. EURO Socket: For connecting a welding gun (for GMAW / FCAW-SS process).



2. Positive Output Socket for the Welding Circuit: For connecting an electrode holder with lead / a work lead.



3. Negative Output Socket for the Welding Circuit: For connecting an electrode holder with lead / a work lead.

4. Left Knob: The value of parameter in the upper left side of display [7] is adjusted.

5. Right Knob: The value of parameter in the upper

right side of display [7] is adjusted.

6. Set Knob: Type of welding procedure and welding settings is changed by this knob.
7. Display: Parameters of welding process are shown.
8. User Button (left): Button function could be set:
  - Advanced menu:
    - Recalls advanced menu (default)
    - Recalls user memory.
    - Inductance.
    - Run-in WFS.
    - Burnback.
  - Basic menu – changes basic menu for advanced menu.
9. Escape Button (right):
  - Cancels an action / exit menu.
  - Locks and unlocks knobs and buttons on the panel (press and hold button for 4 seconds).

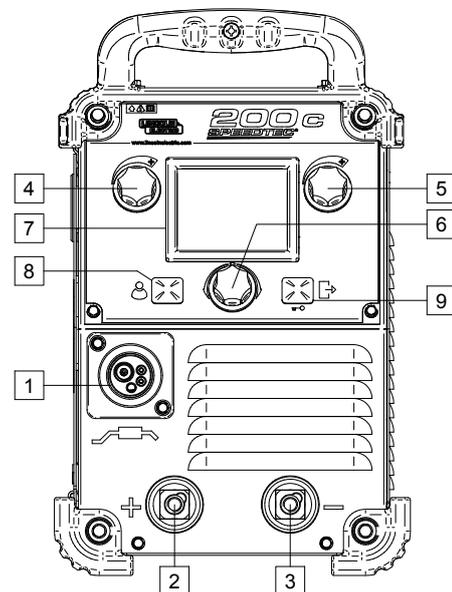


Figure 1.

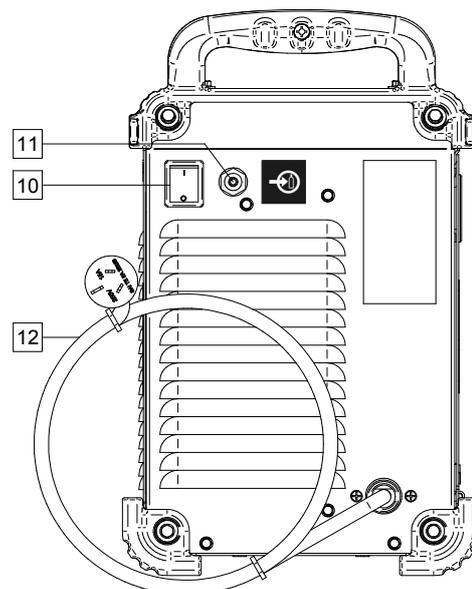


Figure 2.

10. Power Switch ON/OFF (I/O): Controls the input power to the machine. Be sure the power source is connected to the mains supply before turning power on ("I"). After input power is connected and the power switch is turned on, the indicator will light up to indicate the machine is ready to weld.

11. Gas Connector: Connection for gas line.

**! WARNING**

The welding machine supports all suitable shielding gases at a maximum pressure of 5,0 Bar.

12. Power Lead with Plug (2m): Power lead with plug is a standard equipment. Connect the power lead with plug to the main supply before turning power on.

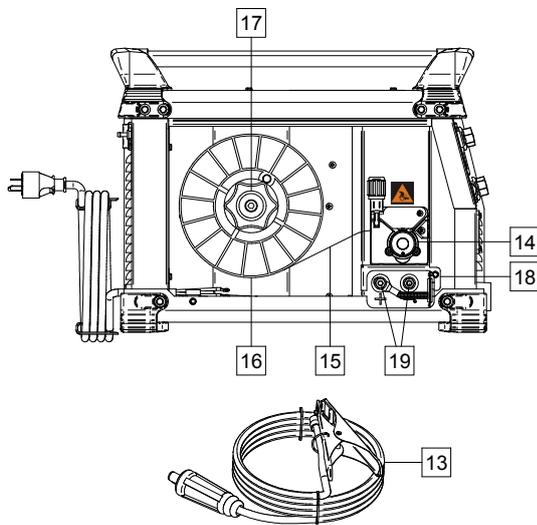


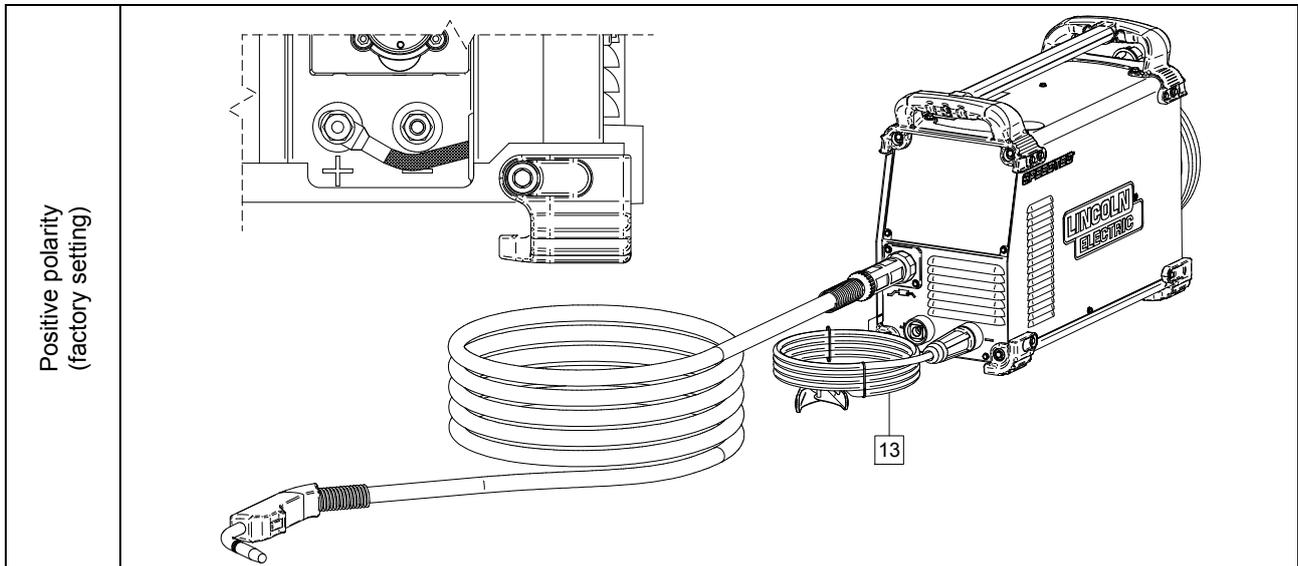
Figure 3.

13. Work Lead.

14. Wire Drive (for GMAW, FCAW-SS process): 2-Roll wire drive.

15. Welding Wire (for GMAW / FCAW-SS).

**Table 1.**



16. Spooled Wire (for GMAW / FCAW-SS): The machine does not include a spooled wire.

17. Wire Spool Support: Maximum 5kg spools. Accepts plastic, steel and fiber spools onto 51mm spindle.

18. Shield of Changing Polarity.

19. Terminal Block of Changing Polarity (for GMAW / FCAW-SS process): This terminal block enables to set the welding polarity (+ ; -), which will be given at the welding holder.

**! WARNING**

Positive (+) polarity is set at the factory.

**! WARNING**

Before welding check the polarity for using electrodes and wires.

If the welding polarity has to be changed, user should:

- Switch off the machine.
- Determine the wire polarity for the wire to be used. Consult the electrode data for this information.
- Take off the terminal block's shield [18].
- The tip of the wire on the terminal block [19] and work lead fix as is shown in the Table 1 or the Table 2.
- Put on the terminal block's shield.

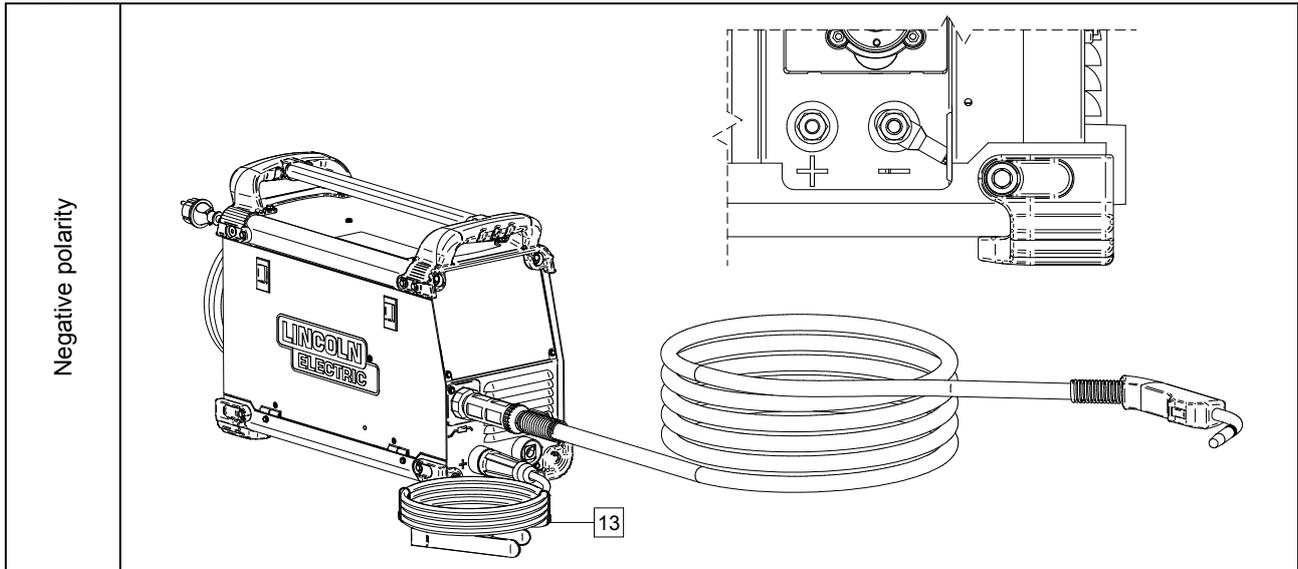
**! WARNING**

The machine must be used with the door completely closed during welding.

**! WARNING**

Not use handle to move the machine during work.

Table 2.



### Loading the Electrode Wire

- Turn the machine off.
- Load the wire spool [16] on the spindle [20] such that the spool turns anticlockwise when the wire [15] is fed into the wire feeder.
- Put on the wire roll using the correct groove corresponding to the wire diameter.
- Free the end of the wire and cut off the bent end making sure it has no burr.

#### **! WARNING**

Sharp end of the wire can hurt.

- Insert an electrode wire into welding gun.
- Adjust force of pressure roll of the wire feeder properly.

### Wire Spool Loading

#### **! WARNING**

Turn off the power source while mounting a wire spool.

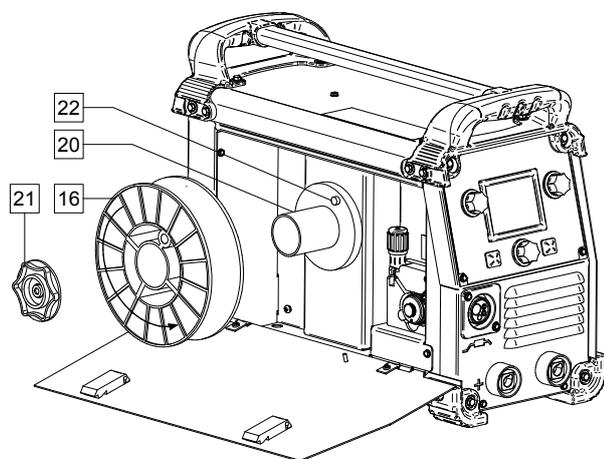


Figure 4.

- Turn the machine off.
- Open the left side panel.
- Unscrew the Locking Nut [21] and remove it from the Spindle [20].

- Place the spool [16] on the Spindle [20] making certain the Spindle Brake Pin [22] is put in the hole in back side of spool.

#### **! WARNING**

Position the spool so that it will rotate in a direction when feeding so as to be de-reeled from bottom of the spool.

- Re-install the Locking Nut [21]. Make sure that the locking nut is tightened.

### Adjustments of Brake Torque of Sleeve

To avoid spontaneous unrolling of the welding wire the sleeve is fitted with a brake.

Adjustment is carried by rotation of its Allen screw M8, which is placed inside of the sleeve frame after unscrewing the Locking Nut of the sleeve.

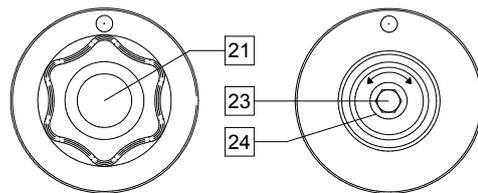


Figure 5.

- 21. Locking Nut.
- 23. Adjusting Allen screw M8.
- 24. Pressing spring.

Turning the Allen screw M8 clockwise increases the spring tension and you can increase the brake torque

Turning the Allen screw M8 anticlockwise decreases the spring tension and you can decrease the brake torque.

After finishing of adjustment, you should screw in the Locking Nut again.

## Adjusting of Force of Pressure Roll Force

The pressure arm controls the amount of force the drive rolls exert on the wire.

Pressure force is adjusted by turning the adjustment nut clockwise to increase force, counterclockwise to decrease force. Proper adjustment of pressure arm gives the best welding performance.

### WARNING

If the roll pressure is too low the roll will slide on the wire. If the roll pressure is set too high the wire may be deformed, which will cause feeding problems in the welding gun. The pressure force should be set properly. Decrease the pressure force slowly until the wire just begins to slide on the drive roll and then increase the force slightly by turning of the adjustment nut by one turn.

## Inserting Electrode Wire into Welding Gun

- Turn the welding machine off.
- Depending on welding process, connect the proper gun to the Euro Socket, the rated parameters of the gun and of the welding machine should be matched.
- Remote the nozzle from the gun and contact tip or protection cap and contact tip. Next, straighten the gun out flat.
- Insert the wire through the guide tube, over the roller and guide tube of Euro Socket into liner of gun. The wire can be pushed into the liner manually for a few centimeters, and should feed easily and without any force.

### WARNING

If force is required it is likely that the wire has missed the liner of gun.

- Turn the welding machine on.
- Depress the gun trigger to feed the wire through the gun liner until the wire comes out of the threaded end.
- When trigger is released, spool of wire should not unwind.
- Adjust wire spool brake accordingly.
- Turn the welding machine off.
- Install a proper contact tip.
- Depending on the welding process and the type of the gun, install the nozzle (GMAW process) or protection cap (FCAW-SS process).

### WARNING

Take precaution to keep eyes and hands away from the end of the gun while the wire is being come out of the threaded end.

## Changing Driving Rolls

### WARNING

Turn the input power off of the welding power source before installation or changing drive rolls.

**SPEEDTEC® 200C** is equipped with drive roll V0.8/V1.0 for steel wire. For others wire sizes, is available the proper drive rolls kit (see "Accessories" chapter) and follow instructions:

- Turn the welding machine off.
- Release the pressure roll lever [25].
- Unscrew the fastening cap [26].
- Change the drive roll [27] with the compatible ones corresponding to the used wire.

### WARNING

Be sure that the gun liner and contact tip are also sized to match the selected wire size.

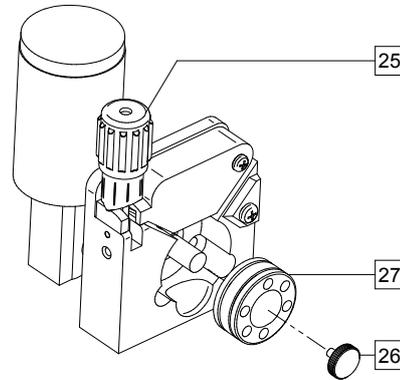


Figure 6.

- Screw fastening cap [26].
- Manually feed the wire from the wire reel, the wire through the guide tube, over the roller and guide tube of Euro Socket into liner of gun.
- Lock the pressure roll lever [25].

## Gas Connection

Shield gas is required for welding GMAW and GTAW process.

Gas flow regulator and gas hoses have been added to **SPEEDTEC 200C**.

### WARNING

The welding machine supports all suitable shielding gases at a maximum pressure of 5,0 bar.

### Gas Connecting – GMAW

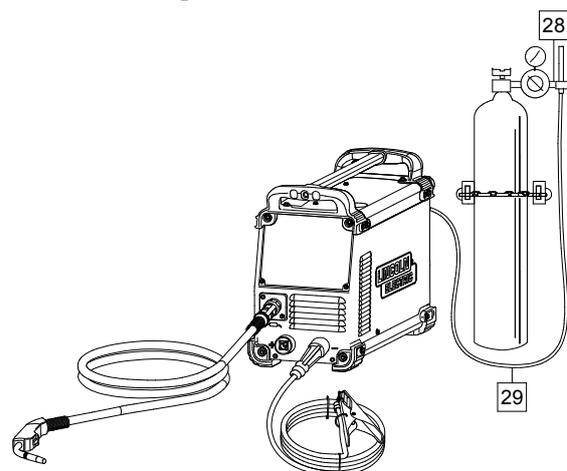


Figure 7.

- Turn the welding machine off.
- Install a proper gas flow regulator [28] to the gas cylinder.

**! WARNING**

Always fasten gas cylinder properly in vertical position in a special holder on the wall or on a carriage. Remember to close gas cylinder valve after having finished welding.

- Connect the gas hose [29] to the regulator [28] using the hose clamp.
- The other end of gas hose [29] connect to the Gas Connector [11] located on the rear panel of the machine (see Figure 2).
- Turn the welding machine on.
- Turn to open the gas cylinder valve.
- Adjust the shielding gas flow of the gas regulator.

**! WARNING**

To weld GMAW process with CO<sub>2</sub> shielding gas, CO<sub>2</sub> gas heater should be used.

**Gas Connecting – GTAW**

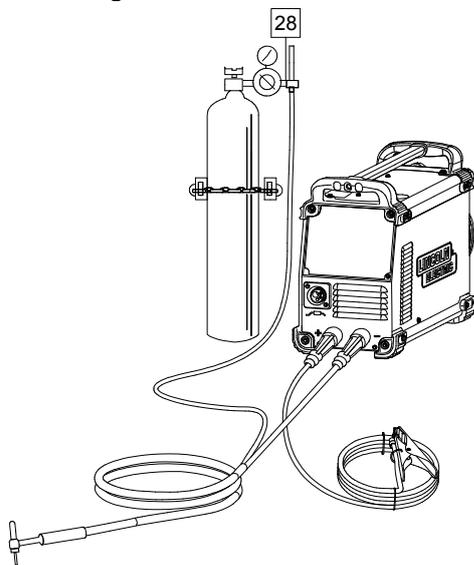


Figure 8.

- Turn the welding machine off.
- Install a proper gas flow regulator [28] to the gas cylinder.

**! WARNING**

Always fasten gas cylinder properly in vertical position in a special holder on the wall or on a carriage. Remember to close gas cylinder valve after having finished welding.

- Connect the proper torch to Negative Output Socket [3], the rated parameters of the torch and of the welding machine should be matched.
- Connect the gas hose of torch to gas flow regulator [28].
- Turn the welding machine on.
- Turn to open the gas cylinder valve .
- Adjust the shielding gas flow of the gas regulator.

**Welding GMAW, FCAW-SS Process**

**SPEEDTEC® 200C** can be used to welding GMAW and FCAW-SS process.

**SPEEDTEC® 200C** has been provided with synergic GMAW process.

**SPEEDTEC® 200C** includes the gun necessary for GMAW welding.

**SPEEDTEC® 200C** does not include the gun necessary for FCAW-SS welding.

Depending on the welding process, the gun can be purchased separately (see "Accessories" chapter).

**Preparation the Machine for Welding GMAW and FCAW-SS Process.**

Procedure of begin welding of GMAW or FCAW-SS process:

- Turn the machine off.
- Place the machine conveniently near the work area in a location to minimize exposure to weld spatter and to avoid sharp bends in the gun cable.
- Determine the wire polarity for the wire to be used. Consult the wire data for this information.
- Connect output the gas-cooled gun to GMAW / FCAW-SS process to Euro Socket [1].
- Depending on the using wire, connect the work lead [13] to output socket [2] or [3]. See [19] point – terminal block of changing polarity.
- Connect the work lead to the welding piece with the work clamp.
- Install the proper wire.
- Install the proper drive roll.
- Manually push the wire into the gun's liner.
- Make a sure, if it is needed (GMAW process), that the gas shield has been connected.
- Turn the machine on.
- Insert the wire into the welding gun.

**! WARNING**

Keep the gun cable as straight as possible when loading electrode through cable.

**! WARNING**

Never use defected gun.

- Close the left side panel.
- The welding machine is now ready to weld.

**! WARNING**

The right side panel has to be completely closed during welding.

**! WARNING**

Keep the gun cable as straight as possible when welding or loading electrode through cable.

**! WARNING**

Do not kink or pull cable around sharp corners.

- By applying the principle of occupational health and safety at welding, welding can be begun.

## Welding GMAW, FCAW-SS Process in Manual Mode

In manual mode can be set:

SPEEDTEC® 200C	
Basic menu	Advanced menu
<ul style="list-style-type: none"> <li>The welding load voltage</li> <li>WFS</li> <li>2-Step / 4-Step</li> </ul>	<ul style="list-style-type: none"> <li>The welding load voltage</li> <li>WFS</li> <li>Burnback</li> <li>Run-in WFS</li> <li>Spot Time</li> <li>Preflow Time/ Pastflow Time</li> <li>2-Step/4-Step</li> <li>Inductance</li> </ul>

**The 2-Step - 4-Step** changes the function of the gun's trigger.

- 2 Step trigger operation turns welding on and off in direct response to the trigger. Welding process is performed when the gun's trigger is pulled.
- 4-Step mode allows to continue welding, when the gun's trigger is released. To stop welding, the gun's trigger is pulled again. 4-step mode facilitates to making long welds.

### WARNING

4-Step does not work during Spot Welding.

**The Burnback Time** is the amount of time that the weld output continues after the wire stops feeding. It prevents the wire from sticking in the puddle and prepares the end of the wire for the next arc start.

**Run-in WFS** sets the wire feed speed from the time the trigger is pulled until an arc is established.

**Spot Timer** adjusts the time welding will continue even if the trigger is still pulled. This option has no effect in 4-Step Trigger Mode.

### WARNING

Spot Timer has no effect in 4-Step Trigger Mode.

**Preflow Time** adjusts the time that shielding gas flows after the trigger is pulled and prior to feeding.

**Postflow Time** adjusts the time that shielding gas flows after the welding output turns off.

**Inductance** controls the arc characteristics when short-arc welding. If the value is higher, the arc will be crisper (more spatters).

## Welding GMAW in Synergic Mode

In synergic mode, the welding load voltage is not set by user. The correct welding load voltage will set by the machine's software. This value was recalled on the basis of data (input data) had been loaded:

SPEEDTEC® 200C	
Basic menu	Advanced menu
<ul style="list-style-type: none"> <li>Wire type (material)</li> <li>Wire diameter</li> <li>Gas</li> </ul>	<ul style="list-style-type: none"> <li>Wire type (material)</li> <li>Wire diameter</li> <li>Gas</li> </ul>

The welding load voltage can be changed depend on the value of parameters are set by operators:

SPEEDTEC® 200C	
Basic menu	Advanced menu
<ul style="list-style-type: none"> <li>WFS</li> <li>Welding current</li> <li>Material thickness</li> </ul>	<ul style="list-style-type: none"> <li>WFS</li> <li>Welding current</li> <li>Material thickness</li> </ul>

If it is needed, the welding load voltage can be adjusted  $\pm 2V$  by the right knob [5].

Additionally, user can manually set:

SPEEDTEC® 200C	
Basic menu	Advanced menu
No possibilities	<ul style="list-style-type: none"> <li>Burnback</li> <li>Run-in WFS</li> <li>Spot Timer</li> <li>Preflow Time / Pastflow Time</li> <li>2-STEP/4-STEP</li> <li>Inductance</li> </ul>

**The 2-Step - 4-Step** changes the function of the gun's trigger.

- 2 Step trigger operation turns welding on and off in direct response to the trigger. Welding process is performed when the gun's trigger is pulled.
- 4-Step mode allows to continue welding, when the gun's trigger is released. To stop welding, the gun's trigger is pulled again. 4-step mode facilitates to making long welds.

### WARNING

4-Step does not work during Spot Welding.

**The Burnback Time** is the amount of time that the weld output continues after the wire stops feeding. It prevents the wire from sticking in the puddle and prepares the end of the wire for the next arc start.

**Run-in WFS** sets the wire feed speed from the time the trigger is pulled until an arc is established.

**Spot Timer** adjusts the time welding will continue even if the trigger is still pulled. This option has no effect in 4-Step Trigger Mode. Adjusting range:

### WARNING

Spot Timer has no effect in 4-Step Trigger Mode.

**Preflow Time** adjusts the time that shielding gas flows after the trigger is pulled and prior to feeding.

**Postflow Time** adjusts the time that shielding gas flows after the welding output turns off.

**Inductance** controls the arc characteristics when short-arc welding. If the value is higher, the arc will be crisper (more spatters).

## VRD (Voltage Reduction Device) - GTAW / SMAW only

This machine is provided by VRD (Voltage Reduction Device) function during welding GTAW/SMAW only. This function reduces the voltage at the output below 32V at idle (no welding time).

The VRD function is enabled by factory default only on machines that meet the AS 1674.2 Australian Standards. (C-Tick logo "C" on/near the Rating Plate applied on the machine).

## Welding SMAW (MMA) Process

**SPEEDTEC® 200C** includes the electrode holder with lead necessary for SMAW welding. The one can be purchased separately (see "Accessories" chapter).

Procedure of begin welding of SMAW process:

- First turn the machine off.
- Determine the electrode polarity for the electrode to be used. Consult the electrode data for this information.
- Depending on the polarity of using electrode, connect the work lead [13] and the electrode holder with lead to output socket [2] or [3] and lock them. See the Table 3.

**Table 3.**

		Output socket	
POLARITY	DC (+)	The electrode holder with lead to SMAW	[8] 
		Work lead	[9] 
	DC (-)	The electrode holder with lead to SMAW	[9] 
		Work lead	[8] 

- Connect the work lead to the welding piece with the work clamp.
- Install the proper electrode in the electrode holder.
- Turn the welding machine on.
- Set the welding parameters.
- The welding machine is now ready to weld.



### WARNING

Do not kink or pull cable around sharp corners.

- By applying the principle of occupational health and safety at welding, welding can be begun.

An user can set functions:

SPEEDTEC® 200C	
Basic menu	Advanced menu
<ul style="list-style-type: none"> <li>• The welding current</li> <li>• Switch on / switch off the output voltage on the output lead</li> </ul>	<ul style="list-style-type: none"> <li>• The welding current</li> <li>• Switch on / switch off the output voltage on the output lead</li> <li>• HOT START</li> <li>• ARC FORCE</li> </ul>

**ARC FORCE:** The output current is temporarily increased to clear short circuit connections between the electrode and the workpiece.

**HOT START:** Value in percentage of nominal value welding current during arc start current. The control is used to set the level of the increased current and arc start current is made easy.

## Welding GTAW Process

**SPEEDTEC® 200C** can be used to GTAW process with DC (-). Arc ignition can be achieved only by lift TIG method (contact ignition and lift ignition).

**SPEEDTEC® 200C** does not include the torch to GTAW welding, but the one can be purchased separately. See "Accessories" chapter.

Procedure of begin welding of GTAW process:

- First turn the machine off.
- Connect GTAW torch to [3] output socket.
- Connect the gas shield.
- Connect the work lead to [2] output socket.
- Connect the work lead to the welding piece with the work clamp.
- Install the proper tungsten electrode in the GTAW torch.
- Turn the machine on.
- Set the welding parameters.
- The welding machine is now ready to weld.



### WARNING

Do not kink or pull cable around sharp corners.

- By applying the principle of occupational health and safety at welding, welding can be begun.

During welding GTAW process, an user can set function:

SPEEDTEC® 200C	
Basic menu	Advanced menu
<ul style="list-style-type: none"> <li>• The welding current</li> <li>• Switch on / switch off the output voltage on the output lead</li> </ul>	<ul style="list-style-type: none"> <li>• The welding current</li> <li>• Switch on / switch off the output voltage on the output lead</li> </ul>

## Memory – Save, Recall, Delete

**SPEEDTEC® 200C** enables saving, recalling and deleting the parameter's settings. 9 memories can be used by user.

Saving, recalling and deleting process settings is accessible in advanced menu of **SPEEDTEC® 200C**.

## Error's Message

Contact with the Technical Service Center or Lincoln Electric, when a machine's display of **SPEEDTEC® 200C** will show a message of the Figure 9 or similar.

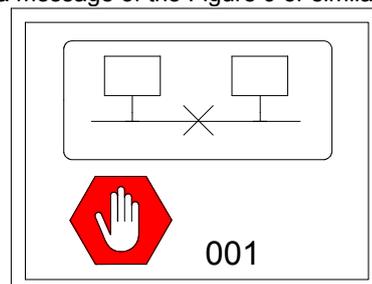
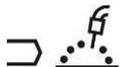
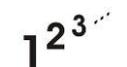


Figure 9.

## Guide's Marking Interface SPEEDTEC® 200C

Description of the user interface in "Quick Guide" chapter. See "Spare Parts".

	Select Welding Process		SMAW (MMA) Welding		Basic menu
	Burnback		GMAW (MIG/MAG) Manual Welding		Brightness Level
	Run-in WFS		FCAW- Self shielded Manual Welding		View Software and Hardware Version Information
	Prewflow Time		GMAW (MIG/MAG) Synergic Welding		User Button
	Postflow Time		Select Process by Number		Cancel an Action
	Inductance		Select Gas		Switch On Output Voltage (TIG / SMAW only)
	Spot Welding Setting		Select Wire Type (material)		Switch Off Output Voltage (TIG / SMAW only)
	Spot Timer		Select Wire Size (diameter)		Unlock panel
	Switch off Spot Welding		Select Function of Gun Trigger (2-Step / 4-Step)		Unlock Panel by Code
	2-Step		Configuration and Set-up		Hot Start
	4-Step		Lock / Unlock Panel		Arc Force
	Memory		Lock Panel		Adjust Voltage
	Save a Memory		Lock Panel by Code		Welding Material Thickness
	Recall a Memory (user memory)		Recall Factory Setting		Welding current
	Clear a Memory		Select Menu (basic / advanced)		Wire Feeder Speed (WFS)
	GTAW (TIG) Welding		Advanced Menu		Voltage Reduction Device active (GTAW / SMAW only)

## Maintenance

### **WARNING**

For any repair operations, modifications or maintenances, it is recommended to contact the nearest Technical Service Center or Lincoln Electric. Repairs and modifications performed by unauthorized service or personnel will cause, that the manufacturer's warranty will become null and void.

Any noticeable damage should be reported immediately and repaired.

#### **Routine maintenance (everyday)**

- Check condition of insulation and connections of the work leads and insulation of power lead. If any insulation damage exists replace the lead immediately.
- Remove the spatters from the welding gun nozzle. Spatters could interfere with the shielding gas flow to the arc.
- Check the welding gun condition: replace it, if necessary.
- Check condition and operation of the cooling fan. Keep clean its airflow slots.

#### **Periodic maintenance (every 200 working hours but at list once every year)**

Perform the routine maintenance and, in addition:

- Keep the machine clean. Using a dry (and low pressure) airflow, remove the dust from the external case and from the cabinet inside.
- If it is required, clean and tighten all weld terminals.

The frequency of the maintenance operations may vary in accordance with the working environment where the machine is placed.

### **WARNING**

Do not touch electrically live parts.

### **WARNING**

Before the case of welding machine will be removed, the welding machine had to be turned off and the power lead had to be disconnected from mains socket.

### **WARNING**

Mains supply network must be disconnected from the machine before each maintenance and service. After each repair, perform proper tests to ensure safety.

# Electromagnetic Compatibility (EMC)

11/04

This machine has been designed in accordance with all relevant directives and standards. 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.



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.

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. Equipment for calibration and measurement.
- Personal medical devices like pacemakers and hearing aids.
- 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 it 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.

## **WARNING**

While a high electromagnetic field occurs, a welding current can fluctuate.

## **WARNING**

This equipment complies with IEC 61000-3-12.

## **WARNING**

The Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radio-frequency disturbances.



# Technical Specifications

NAME		INDEX		
SPEEDTEC® 200C		K14099-2		
INPUT				
Input Voltage U <sub>1</sub> 230V ± 10%, 1-phase		EMC Group / Class II / A		Frequency 50 / 60 Hz
Input Power at Rated Cycle 6,2kVA @ 25% Duty Cycle (40°C)		Input Amperes I <sub>1max</sub> 27A		cos φ 0,99
RATED OUTPUT				
	Open Circuit Voltage	Duty Cycle 40°C (based on a 10 min. period)	Output Current	Output Voltage
GMAW	57 Vdc	100	110A	19,5 Vdc
		25	200A	24 Vdc
FCAW-SS	57 Vdc	100	110A	19,5 Vdc
		25	200A	24 Vdc
SMAW	32 Vdc	100	100A	24 Vdc
		30	160A	26,4 Vdc
GTAW	32 Vdc	100	100A	14 Vdc
		40	160A	16,4 Vdc
WELDING CURRENT RANGE				
GMAW		FCAW-SS		MSAW
20A – 200A		20A – 200A		20 – 160A
				GTAW
				20A – 160A
RECOMMENDED INPUT CABLE AND FUSE SIZES				
Fuse or Circuit Breaker Size			Power Lead	
230V				
B 16A (B 25A)**			3 Conductor, 2,5mm <sup>2</sup>	
DIMENSION				
Weight		Height		Length
17,3 kg		396 mm		527 mm
				Width
				246 mm
WIRE DIAMETER / WIRE FEED SPEED RANGE				
WFS RANGE		Solid wires		Aluminum wires
1.5 ÷ 15 m/min		0.6 ÷ 1.0		Cored wires
				0.9 ÷ 1.1
Protection Rating		Operating Humidity (t=20°C)		Operating Temperature
IP23		≤ 95%		Storage Temperature
				from -10°C to +40°C
				from -25°C to 55°C

\*\* When welding with maximum current replace input plug with one >16A.

## WEEE

07/06

English



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will protect the environment and human health!

## Spare Parts

12/05

### Part list reading instructions

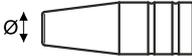
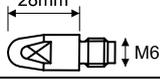
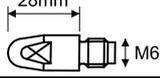
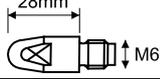
- Do not use this part list for a machine if its code number is not listed. Contact the Lincoln Electric Service Department for any code number not listed.
- Use the illustration of assembly page and the table below to determine where the part is located for your particular code machine.
- Use only the parts marked "●" in the column under the heading number called for in the assembly page (# indicate a change in this printing).

First, read the Part List reading instructions above then refer to the "Spare Part" manual supplied with the machine, which contains a picture-descriptive part number cross-reference).

## Electrical Schematic

Refer to the "Spare Parts" manual supplied with the machine.

## Accessories

	K10413-25-3M	The gas-cooled gun LG250 G to GMAW process - 3m
	KP10461-2	Gas nozzle conical Ø15mm
	KP10461-7	Gas nozzle extra conical Ø11mm
	KP10460-2	Gas nozzle cylindrical Ø20mm
	KP10462-2	Gas nozzle bottle Ø14mm
	KP10466-1	Gas nozzle bottle Ø11mm
	KP10463-2	Gas nozzle spot weld Ø18mm
	KP10441-08	Contact Tip M6x25mm ECu 0.8mm
	KP10441-10	Contact Tip M6x25mm ECu 1.0mm
	KP10441-10A	Contact Tip M6x25mm Al 1.0mm
	K10513-17-4V	GTAW torch - 4m
	E/H-200A-25-3M	Welding cable with electrode holder to SMAW process - 3m
	K14010-1	Work Lead -3m
	KIT-200A-25-3M	Lead's KIT to SMAW process: <ul style="list-style-type: none"> <li>• The electrode holder with lead to SMAW process - 3m</li> <li>• Work lead - 3m</li> </ul>
	R-0010-450-1R	Protective screen
	K14115-1	LINCBOX for Cart ST/VTX
	K14114-1	Cart ST/VTX
	LE250RG002	Gas Regulator

Drive rolls to 2 driven rolls	
KP14016-0.8 KP14016-0.9 KP14016-1.0	Solid wires: V0.6 / V0.8 V0.9 / V1.0 V0.8 / V1.0
KP14016-0.9A KP14016-1.2A	Aluminum wires: U0.9 / U1.2 U1.0 / U1.2
KP14016-1.1R	Cored wires: VK0.9 / VK1.1