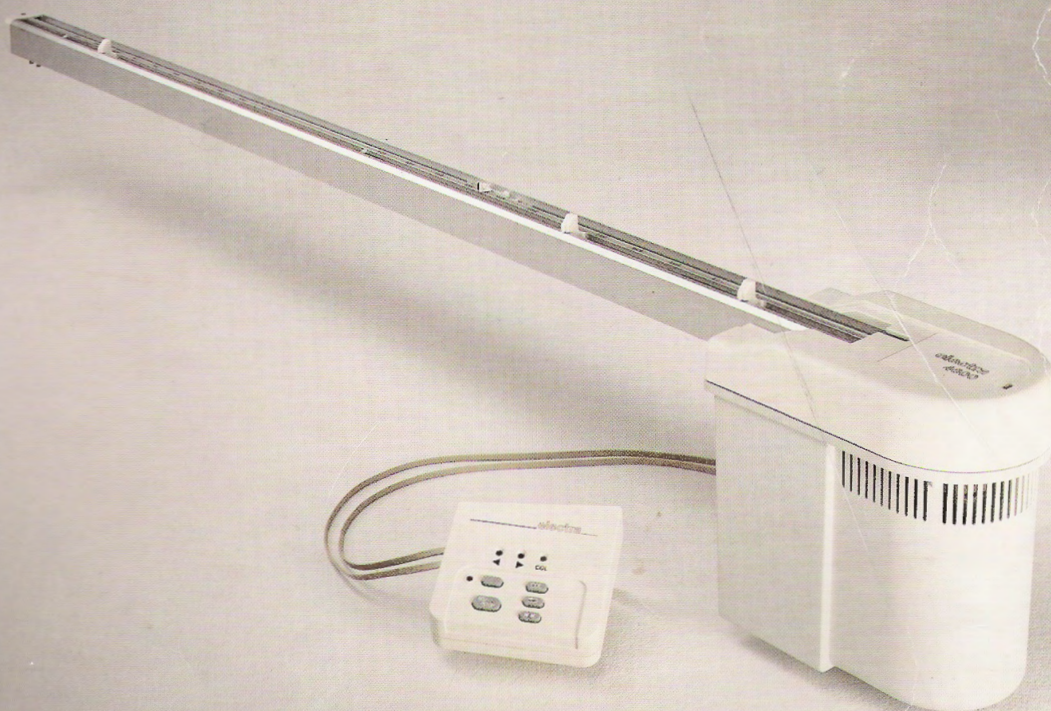


electra 4600



Instruction Manual ELECTRA 4600

This instruction manual assumes that the motor ELECTRA 4600 is completely installed and that the connecting cable between the electronic unit and the motor is also in place.

SAFETY RULES

- Connect the motor to A/C voltage according to the type plate on the motor.
- The motor is radio screened according to the EC guide lines 87/308/EEC.
- Never leave the motor unattended while it is plugged in.
- The electromotor is no child's toy. Make sure children cannot operate the motor.

Always switch off the main switch of the motor before you plug it in or out.

- Always unplug the motor when cleaning it.
- Never pull the plug out with wet hands or by pulling on the cable.
- Make sure that no water or other liquids ever enter the motor.
- Use only approved extension flexes.
- Use the motor only for its intended purpose and only with the knitting machine types intended for it.
- Should the cable or the motor itself be damaged, the repair must be carried out by an authorized service centre. Incompetent repairs can be very dangerous to the user.
- Should an extension cable be indispensable, use one with at least 1 Ampère with 230 Volt (2 Ampère with 120 Volt). With cables that are intended for less Ampère, there is a danger of overheating. Check that the cable is always positioned in such a way that it cannot be pulled or tripped over accidentally.

Before use

Read the instruction manual through from beginning to end. Save the instruction manual and the safety rules.

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SWITCHING ON

Always switch on the main switch of the motor and the switch of the ELECTRONIC 6000

You can only knit with the motor after you have switched on both switches, that is, the switch of the electronic unit of the ELECTRONIC 6000 and the main switch of the motor.

The main switch of the motor is located at the back of the motor above the electric cable.

Note: The switch on the electronic unit must also be switched on if you knit without having programmed anything (for details see page 8).

THE END STOPS

In the guide rail at the back of the knitting machine you will find three projecting plastic parts. These are the end stops.

The end stop on the extreme right belongs to the colour changer and should not be moved once the motor has been installed.

The other two end stops can be shifted easily. You use these to set the width across which you wish to knit with the motor.

On the rail there is a scale whose numbers refer to the needles on the front bed. They enable you to set the knitting width.

Example: If you wish to knit from needle 40 at left of centre to needle 40 at right of centre, move one end stop to the marking 40 at right and one end stop to the marking 40 at left.

Note: The travel distance must always be set over a width of at least 20 needles.

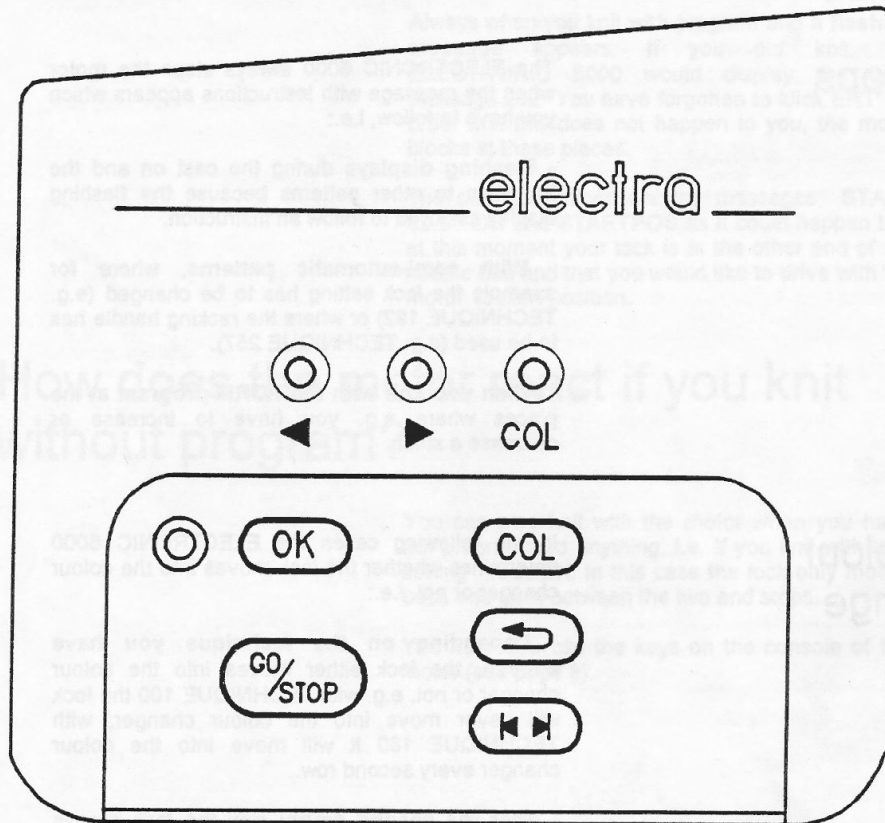
The end stops always determine the travelling distance of the motor

The knitting width you enter into the ELECTRONIC 6000 does not influence the travelling distance.

Always check that the travelling distance of the motor is at least as wide as the knitting width which you have entered into the ELECTRONIC 6000.

If the end stops have been set at a shorter distance than the knitting width of the ELECTRONIC 6000, the ELECTRONIC 6000 will display the error message 206.

The motor control



The motor control:



To start the motor, give this key a short tap. Do the same to stop the motor when in motion.

You always have to start the motor yourself.
On many occasions, however, the ELECTRONIC 6000 stops the motor automatically.

What exactly is controlled automatically by the ELECTRONIC 6000?

1. Stops

The ELECTRONIC 6000 always stops the motor when the message with instructions appears which you have to follow, i.e.:

- **Flashing displays** during the cast on and the transition to other patterns because the flashing display asks you to follow an instruction.
- **With semi-automatic patterns**, where for example the lock setting has to be changed (e.g. TECHNIQUE 192) or where the racking handle has to be used (e.g. TECHNIQUE 257).
- **When you knit with the FORM-program** at the places where e.g. you have to increase or decrease a stitch.

2. Colour change

In the following cases the ELECTRONIC 6000 determines whether the lock moves into the colour changer or not, i.e.:

- **Depending on the technique you have chosen**, the lock either moves into the colour changer or not, e.g. with TECHNIQUE 100 the lock will never move into the colour changer, with TECHNIQUE 180 it will move into the colour changer every second row.
- **After the second empty row** the lock always moves into the colour changer because it is assumed that the empty rows are carried out without a feeding eyelet in the lock.
(At the start of the first empty row you have to make sure yourself that the lock moves into the COLOR providing this is necessary. For details of this, see page 9 COL key).

Note: It is up to you to set the COLOR or AUTOCOLOR in such a way that the correct feeding eyelet is ready at the right time and is taken over by the lock.

The ELECTRONIC 6000 only controls whether the lock moves completely into the colour changer or moves back before then.

When can you not knit with the motor?

Always when you knit with program and a **flashing message** appears. If you did knit, the ELECTRONIC 6000 would display the error message 202 "You have forgotten to click ENT". In order that this does not happen to you, the motor blocks at these places.

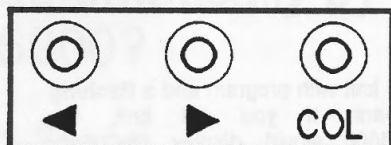
The only exceptions are the messages **START CAST ON** and **STARTPOS** as it could happen that at this moment your lock is at the other end of the needle bed and that you would like to drive with the motor to start position.

How does the motor react if you knit without program?

You can also knit with the motor when you have not programmed anything, i.e. if you knit with lock setting **N** or **CX**. In this case the lock only moves back and forth between the two end stops.

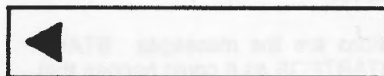
You may also use the keys on the console of the motor (see page 8).

The direction indicator



The three lights at the top of the motor console are marked with an arrow to the left, an arrow to the right and with COL. They make up the direction indicator.

This indicator tells you at any time in which direction the lock will be moving when you start the motor.



The arrow to the left is activated.
When you start the motor the lock moves to the left.



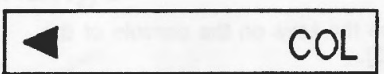
The arrow to the right is activated but not the indicator COL:

When you start, the motor drives the lock to the right end stop where it turns back without moving into the COLOR.

(If at this indication the lock is positioned at the right of the right end stop, it will move into the COLOR; this situation will, however, only arise if you have taken control manually).



The arrow to the right and COL are activated:
When you start, the lock first moves to the right into the COLOR in order to change the colour.



The arrow to the left and COL are activated:
When you start, the lock first moves to the left, turns back on reaching the left end stop and on reaching the right edge will move into the COLOR in order to change the colour.

Note: If you knit a technique with colour change, and if COL has been activated manually, it may disappear in this situation, causing the lock not to move into the COLOR. Therefore, observe the COL indicator carefully during the next two rows.

With the following keys you can step into the sequences that are controlled by the ELECTRONIC 6000. You can also use these keys when you knit without program:

The key "Stop at the end of the row"



You can always tap this key even if the lock is in motion. It will come to a stop at the end of the row at the end stop.

If you activate this key while the lock stands still, it will, on starting, knit one row and then stop again.

The key COL



With this key you either activate or cancel the COL indicator.

This means that when the indicator COL is activated, tapping the key COL will cancel it and the lock will not move into the colour changer next.

If the indicator COL is not activated, tapping this key will activate the indicator and make the lock move into the COLOR next time it reaches the right edge.

Note: This key may also be used when the lock moves from left to right. In this case it should only be used when the lock is already near the right edge.

The reason for this is that the command from the ELECTRONIC 6000 to make the lock move into the COLOR and the command which you give by tapping the key COL cancel each other out. Therefore:

Whenever you use the key COL, observe the direction indicator carefully.

The direction changer key



This key enables you to change the direction of the lock.

The key can only be used if the lock stands still.

Note: Only use this key when the lock is at left of the right end stop, i.e. when e.g. it is blocked in the middle of your knitting or if it stands at left of the left end stop and if, even despite this, the travelling direction points to the left.

Never use this key when the lock stands on the right of the right end stop, as the effect of this key may interfere with the working of the COL key. Therefore:

Always when you use the key "Change of direction", observe the direction indicator closely.

Besides the automatic controlling by way of the TECHNIQUES of the ELECTRONIC 6000, the Electra 4600 also offers the possibility to programme single or repetitive stops or colour changes yourself. This enables you e.g. to produce stripes in a single colour technique or to programme an automatic stop for the end of your piece of knitting.

This possibility exists only if you have programmed a piece of knitting and are in the knitting section, i.e. on answering the question START CAST ON with yes = ENT.

The program is made on the electronic unit ELECTRA 6000.

Self-programmed stops

If you want the motor to stop after a certain number of rows because you have reached the end of your piece of knitting or because you want it to stop several times at equal intervals, you can programme this as follows:

Press blank key and then minus key

Note: You may only press these keys when you are in the actual knitting process, that is, always then, when you can also press the COR key. This means:

- the lock stands on the right of the right end stop
 - the row counter is visible on the display
- If an instruction like for example COL or anything else appears on the display, you must first cancel this with the key ENT.
- Self-programmed stops or colour changes can, therefore, not already be entered during programming, but only when you are actually knitting.

The message appears:

CNDN 0

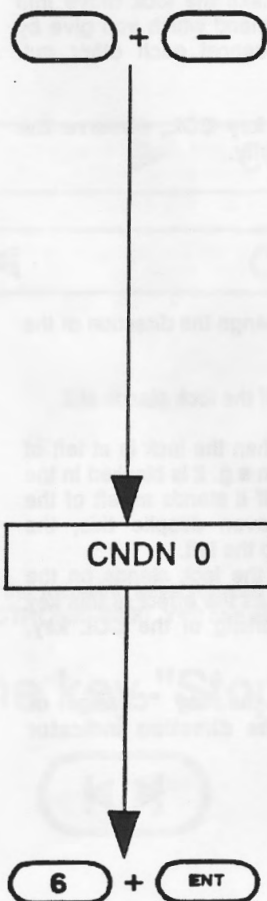
This message means: Row counter that counts backwards. At this place you enter the distance in rows that you wish to have between each stop.

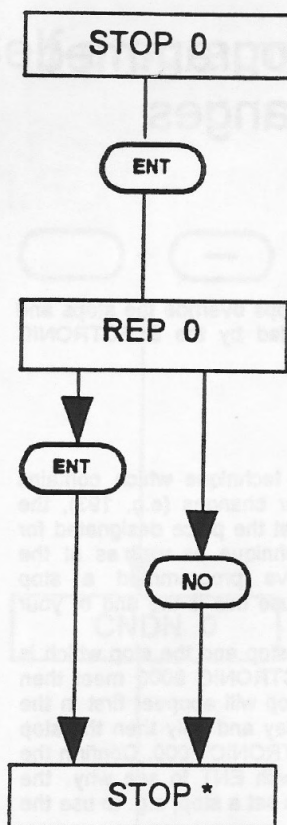
Note: You always enter distances here, i.e. the distance of the first row in which you currently are to the first stop and any additional stop, if you wish to repeat the stops.

E.g. type

6 + ENT

The following message appears:





STOP 0

This display puts the question to you whether you wish to programme a stop. If so, type:

ENT = YES

The following display appears:

REP 0

If you wish to repeat it, press key:

ENT = YES

If you do not wish to repeat it, press key:

NO

In both cases you have again reached the row counter display where you left it when you started the self-programming. If you start to knit now, the motor will stop automatically every 6th row, accompanied by the following display:

STOP *

The asterisk after the word STOP tells you that this is a stop that you have programmed yourself, and not a stop caused by the ELECTRONIC 6000, e.g. by a semi-automatic TECHNIQUE.

You can check any time what you have programmed by pressing the blank key once more and then the minus key. You will get the following display:

0 = you have said no
If you still want to say no type no again.

1 = you have said yes
If you still want to say yes, type again
ENT = yes.

What is the effect of self-programmed stops on stops or colour changes which are controlled by the ELECTRONIC 6000?

The self-programmed stops override the stops and colour changes controlled by the ELECTRONIC 6000. This means:

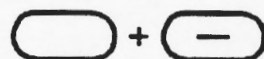
It will do both.

That is, if you knit a technique which contains stops as well as colour changes (e.g. 193), the motor will always stop at the place designated for the semi-automatic technique as well as at the place where you have programmed a stop yourself, say e.g. because this is the end of your knitting.

If the self-programmed stop and the stop which is controlled by the ELECTRONIC 6000 meet then the self-programmed stop will appear first in the form of a flashing display and only then the stop controlled by the ELECTRONIC 6000. Confirm the self-programmed stop with ENT to see why the ELECTRONIC 6000 has set a stop, e.g. to use the racking handle.

Self-programmed colour change

In the same way you can programme regular colour changes, if e.g. you wish to knit a plain TECHNIQUE with stripes (TECHNIQUE 100 or 130).



BLANK KEY AND MINUS KEY

Note: It is only possible to press these keys when you are in the knitting process, i.e. always when you can press the COR key.

This means:

- the lock stands at the right of the right end stop
 - the row counter is visible in the display
- If a display like e.g. COL appears, you must first cancel it with the key ENT.

The following display appears :

CNDN 0

It is the same display as for the self-programmed stops and refers to the row counter counting backwards.

This is where you enter the distance in rows which you wish to have between each colour change. Note: This is where you always enter distances, i.e. the first distance starting from the row in which you currently are to the first colour change and after that the distance between each further colour change, if you wish that the distances repeat themselves.

Type e.g.

4 + ENT

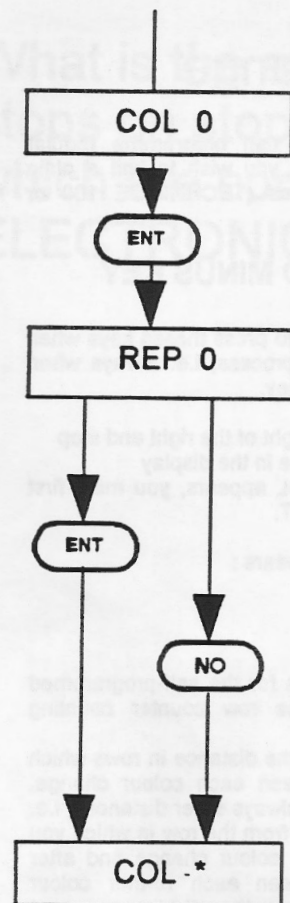
(If you enter an odd number here, it will be rounded off as it is not possible to change the colour when the lock is on the left).

The next display now appears:

STOP 0

As you now want to programme colour changes, and as it is not possible to programme both at the same time, i.e. stops and colour changes, you now have to type the following:

NO



The next display is:

COL 0

As you wish to programme a colour change, type the following:

ENT = YES

The next display is:

REP 0

This display asks you whether or not you wish to repeat the colour change.

If you wish to repeat it, press key:

ENT = YES

If you do not wish to repeat it, press key :

NO

You have come back to the row counter display where you started programming. From now on the motor will drive the lock into the colour changer with always 4 rows inbetween. The following display will appear:

COL*

The asterisk after the word COL tells you that this refers to the colour change that you have programmed yourself, and not a colour change caused by the ELECTRONIC 6000, e.g. by a TECHNIQUE for Fair Isle.

Remember: You can at any time check what you have programmed by pressing the blank key and then the minus key. The display will read:

0 = you have said no
If you still want to say no, type no again.

1 = you have said yes
If you still want to say yes, type ENT = yes.

What is the effect of self-programmed colour changes on stops or colour changes that are controlled by the ELECTRONIC 6000?

The self-programmed colour changes suppress the colour changes that are controlled by the ELECTRONIC 6000, i.e.

Only the self-programmed colour changes will be made.

The self-programmed colour changes do not influence the stops controlled by the ELECTRONIC 6000, i.e. the stops are made exactly as the ELECTRONIC 6000 controls them.

If a self-programmed colour change meets a stop controlled by the ELECTRONIC 6000, then, the self-programmed colour change with the flashing display COL* will appear first. Confirm it with ENT to see what the reason was for the stop, e.g. turn of the racking handle for a racking pattern (e.g. TECHNIQUE 257). When you have done this and restarted the motor, the lock will move into the colour changer.

When do self-programmed stops and colour changes remain active?

When changing from one pattern to the other the self-programmed stops and colour changes remain. They react to the new pattern in exactly the same way as to the previous one.

In the same way, they remain if you have to unravel rows in your knitting.

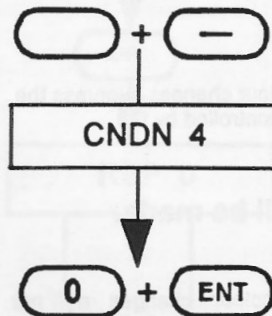
If you jump back to the program section in order to change something they also remain.

And they also remain when you switch off the motor and the ELECTRONIC 6000.

Self-programmed stops and colour changes remain until you cancel them.

Erasing self-programmed stops and colour changes

Proceed in the same way you do for programming:



Press blank and minus keys

The following display will appear:

CNDN 4

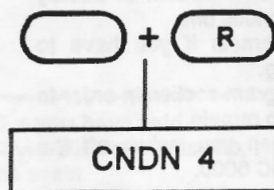
That is, the number appears which you have programmed. Overwrite this number with zero by typing the following:

0 + ENT

Following this, the row counter reading appears again where you left it. The self-programmed stops or colour changes are now erased.

You can also erase them if, when programming, you answer the question ERASE with ENT = YES.

The effect of the row counter that counts backwards on self-programmed stops and colour



You can also make the row counter that counts backwards appear in the display with self-programmed stops or colour changes. The display then tells you how many rows you still have to knit to the next colour change or stop. Press the following keys one after the other:

Press blank key and key "R"

The row counter that counts backwards will be displayed:

CNDN 4

To get back to the display of the normal row counter, press key "R".

Interrupting the connection between the ELECTRONIC 6000 and the motor

There might be occasions when you do not want that the ELECTRONIC 6000 controls the motor, e.g. when you wish to end a piece of knitting with a few rows of contrast yarn.

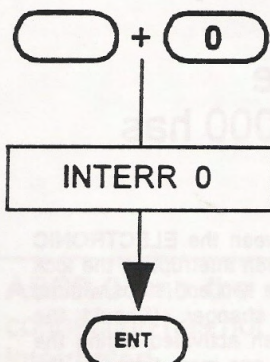
In such a case you may not necessarily wish to continue to knit in the same colour sequence you have previously used for a Fair Isle pattern.

On the other hand you have not programmed TECHNIQUE 100 in advance with this in mind to be able to knit this now.

There is a much easier method to knit a few rows without colour change:

Set the ELECTRONIC 6000 lock at N and it will knit in stocking stitch.

In order to stop the lock from moving into the colour changer in spite of this every second row, you can interrupt the connection between the ELECTRONIC 6000 and the motor.



First press the blank key and then the zero key

The display now reads:

INTERR 0

This display tells you that the connection still exists.

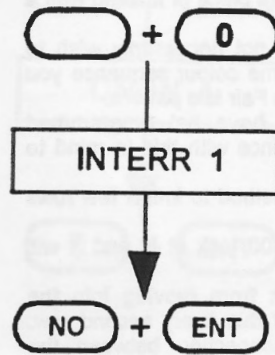
If you wish to interrupt the connection, type:

ENT = YES

This means: Yes, I wish to interrupt the connection.

How to restore the connection between the ELECTRONIC 6000 and the motor

If you wish to restore the connection, press the following keys one after the other:



First press the blank key and then the zero key

The following display will appear:

INTERR 1

This means: Yes, the connection has been interrupted. Overwrite this display with no by typing the following:

NO + ENT

This prevents the connection being broken off, i.e. it is restored.

How does the motor react when the connection to the ELECTRONIC 6000 has been interrupted?

When the connection between the ELECTRONIC 6000 and the motor has been interrupted, the lock will only move between the two end stops without moving into the colour changer. (Should the display COL still have been activated during the change-over, it will move one more time into the COLOR in case you do not erase the display COL).

The instructions coming from the TECHNIQUE will no longer be carried out

That is, the colour changes and stops are not carried out, but they may continue to be displayed.

The pattern however continues to run during the time the connection is interrupted, i.e. if you interrupt the connection at row counter reading 20 and restore it at 40, the pattern will continue from where it was at row counter reading 40 and not 20.

The self-programmed stops and colour changes will continue to be carried out.

When does the interruption of the connection between ELECTRONIC 6000 and motor remain?

The interruption of the connection remains:

- when you switch the motor and the ELECTRONIC 6000 off and on again.
- when you jump back to unravel rows (Note: if thereby you jump to a section of the knitting that you have knitted with a different pattern, the connection will be restored. See below).

The interruption of the connection ceases,

i.e. the connection will be restored:

- when you change from one pattern section to another, be it forward (with the ABC key) or backward when unravelling rows (with the COR key).
- when you go back into the program section and then answer the question START CAST ON with ENT = YES.
- when, while you are programming, answer the question "ERASE" with ENT = YES.

You can check at any time whether the connection has been interrupted or not by pressing the blank key and the zero key. The meaning of the display is:

ABBR 0 = no, the connection has not been interrupted.

Answer:

ENT = yes, the connection should be interrupted.

NO = no, the connection should not be interrupted.

ABBR 1 = yes, the connection is interrupted.

Answer:

ENT = yes, the connection should remain interrupted.

NO = no, the connection should not remain interrupted, i.e. it should be restored.

ERROR MESSAGES

When the motor stops without having been programmed accordingly, this could indicate an error. In such a situation, the three lights of the direction indicator serve as error displays. Furthermore, the light next to the key OK flashes.

The following situations may occur:



Light next to OK key flashing, none of the other three lights active

The yarn is torn or the yarn guide wire for some reason touches the yarn surveyor. Rectify the yarn tensioner and then tap key OK.



Light next to OK key flashing, all other lights active:

Message from the feeding eyelet surveyor to say that two feeding eyelets are in readiness at the same time.

Rectify the colour changer and tap key OK.



Light next to OK key flashing, 1st and 2nd lights from left active:

The motor is overheated. You cannot correct this error message by pressing the OK key, you simply have to wait for the motor to cool off. The error message will then disappear automatically.

The same error message appears if you switch off the motor before you have switched off the ELECTRONIC 6000.



Light next to OK key flashing, 2nd and 3rd lights from left active:

The lock is blocked in the middle of the knitting, and in order for the motor not to overheat, it cuts out automatically. When the difficulty has been eliminated, tap key OK and you can restart the motor.



Light next to OK key flashing, 3rd light from left active:

When this happens, it is likely that there is a defect in the motor and you should contact the nearest service station.



Light next to OK key flashing, 1st and 3rd lights from left active:

This happens if the lock stands on the right of the right edge and you activate the direction key to move into the COLOR. Tap key OK and continue to knit.

Error messages while switching on

You recognise these messages by the fact that the light next to the OK key flashes faster than during the above mentioned errors.

Should such an error occur, switch the motor off and then on again.

If the error message has not disappeared, it means that the motor is defect and you should contact your nearest service station.