QUICK REFERENCE
I/S-2KN REV 1.22

POWER UP

When the power is turned on with the main power switch on the back of the machine a needle positioning cycle is made. Before turning the power on check that there is nothing in the way of the needle.

NEEDLE POSITIONER

Hitting the button marked DOWN on the control panel will toggle between up and down needle positions. The yellow light above the button is turned on when the needle is at the down position. The needle will return to the position that was set before starting stitching when the stitching is stopped with the black start/stop switch. If the needle is at the down position when the start switch is pressed, it will be pulled up before the stitching starts. NOTE that you should wait with moving the arm until the pull-up is complete to avoid needle flexing and breakage.

LASER CONTROL

The button marked LASER on the control panel toggles the laser light on and off. The yellow light above the button is turned on when the laser is on.

SINGLE STITCH

A single stitch can be made by pushinig the red switch on the front or rear handle. If the switch is held down, the single stitch will be repeated until the switch is released. NOTE that when the needle positioner is set to the down position, the single stitch is inhibited and a beep will sound when the single stitch switch is pushed.

ACCIDENTAL START PREVENTION

The machine is protected from accidental starts triggered by a noise spike on the power line, or an accidental hit of the start switch. The start switch should be held down for about one sixteenth of a second to start either the constant speed or stitch regulator mode.

CONSTANT SPEED MODE

The constant speed mode is selected when the selector dial is set anywhere between the 0 and 100% speed range at the moment when the black start/stop switch is pushed. NOTE that turning the dial to the stitch regulator side after starting will not switch to the stitch regulator mode, it will keep the lowest speed setting instead.

STITCH REGULATOR MODE

The stitch regulator mode is selected when the selector dial is set anywhere between the B1 and 12 SPI markers at the moment when the black start/stop switch is pushed. NOTE that turning the dial to the constant speed side after starting will not switch to the constant speed mode, it will keep the 12 SPI setting instead.

NOTE that although the selector dial is continuous, there are only six discreet settings in the stitch regulator mode. The notch on the dial should be aligned with the SPI marker lines. If the notch is set, for example, between the 10 and 12 markers, the setting will NOT be 11 SPI, but 10 or 12, depending on which marker is closer to the notch. Similarly, if the notch is set between the stitch regulator and the constant speed scales, no selection will be made and a beep will sound indicating that the notch on the dial is not at a definite position.

In stitch regulator mode the motor will not start when the start/stop switch is pushed. The green RUN light will be turned on instead, indicating that the machine is "armed". The motor will start when the arm starts moving, and will continue to "fire" stitches according to the preset stitch length until the arm is stopped, or the start/stop switch is pushed again. If the start/stop switch is not pushed, but the arm movement stops, the needle will be pulled up and the machine will stay armed for about 8 seconds and the motor will start again when the arm is moved again. You can exit the stitch regulator mode by pushing the start/stop switch. Then the needle will return where it was set before the stitching started.

NEEDLE PULL-UP

In those rare cases in the stitch regulator mode when the needle stays in the fabric when the arm movement abruptly stops, the I/S controller automatically pulls up the needle after about 1/2 second. NOTE that you should wait with moving the arm until the pull-up is complete to avoid needle flexing and breakage.

LONG STITCH INDICATION

The stitch regulator keeps the stitches at the selected length within wide arm movement speed range. However, the stitches will get longer when the arm moving speed approaches the speed limit of the motor. Every time a given stitch gets longer than twice the selected length, the red FAIL light will be turned on and a beep will sound. NOTE that the long stitch indication is turned on not only when the arm movement is way too fast, but when there is a sudden speed or direction change, usually at corners of poins of the patterns. The technique of slowing down when approaching and gradually start out when leaving these critical points should be practiced.

The long stitch beep can be turned on/off by holding the DOWN key down while turning the power on. NOTE that this programming needs to be done only when you want to change the enabling of the long stitch alert beep.

MOTION DETECTOR FEATURE

A motion detector feature was added to the constant speed mode. When it is enabled, the motor will not start when the start/stop switch is pushed. The green RUN light will be turned on instead, indicating that the machine is "armed". The motor will start when the arm is moved more than 1/16" in any direction, and will run with the preset constant speed, until the arm stops (does not move more than 1/16") for about 1/10 of a second, when the motor stops and the needle is pulled out of the fabric automatically. NOTE that the needle will be pulled up even if the down position was set before the stitching started. The machine will stay armed for about 8 seconds and the motor will start again when the arm is moved again. You can stop the motor and exit the motion detector mode by pushing the start/stop switch again. Then the needle will return where it was set before the stitching started.

The motion detector feature can be turned on/off with a simple programming step. Holding the black start/stop switch down while the power turned on to the machine will change the motion detector enabling. NOTE that this programming needs to be done only when you want to change the enabling of the motion detector. The status of the motion detector enable is indicated by sound when the power is turned on: ONE beep indicates that the motion detector disabled, TWO beeps indicate that it is enabled.

BASTING MODE

If the selector dial is at the B1 or B2 setting when the black start/stop switch is pushed, the machine will make 1" or 1/2" long basting stitches. NOTE that in the basting mode the arm should be moved carefully, wathcing the flexing of the needle. NOTE that the proper take up lever position is critical in the basting mode, if it is not high enough to release the thread from the hook between stitches, the needle return position should be readjusted.

PRECISION QUILTING MODE

The Precision Quilting mode was added to the stitch regulator mode to smoothen the needle movements when slow speed quilting is necessary, like when stitiching in the ditch, outlining, etc. To start the PQ mode the start/stop switch must be "double clicked", i.e. hit twice. The second hit should come within 1/2 second after the green RUN light is turned on. A beep at the second hit indicates that the PQ mode is active. NOTE that when the needle is set to the DOWN position before starting, it will be pulled up before the green light is turned on. NOTE that in the PQ mode the arm should be moved slowly, otherwise longer stitches will occur.

NEEDLE JAM DETECTION AND RECOVERY

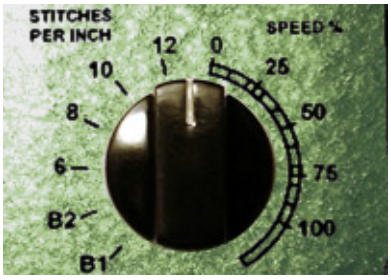
If there is any minor obstruction against the needle movement (tighter spot in batting, seam under the needle, etc) that would cause the needle to slow down or stop moving, a slightly more powerful pulse will be applied by the motor to move the needle out of the jam. If after four such attempts the needle still does not move, the power will be removed from the motor and the red FAIL light and alarm sound will be turned on. Usually this is the indication that a bigger problem exists (thread trapped in the bobbin case, needle flexing, etc.), so the power should be turned off and the cause of the jam should be found and eliminated before the machine is turned on again.

SETUP DATA SECURITY

The setup data (motor speed and needle positions) are stored in the memory of the controller. This memory retains the data even if the power is turned on. However, in very rare cases, environmental effects (lightning, power surge) may damage the data. Every time the machine is turned on a data validity test is performed and the machine will go into normal operation only when the setup data are not corrupted. If a data integrity error is detected four beeps will sound together with the red FAIL light blinking, and the machine goes into setup mode with default settings on all setup items. NOTE that in order to ensure that all the setup data were entered correctly, after the "four beep start" at least one adjustment (increase or decrease) should be performed on each of the setup items. Even if a default setting for an item (e.g. needle up position) seems to be correct, you have to make one incrementing and one decrementing step to tell the controller that you verified the setting while keeping it the same as the default. Failure to make at least one adjustment on every item will result another "four beep start".

ADJUSTMENT PROCEDURE
I/S-2KN REV 1.X

The REV 1.x revisions of the I/S-2KN software provide adjustment means to set the needle speed, the needle positioner's up and down positions, the needle return position of the regulated stitches and the constant speed range. The SELECTOR DIAL is used to select the adjustment modes:



REAR SELECTOR DIAL POSITION	ADJUSTMENT MODE
minimum (B1)	needle speed
12 o' clock	needle positions
maximum (100%)	precision needle position, constant speed range

The DOWN pushbutton is used to select between increasing (light off) and decreasing (light on) the settings

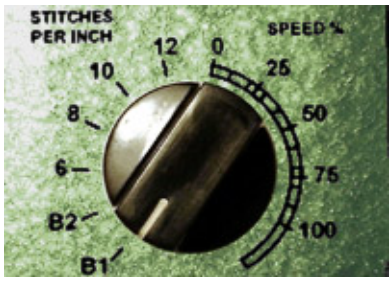
To enter the adjustment mode, hold the RED SINGLE STITCH BUTTON down while powering up the unit. The button should be held down until the machine stopped beeping.

A. NEEDLE SPEED ADJUSTMENT

In this mode the needle speed for the needle positioner can be adjusted.

Note that the needle positioner speed adjustment will affect ALL of the other settings, so it should be performed first.

NEEDLE POSITIONER SPEED



1. Turn the SELECTOR DIAL to its minimum (B1) position.
2. Push and hold down the RED BUTTON. A needle positioning step (up or down) will be made.
3. Check the speed and strength of the needle movement. The proper setting should provide just enough strength to stitch through the fabric going down and pull out going up without jamming. Avoid setting the needle speed too high, for it may cause the needle to run over its top and bottom position.
4. If the speed and strength are sufficient, release the RED BUTTON, the adjustment is completed.
5. If the speed and strength are not sufficient, while still holding the RED BUTTON down, turn on the yellow DOWN light if the speed needs to be decreased, turn it off if increasing is necessary.

6. While still holding the RED BUTTON down, hit the BLACK BUTTON. A beep will indicate that the speed was increased/decreased and the new value was stored in the computer's memory. A missing beep indicates that a high/low limit was reached.

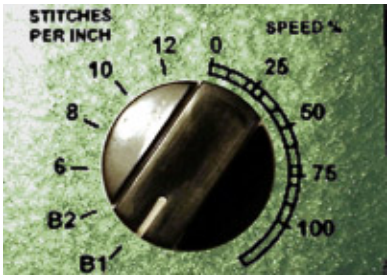
7. Release the RED BUTTON and repeat the procedure from Step 2 until the desired speed is reached.

REGULATED STITCHING SPEED
Does not apply to Needle Positioner

The REGULATED STITCHING SPEED directly affects the quality of the stitch regulation. If you can "outrun" the machine, in other words, the stitches get longer when you move the machine faster, the REGULATED STITCHING SPEED is not high enough. On the other hand, if the stitches are shorter than the selected length, because double stitching occurs, the REGULATED STITCHING SPEED is too high. Too high speed can also cause motor overheating.

While most of the adjustments are "What You See Is What You Get", the REGULATED STITCHING SPEED setting requires testing outside the adjustment mode: After changing the speed, return to the normal operating mode by turning the power off and on again. Test the quality of the stitch regulation by moving the arm with your slowest and fastest speed and decide whether further adjustments are necessary. If yes, return to the adjustment mode and make the changes.

The optimum setting of the REGULATED STITCHING SPEED will be just high enough to provide accurate stitch length, but not too high to cause motor overheating or double stitching. Always start with a low speed setting and gradually increase it until acceptable regulation is reached.



1. With the SELECTOR DIAL still at the minimum (B1) position push and hold down the BLACK BUTTON. A fast single stitch will be made.

2. Check the speed of the stitch. The speed should as high as possible without causing double stitching.

3. If the speed is acceptable, release the BLACK BUTTON, the adjustment is completed.

4. If the speed is not acceptable, while still holding the BLACK BUTTON down, turn on the yellow DOWN light if the speed needs to be decreased, turn it off if increasing is necessary.

5. While still holding the BLACK BUTTON down hit the RED BUTTON. A beep will indicate that the speed was increased/decreased and the new value was stored in the computer's memory. A missing beep indicates that a high/low limit was reached.

6. Release the BLACK BUTTON and repeat the procedure from Step 1 until the desired speed is reached.

B. NEEDLE POSITION ADJUSTMENTS

A major improvement in the I/S-2KN software makes it possible to eliminate the mechanical timing and set the regulated stitch return position by software, similarly to the needle up/down positions.

The needle position sensor's timing is set at the time of the installation, there is no need to re-time the sensor. It is recommended, however, to check the proper timing before the needle position adjustment takes place.

To check the sensor timing:

1. While watching the red FAIL light turn the rear handwheel **very slowly** counter-clockwise until the light comes on. If the light just flashes, turn the handwheel backward until the light is on again. With fine adjustments of the handwheel the red light can be constantly turned on.

2. If the third mark on the needlebar is just visible when the light is on, the timing is correct, you can proceed to the UP/DOWN POSITON ADJUSTMENT.

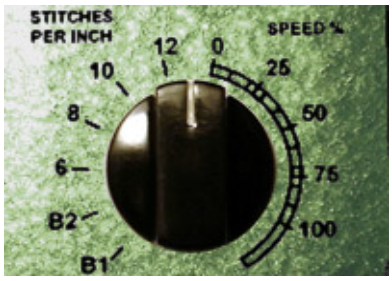
3. If the red light is turned on when the take-up lever is not at the desired position, please call the manufacturer or IntelliStitch installer for assistance.

UP/DOWN POSITION ADJUSTMENT

1. Turn the SELECTOR DIAL to the 12 o'clock position.

2. Push and hold down the RED BUTTON. A needle positioning step (up or down) will be made.

To differentiate between the "up" and "down" positions a beep will sound when the needle is supposed to be at the "up" position.



3. Check the up or down position of the needle.

When adjusting the "up" position, the take-up lever should be at this position to release the thread from the hook.

When adjusting the "down" position, the needle should stop at about 1/8” before its lowest position.

4. If the up(down) position is correct, release the RED BUTTON, and go to Step 1 to check the other position.

5. If the up(down) position is not acceptable, turn on the yellow DOWN light if the rear handwheel needs to be turned clockwise, turn off the light if the rear handwheel needs to be turned counter clockwise to reach the desired up (down) position.

6. While still holding the RED BUTTON down hit the BLACK BUTTON. A beep will indicate that the new position was stored in the computer's memory.

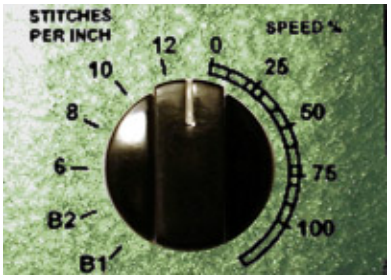
7. Release the RED BUTTON and repeat the procedure until the desired needle positions are reached.

In some cases excessive overrun and occasional double stitching may occur during the up/down position adjustment. This may be due to unnecessary high needle positioner speed. Repeat the NEEDLE POSITIONING SPEED adjustment, reducing the speed by one or two steps.

If in normal operating mode the single stitch "doubles", i.e. makes two cycles, it may be caused by too advanced needle down position, which can be corrected by adjusting the down position backwards (turning ON the DOWN light during the position adjustment).

To avoid double stitches in basting mode, make sure that the needle return positions stay AT or BELOW the "needle up" position. If the take-up lever stops ABOVE the "needle up" position in basting, the auto pull-up feature will make one more cycle to bring it back to the desired height.

NEEDLE RETURN POSITION ADJUSTMENT
Does not apply to Needle Positioner



1. With the SELECTOR DIAL still at the 12 o'clock position push and hold down the BLACK BUTTON. A fast single stitch will be made.

2. Check the needle return position. The needle should return to about 1/4" below the "needle-up" position.

3. If the needle return position is correct, release the BLACK BUTTON, the adjustment is completed.

4. If the position is not acceptable, while still holding the BLACK BUTTON down, test whether forward or backward adjustment is necessary:

   - Turn the handwheel slowly forward (counter-clockwise, if viewed from the rear)

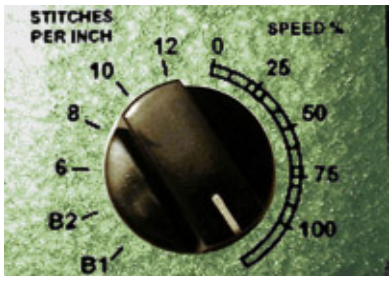
   - If the take-up lever is going TOWARD the right position, FORWARD ADJUSTMENT is necessary, so turn the DOWN light OFF.

   - If the take-up lever is going AWAY from the right position, BACKWARD ADJUSTMENT is necessary, so turn the DOWN light ON.

5. While still holding the BLACK BUTTON down hit the RED BUTTON. A beep will indicate that the new position was stored in the computer's memory.

3. Release the BLACK BUTTON and repeat the procedure until the desired needle return position is reached.

PRECISION NEEDLE RETURN POSITION ADJUSTMENT
Does not apply to Needle Positioner



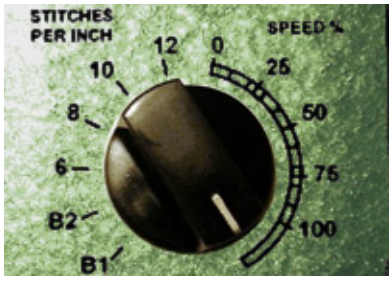
1. Turn the SELECTOR DIAL to its maximum (100%) position.
2. Push and hold down the BLACK BUTTON. A reduced speed (precision) single stitch will be made.
3. Check the needle return position. The needle should return to about 1/4" below the "needle-up" position.
4. If the needle return position is correct, release the BLACK BUTTON, the adjustment is completed.
5. If the position is not acceptable, while still holding the BLACK BUTTON down, test whether forward or backward adjustment is necessary:

   - Turn the handwheel slowly forward (counter-clockwise, if viewed from the rear)

   - If the take-up lever is going TOWARD the right position, FORWARD ADJUSTMENT is necessary, so turn the DOWN light OFF.

   - If the take-up lever is going AWAY from the right position, BACKWARD ADJUSTMENT is necessary, so turn the DOWN light ON.
6. While still holding the BLACK BUTTON down hit the RED BUTTON. A beep will indicate that the new position was stored in the computer's memory.
7. Release the BLACK BUTTON and repeat the procedure until the desired needle return position is reached.

C. CONSTANT SPEED RANGE ADJUSTMENT



1. With the SELECTOR DIAL still at its maximum (100%) position push and hold down the RED BUTTON. The motor will start running continuously with the fastest constant speed.

   Note that the RED BUTTON should be held down continuously during the whole procedure.
2. Check the full speed range by turning the SELECTOR dial while holding the RED BUTTON down. Note that the RED BUTTON should be held down continuously during the whole procedure.
3. If the maximum speed needs adjustment, while still holding the RED BUTTON down, turn on the yellow DOWN light if the speed needs to be decreased, turn it off if increasing is necessary.
4. While still holding the RED BUTTON down hit the BLACK BUTTON. A beep will indicate that the speed was increased/decreased. Repeat the procedure from Step 2 until the desired maximum speed is reached.

5. While still holding the RED BUTTON down turn the SELECTOR DIAL to its minimum (B1) position. This is the slowest speed.
6. If the slowest speed needs adjustment, while still holding the RED BUTTON down, turn on the yellow DOWN light if the speed needs to be decreased, turn it off if increasing is necessary.

7. While still holding the RED BUTTON down hit the BLACK BUTTON. A beep will indicate that the speed was increased/decreased. Repeat the procedure from Step 7 until the desired slowest speed is reached.

8. When both the slowest and maximum speed are acceptable release the RED BUTTON to save the adjusted speed range in the computer's memory.

After the adjustments are made the power should be turned off and on again to start the unit in normal operating mode.