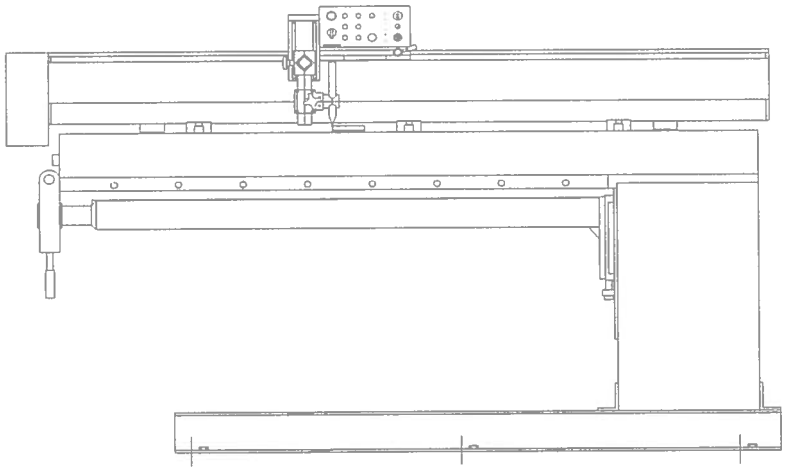
March 2000

Directions for use
Long seam machine type 5200



Version B

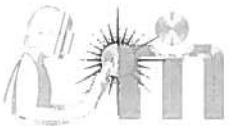
The manual is subject to alteration

Contents **Page**

IMPORTANT SAFETY INSTRUCTIONS

The safety instructions contained in the **PERSONAL SAFETY** section of this manual should be read and observed before installing and operating the machine. This manual and the accompanying instructions for use must be accessible at all times to staff engaged in the installation, operation and maintenance of the machine.

Full understanding of this manual requires a skilled welder´s knowledge of welding and of the risks involved.



EC Declaration of Conformity

Manufactuer:	
Company Name	: Migatronic Automation A/S
Address	: Knøsgaardvej 112
	DK 9440 Aabybro
Telephone	: (+45) 98 24 42 33

hereby declare that

Machine:	
Name	: Long seam machine
Type, year of construction: 5200, 2000	

was manufactured in conformity with the provisions in the COUNCIL DIRECTIVE of 14 June 1989 on mutual approximation of the laws of the Member States on the safety of machines (89/392/EEC as amended by directive 91/368/EEC and 93/44/EEC) with special reference to Annex 1 of the Directive on essential safety and health requirements in relation to the construction and manufacture of machines

and was manufactured in conformity with the following national standards and technical specifications:

EN294:1992; EN349:1993; EN418:1992; EN457:1992; EN292-1:1991; EN292-2:1991; EN60204-1:1992.

March Signature

Chapter 2: General information

The slide system type 5200 is designed for automatic longitudinal welding seams with either MIG/MAG, TIG or plasma welding.
On delivery, the automatic machine is equipped with torch support with adjustment in two directions, but can also be equipped with other torch arrangements such as pneumatic lift or height alignment by rollers on the work piece.

The control unit type 8816 includes functions as:

* Speed regulation
* Pre welding time
* Post welding time
* Manual movement - fast/slow
* Manual/automatic return
* Arc control ON/OFF
* Weld direction
* Post welding/slope down
* Welding ON/OFF

If a power supply is applied in connection to the long seam machine, the manual for the power supply should be read before start.

PERSONAL SAFETY

Light and heat emission

A welding arc emits radiation which is damaging to the human eye. Even short-term exposure to this radiation can cause lasting damage. Protect your eyes from powerful radiation by infra-red, visible and also ultra-violet light by installing suitable radiation protection glass in your welding helmet.
Your skin can also be damaged by welding radiation. Radiation can cause serious burns. Protect your skin by wearing a welding helmet, working clothing covering all exposed parts, and gloves.
During welding, warn other people in the vicinity of the danger of radiation and sparks. If possible, place a screen between the place of work and the surroundings.
The heat emitted from the arc and pool crater - as well as the sparks emitted during welding - represent a fire hazard. Consequently, welding should never be carried out near combustible materials.
Working clothing must not be made of substances which are easily combustible, and should have no folds or open pockets into which sparks can fall. Wear a fire resistant apron if necessary.

Welding fumes

The smoke and gasses emitted during welding are damaging to health. Consequently, the inhalation of welding smoke and gasses should be avoided by taking suitable preventive measures (e.g. local air extraction, ventilation, or supply of fresh air to welding helmet).

Electricity

Avoid contact with all live components.
The voltages used in welding are not sufficient to represent a danger in themselves. However, if damp clothing is worn, or if working in damp conditions, electric shocks can be caused, representing an indirect source of danger. Considerable electric shocks can be caused by HF high voltage ignition during TIG welding in particular, and may lead to minor burns beneath the skin.
Consequently, all contact with live components should be avoided as far as possible.
Always use dry, leather welding gloves and wear dry working clothing and shoes.
Keep cables, torches, and the welding machine itself dry at all times.
Make sure that the welding machine's earth connection is properly and safely earthed.
Do not open the machine to expose live components. Maintenance and service which require access to live components inside the machine must be carried out by an authorized electrician.

Range of application:

TIG-welding hoses (current-carrying parts) and welding torches on the electronic controls are not allowed.
The maximum values for dimensions of workpieces mentioned in the manual must not be exceeded.
The machine/equipment must only be operated by personnel, which are trained in using the machine, and have also been teached in the manual.

Removal of safety devices:

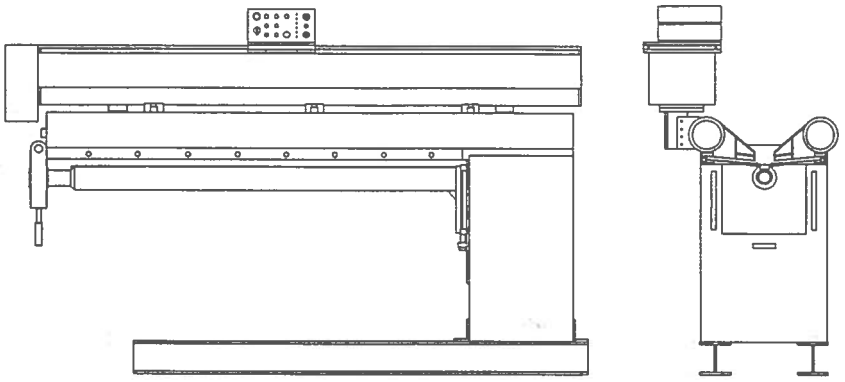
During operational circumstances it is not allowed to remove safety devices or to take them out of operation.

Accurate placing of workpiece:

Before start the operator must ensure that the workpiece is correctly placed and is properly secured.

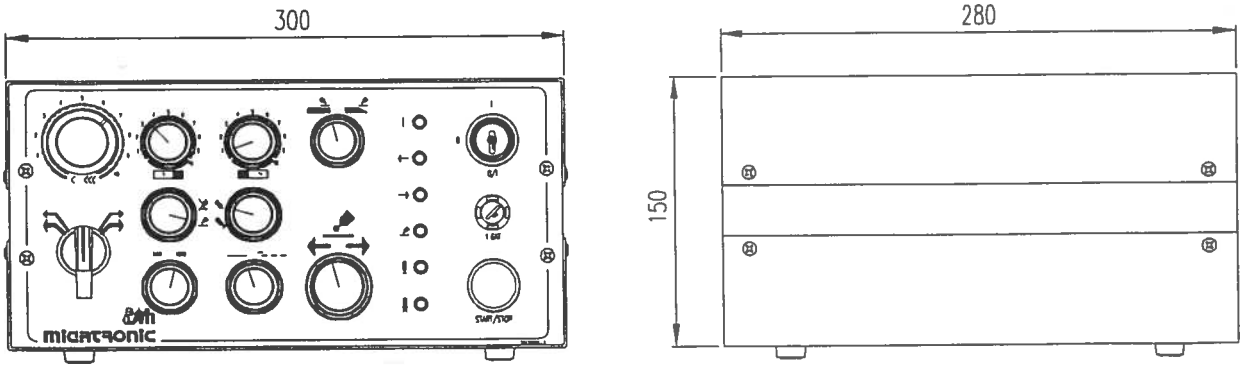
Chapter 4: Function of machine

Sketch - Long seam machine type 5200:

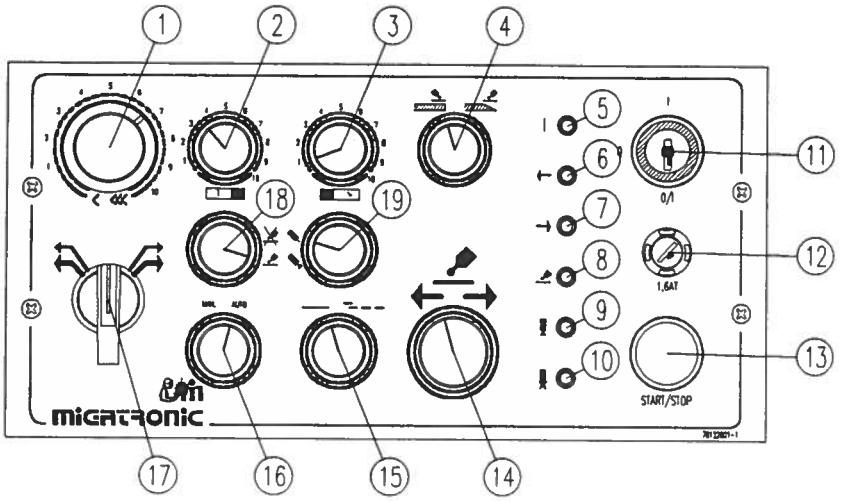


Type	5210	5215	5220	5225	5230
Dimensions:					
Welding and tightening length mm	1100	1600	2100	2600	3100
Min. Diameter mm	140	160	180	260	375
Max. Diameter under mandrel mm	900	900	900	900	900
Approx. Height mm	1500	1500	1500	1500	1500
Approx. Length mm	2040	2540	3040	3540	4040

Sketch - Control unit:



Functions with Control unit:



Pos.1 Travel speed - standard 80-2600mm/min.

Pos. 2 Pre-welding time 0-5 sec.
Delay-time from arc-on to start of travel.

Pos. 3 Postwelding time/slope down time 0-10 sec.

Pos. 4 Left position **"MIG":**
The travel stops when reaching the weld stop switch, and welding is continued at the spot during the time set.
Right position **"TIG":**
The signal to the welding machine is opened when reaching the weld stop switch, and travel is continued further during the time set. This will result in a sloped down welding seam, where the slope time is set on the welding machine. Slope time on the welding machine should always be set a little shorter than slope (travel) time to prevent the slide from returning before welding is finished.

Pos. 5 Control lamp: Power ON.

Pos. 6 Control lamp: Welding direction - left.

Pos. 7 Control lamp: Welding direction - right.

Pos. 8 Control lamp: Welding started.

Pos. 9 Control lamp: Arc established.

Pos. 10 Control lamp: Arc error. In the event that the arc for some reason is interrupted the automatic machine stops, and the control lamp will be on. Press the Start/Stop-button to reset error, and press once more to restart.

Pos. 11 Main power switch.

Pos. 12 Fuse 1.6 Amp Slow.

Pos. 13 Start/Stopbutton.

Pos. 14 Selection of welding direction.

Pos. 15 Continous/intermittent welding.
Intermittent welding is an optional function, which requires installation of an additional limit switch.
By using this option it is possible to make short weldings instead of a continuous welding seam. As the extra limit switch is not activated, the slide travels at max. speed towards first signal. When reaching the signal, welding is started with preweld time, and is stopped when the signal disappears, continuing at max. speed to the next welding.
(Post-welding/slope down is not possible).

Pos. 16 Manual or automatic return (Man. Auto).
Manual (Man.):
After finishing the welding procedure, the slide stops. The slide will always return to meeting the work end switch, thus ensuring that the starting point is always the same.
Auto (Auto):
After finishing the welding procedure, the slide returns to start position.

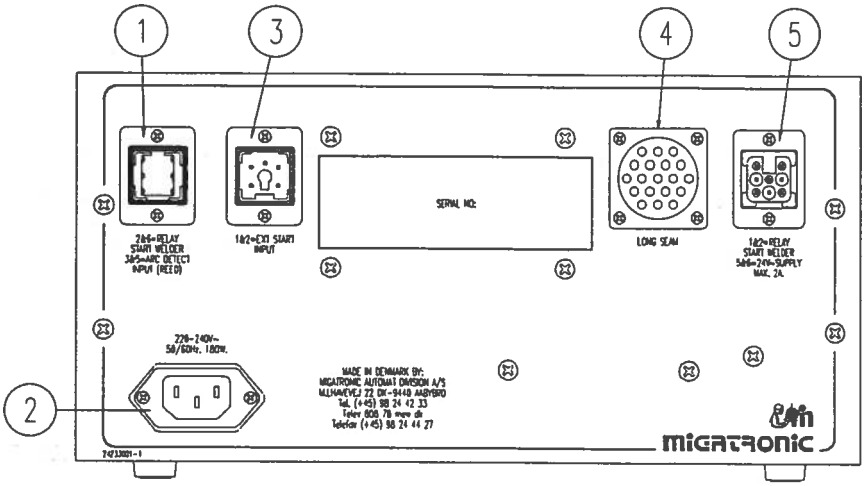
Pos. 17 Manual movement of slide in both directions.
Turning the button only partly gives slow speed and full turn maximum speed.

Pos. 18 Welding ON/OFF.
For testing purposes the sequenes can be tested without welding.

Pos. 19 Arc control ON/OFF.
The selection of arc control causes the pre-weld tuner to start only after the arc is established. When the arc is interrupted for more than 1 second, the error condition occurs (pos. 10). Press the Start/Stop button to reset the error.

NB :
Needs welding current ≥ 30Amps, and does only work on DC-welding

The rear side of control unit:



Pos. 1 Cable for arc monitor.

2 + 6 = Start welding
3 + 5 = Arc on signal (active low).

Pos. 2 Line voltage 230V ~ + ground.

Pos. 3 Remote control/foot switch for start/stop.

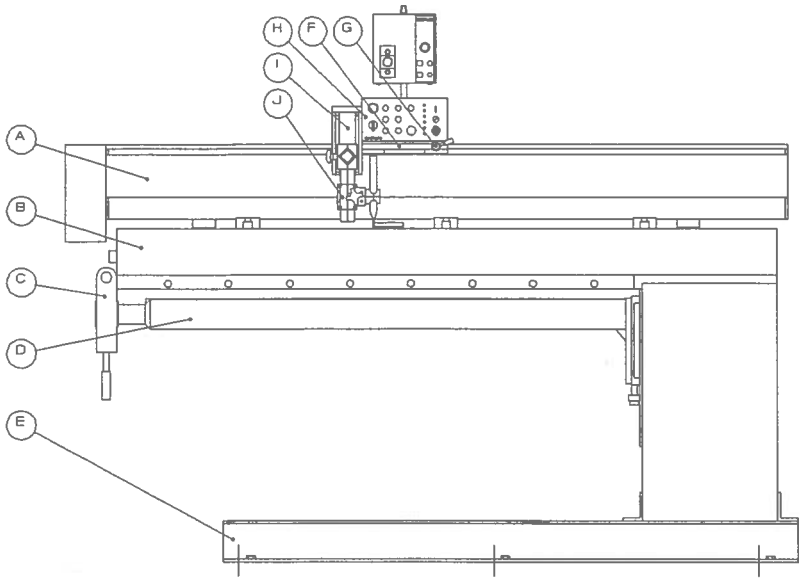
1 + 2 = Start

Pos. 4 To motor/limit switches.

Pos. 5 External connection.

5 + 6 = 24V ~
1 + 2 = Relay contact "Start welding".

The construction and function of the long seam machine:



The long seam machine is fitted with a substantial bed (E), on which the strong and stable upperway (B) and also the substantial height- and side-adjustable lower mandrel (D) is mounted. The lower mandrel is locked to the base with the arbor lock (C), which is mounted at the end of the overhanged part of the upper base.

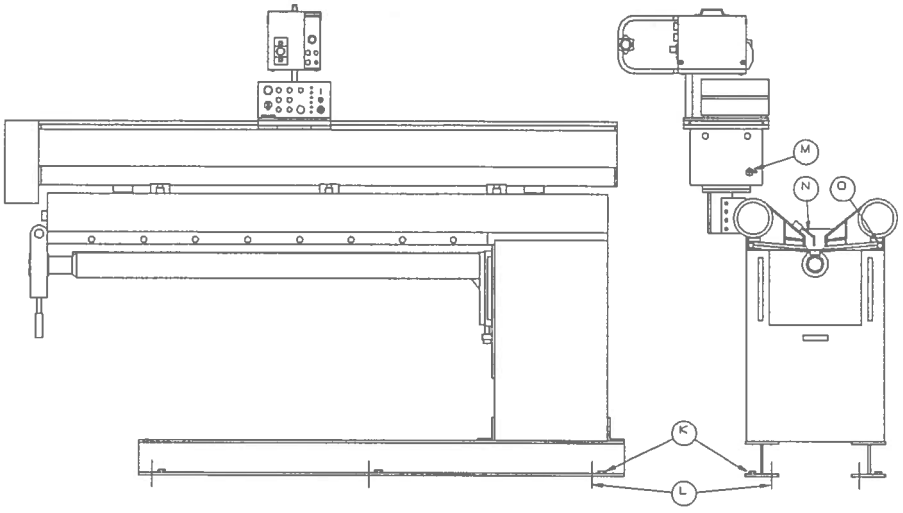
At the underneath of the upper base a series of broad spring clamps with replaceable copper tips are mounted. The spring clamps have been designed to ensure that the movement of the fingers when tightening the edge of the sheet is inwards towards the centre line of the automatic machine. The correct finger distance is continuously adjustable, depending on the thickness of the material in question. Each row of fingers can be activated pneumatically, using foot switches.

The machine is fitted with a slide (A), on which there is mounted a travelling carriage (F). The geared motor can through a clutch lever (G) be disclutched after which the travelling carriage manual and easily can be moved backwards and forwards on the slide. All control buttons are placed on the front of the controller (H). On the travelling carriage there are placed a torch slide (I) on which there is mounted a torch support with cross support (J).

On the top side of the robust lower mandrel a replaceable copper baseplate is mounted. When replacing the baseplate loosen a plate at the arbor lock, pull out the baseplate and pull in a new one. The copper baseplates are made in different versions depending on welding method and the thickness of the material in question.

Placing the machine:

The long seam machine is placed on the ground at the already imbeded foundation bolts and straightening plates.
The machine is aligned by means of the adjusting bolts (K).
When secure to the ground by bolts use the holes (B).



Taken into use:

Compressed air is connected to the oil-mist lubricator with the water separator and reduction valve at the end of the long seam machine. The welding torch is mounted in the torch support. The height of the mandrel is adjusted and the spring clamps are adjusted in correct mutually distance. Main power switch on the controller type 8816 is activated.
The work piece is put up in the long seam machine. The mandrel is fastened to the upper base by means of the arbor lock arrangement. The work piece is fixed by means of the marker system (N), which is activated by means of a flap valve (M) and is locked by activating the pneumatic pedals (one side at a time).
The welding torch is adjusted in correct position by means of the cross supports. When adjusting welding speed, preweld timer, postweld timer etc. see directions for controller type 8816. When welding with cold wire feeder the wire speed is adjustable on the cold wire feeder box KT4. The change-over switch on the controller type 8816 (pos. 16) is setted to manual or automatic return. The startbutton on the controller type 8816 (pos. 13) is activated and the welding is done with the setted data. When the welding is finished, the spring clamp tightening is released through the pneumatic foot pedals, the arbor lock arrangement is set free and the work piece can be removed.

Quickfingeradjustment of the fingerdistance:

On automats, which have quickfingeradjustment mounted as standard, the fingerdistance can be adjusted by means of turning the bolts (O).
The bolts are connected with a bar, which move the fingers on each side of the copper bar. Adjust until the fingerdistance is correct and the distance to the copperbar´s centre line is equal on the two rows of fingers.

Failure during start, operation or stop:

If monitoring of the arc (arc control) and welding is activated, the long seam machine does not start until the arc is established.
In this waiting position the operator should note that the movement can start when the arc is established.

Maintenance

Regular maintenance is important.

Regular maintenance guarantees:

* Long life of the long seam machine

* Safety

* Safety of working

Many of the tasks of maintenance are easy to take care of yourself, if you are a little mecanically gifted and have a few tools. These tasks are described below. Please note that some tasks of maintenance require special tools and special knowledge. These tasks ought to be handled by qualified Migatronic personnel.

1. Basic safety precautions

Warning

All power must be disconnected before working on any electrical connections or components.

- Make sure that the working area is clean.
- When work with the equipment is finished, or when the work area is left unattended, turn off the electricity supplies to the equipment.

DAILY CHECK BEFORE START

Examine machine:

A. Blow out with dry air.
B. Ordinary mechanical examination (screws, nuts, etc.).

Check control:

A. Check if all mains lamps and security lamps are on.
B. Check plug at the back of the control.
C. Run a cycle without welding.

Check mains cable, ground wire air hose and gas tubing:

A. Check outside damages.
B. Check leakages.

Welding control:

Weld subject - compare it with the subject from the same time the day before. If everything is OK, save the last welded subject to the start of next day.

WEEKLY CHECK

Clean all the most important surfaces with clean dry air and oil with machine oil.

Sign the form of maintenance.

MONTHLY CHECK

In addition to the weekly check also check all nuts and screws especially by the bearings and torch support.

Check gear motor for leakage in gear gasket and check wires.

Check if there is play in the bearings.

Clean current supply inside **(Remember to remove mains cable).**

Sign the form of maintenance.

FORM OF MAINTENANCE

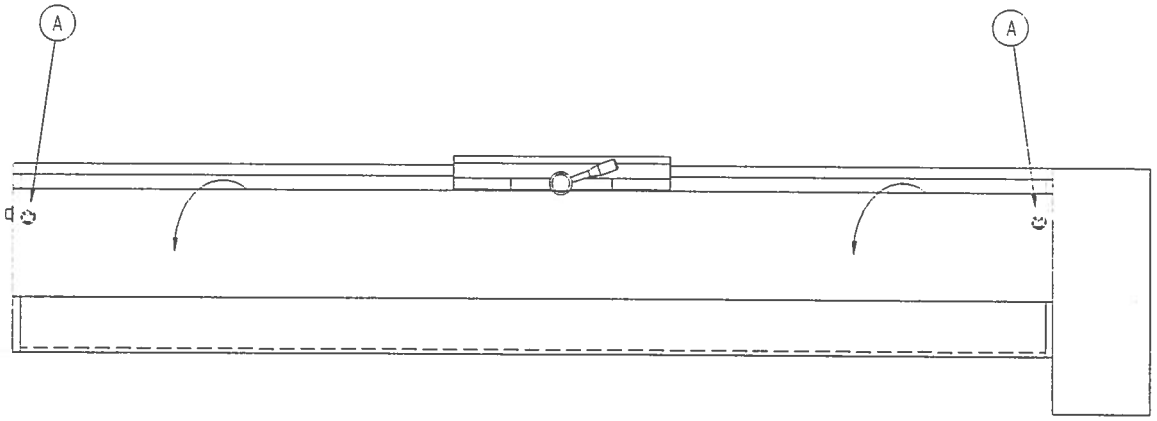
Date	Weekly check	Monthly check	Remarks	Init.

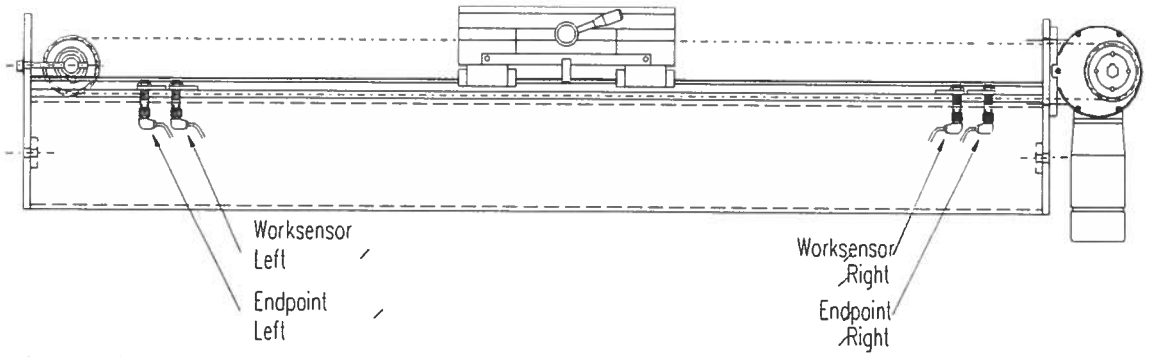
Keeping the directions for use:

The directions for use should be kept available to operators, maintenance personnel and service mechanics.

To move/adjust the sensors, turn the hand clips (A) a quarter. The shield can then be tipped down.

WARNING
All power must be disconnected before tipping down the shield.





The above sketch shows the long seam machine without shield. Remember to assemble the long seam machine after finishing adjustment of the sensors.

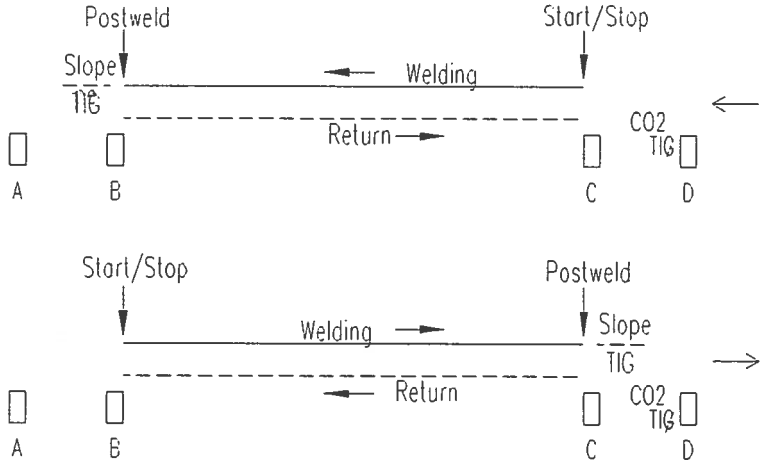
WARNING
Do not leave the long seam machine with open shields.

Specification concerning the adjustable sensors:

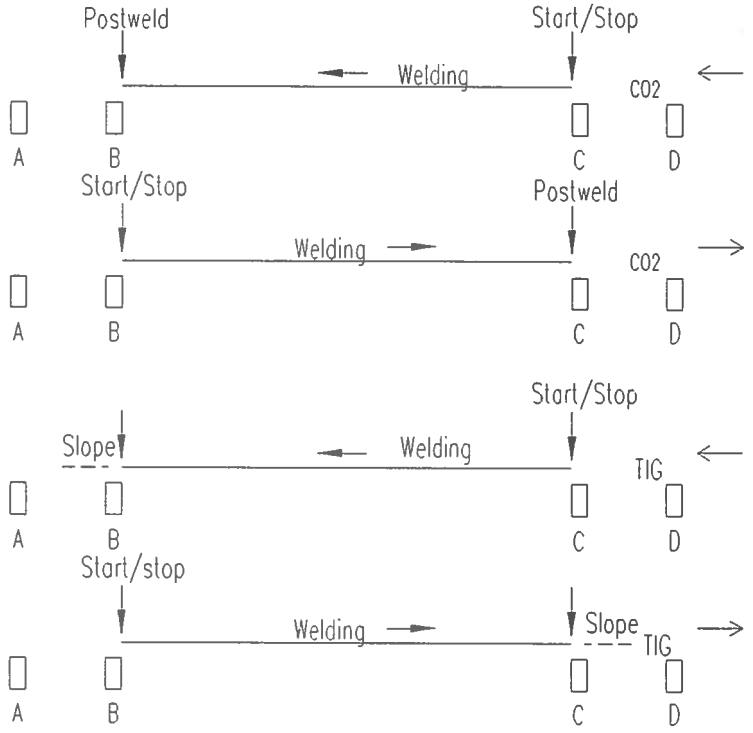
A = Sensor end point - Left
B = Sensor - Left
C = Sensor - Right
D = Sensor end point - Right

Sensors B and C can be moved as required. Sensors A and D should always be at the extreme left and right position. It should not be possible to bring the slide outside these switches.

Long seam machine travelling "AUTO" welding - return to start after finished welding:



Long seam machine with welding in both directions:



Disassembling:

The old long seam machine contains parts which may be recycled.
Therefore, do not deliver your old long seam machine over to the nearest waste disposal site, but contact the local authority or a scrap dealer for the possibility of recycling.

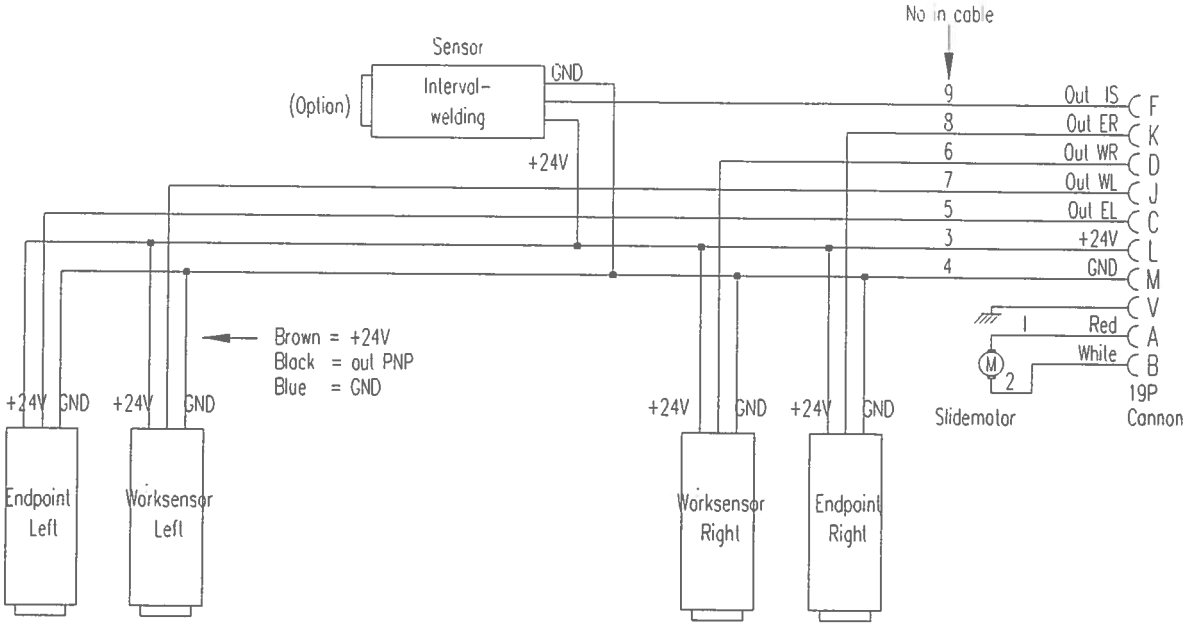
All external connections (electricity, air, etc.) must be disconnected before disassembling.

Chapter 5: Technical specifications

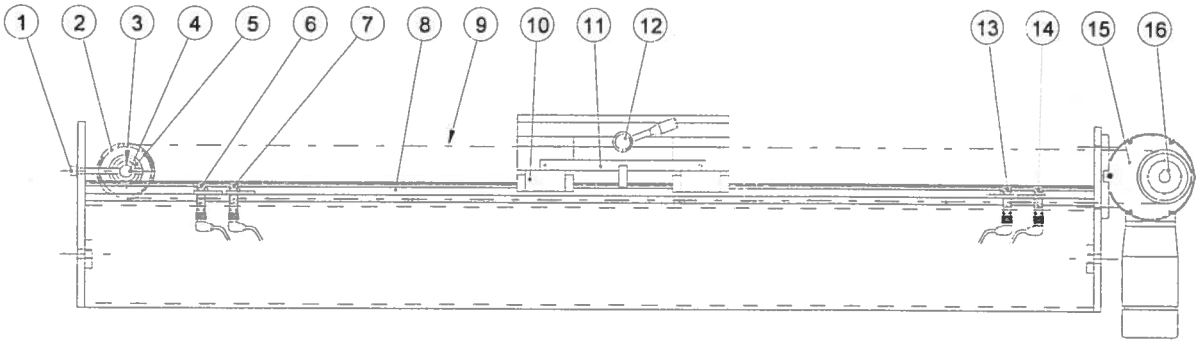
Technical data:

Mains voltage	: 230V / 10A
Speed range	: 0.2 - 2 m/min.
Pre welding time	: 0 - 5 sec.
Post welding time	: 0 - 10 sec.
Weight - control	: 12 kg
Noise level	: < 70 dB(A)

External connections on long seam machine:



Spare parts list:



Pos.No.	Description	Partnumber
1	Screw CHJ M8x80	40310880-1
2	Pulley	47419422-1
3	Seeger-A-Ring	42510020-1
4	Axle for pulley	25403005-1
5	Bearing	44166204-1
6	Sensor, End point, Left	17100809-1
7	Work sensor, Left	17100809-1
8	Rail	45032049-1
9	Pulley belt: Type 1100	47041250-1
	Type 1650	47041700-1
	Type 2000	47042000-1
	Type 2500	47042400-1
	Type 3000	47042800-1
	Type 3500	47043150-1
	Type 4000	47043550-1
	Type 4500	47043950-1
10	Slide	45032040-1
11	Tap for sensor	27111002-1
12	Handle	45080032-1
13	Work sensor, Right	17100809-1
14	Sensor, End point, Right	17100809-1
15	Motor, 10 RPM	17290010-1
16	Tapelock-bushing	46321522-1