1. PREPARATION
1. SETTING THE SWITCHES
   Set switches inside the motor control box as instructed below in accordance with the console used.

   Fig.1                             Fig.2
   Set screw                          Pilot lamp
   Switch

   (1) When console XS-1000 is used
      a) Set switch shown in Fig.1 above to "ON". (Lower side)
      b) If there is no switch on the control box as shown in Fig.1 above, follow instructions below.
      c) Remove the four screws in the control box and open the cover after making sure the power is turned off. (Fig.1)
      d) Set switch DS1-1 to "ON" position as shown in Fig.2.
      e) Close cover and secure in place with four screws.

   (2) When consoles XS-2000 & XS-3000 are used
      a) Set switch shown in Fig.1 to "OFF". (Upper side)
      b) If there is no switch on the control box as shown in Fig.1, follow instructions below.
      c) Switch DS1-1 in the control box shown in Fig.2 is set in "OFF" position when shipped from the factory however, check and make sure it is in "OFF" position when using consoles XS-2000 or XS-3000.

CAUTION: Do not touch any parts inside the control box if the pilot lamp (Fig.2) is "ON" when the cover is opened. The pilot lamp will turn off a little while after the power switch is turned off therefore setting of the switches should be done after the pilot lamp turns off.

2. CONNECTING THE CABLE (XS-2000, 3000)
   Fig.3
   15 Pin terminal
   Console panel cable
   Pass the cable from the console through the hole provided for it in the machine table and connect it to the 15 pin terminal on the control box. (Fig.3)

   NOTE: Be sure the cable is free from interference with the motor belt.
2. SEWING PATTERNS AND FUNCTION OF SWITCH

XS-1000

XS-2000

XS-3000
1 PILOT LAMP
   *Lamp will light up when power switch is turned on.

2 SWITCH FOR STITCH COUNT MODE
   *Switch used for stitch count sewing.
   *LED at upper left corner will light up when switch is pressed.

3 SWITCH FOR STITCH COUNT MODE PLUS MANUAL SEWING
   *Switch used for stitch count and manual sewing.
   *LED at upper left corner will light up when switch is pressed.

4 SWITCH FOR LINE TACKING
   *Switch used for line tacking.
   *LED at upper left corner will light up when switch is pressed.

5 SWITCH FOR START BACK TACK
   *Switch used for back tacking at start of sewing.
   *LED at upper left corner will light up when switch is pressed.

6 SWITCH FOR END BACK TACK
   *Switch used for back tacking at end of sewing.
   *LED at upper left corner will light up when switch is pressed.

7 SWITCH FOR SETTING STITCH COUNT
   *Switch for setting number of stitches from A TO E.
   *A - D ===== 0 - 9 stitches
   *E ===== 1 - 99 stitches
   ** mark = Used for increasing number of stitches.
   * mark == Used for decreasing number of stitches.

8 STITCH COUNT DISPLAY LED
   *LED displays the stitch count from A to E set with above count switch 7.

9 SWITCH FOR AUTOMATIC STITCHING
   *Switch used to sew set number of stitches automatically
   without depressing the pedal until completion of a cycle.
   *LED at upper left corner will light up when switch is pressed.

10 NEEDLE UP OR DOWN SWITCH
    *When needle is in its lower stop position, it can be raised to
      upper stop position, and when in upper stop position it can be
      lowered to lower stop position by pressing this switch.

11 THREAD TRIMMER SWITCH
    *This switch is used for setting the trimmer to trim, or not
      trim, the thread at completion of sewing.
    *Set switch to "ON" for TRIMMING.
    *Set switch to "OFF" for NO TRIMMING.
    *LED at upper left corner will light up when switch is pressed.
3. INSTRUCTIONS FOR USING THE CONSOLE

1. TO SET THE CONSOLE FOR BACK TACKING (XS-2000, 3000)

(1) Start back tack
Select desired back tack pattern with one of the three switches 1 to 3 shown in Fig.4.
LED of the selected back tack switch will light up.

(2) End back tack
Select desired back tack pattern with one of the three switches 4 to 6 shown in Fig.4.
LED of the selected back tack switch will light up.

(3) To set number of stitches for back tack
Set number of stitches for each segment (A, B, C and D) of the back tack with switches 7 to 10 shown in Fig.4.
The LED will display the set number of stitches on screen 1.
* + mark——Switch for increasing number of stitches.
* - mark——Switch for decreasing number of stitches.

2. TO SET THE SEWING PATTERN (XS-3000)

(1) To set the sewing pattern
Select one of the following patterns.
* MANUAL SEWING
Manual sewing can be done only when LED on all switches, 1 to 3 shown in Fig.5, is off.
The LED can be turned off by repressing the switch.
* STITCH COUNTER MODE
Press switch 1 shown in Fig.5.
LED will light up when switch is selected.

* STITCH COUNTER MODE & MANUAL SEWING
Press switch 2 shown in Fig.5.
LED will light up when switch is selected.

* LINE TACKING
Press switch 3 shown in Fig.5.
LED will light up when switch is selected.
(2) To set number of stitches
When sewing pattern other than manual sewing has been selected, set number of stitches as instructed below.

*STITCH COUNT SEWING

Fig.6

Set number of stitches desired for segment E with switches 5, 6 shown in Fig.6.

- The number of stitches set will be displayed on screen 7.

*LINE TACKING

Set number of stitches desired for segments A to D with switches 1-4 shown in Fig.6.

- The number of stitches and number of seams will be displayed on screen 7.
  For example, if "E" is set for 04 the machine will sew four seams in the order A to D.

NOTE: When stitch count sewing pattern is selected and if there is an error in the setting of stitch count, the LED will start flashing and the machine will not sew even when the pedal is depressed.

Fig.7  XS-2000  XS-3000

3. NEEDLE UP AND DOWN SWITCH (XS-2000, 3000)

The needle in lower stop position can be raised to upper stop position and when in upper stop position it can be lowered to lower stop position by pressing the needle up and down switch 1 shown in Fig.7.

When needle up and down switch is pressed continuously, the machine will run at slow speed.

4. THREAD TRIMMER SWITCH (XS-2000, 3000)

Set thread trimmer switch 2 shown in Fig.7 to "ON" to actuate the thread trimmer at completion of sewing.

- LED will light up when switch is pressed.

5. SWITCH FOR AUTOMATIC STITCHING (XS-3000)

When switch 3 shown in Fig.7 is pressed for stitch count mode and line tacking, the machine will sew automatically up to thread trimming at completion of sewing even when the treadle is released immediately after depressing it to start sewing.
If you wish to stop the machine after starting to sew, just heel back the pedal.

NOTE: It is possible to change the pattern and number of stitches in the middle of a pattern however, when pattern (with the exception of back tack pattern) is changed, the pedal must be heeled back to complete the pattern before the new pattern can be sewn.

6. IMPORTANT SAFEGUARD (XS-2000, 3000)

σ Do not press switches with a sharp object such as ball pen and sewing picket, etc.

σ When a machine is new or has been idle for a long period, the LED will start flashing when pedal is depressed and machine will not run. This is for confirmation of pedal curve data explained later in this manual and does not indicate breakdown of machine. When LED start flashing, return pedal to neutral and depress once again. The machine will return to normal condition.

σ Do not plug in or unplug power line cord with power switch turned on.
4. SELECTION OF DIP SWITCH

The following special function can be made possible by altering the setting of the dip switch on rear of console. (Fig.8)

- Normally all switches are set "OFF". (Upper side)

![Fig.8](image)

1. DIP SWITCH "1" : TEST MODE
- When dip switch "1" is turned ON, the display will change as shown below making it possible to test and adjust the console. (Refer to ADJUSTMENT OF CONSOLE)

```
2000 (XS-2000) 003000 (XS-3000)
```

2. DIP SWITCH "2" : SELECTION OF RAISING / LOWERING AUTOMATIC FOOT LIFT
- When dip switch is OFF, the presser foot is lowered when pedal returns to its neutral position at completion of all sewing operations with the exception of automatic sewing.
- When dip switch is ON, the presser foot will stay up in the raised position for the length of time it has been set, even when the pedal is returned to its neutral position after completion of all sewing operations. (Refer to item 5-4)

3. DIP SWITCH "3" : SETTING STITCH COUNT
- When dip switch is OFF, number of back tack stitches can be set within 0-9 stitches.
- When dip switch is ON, number of back tack stitches can be set within 0-15 stitches. (Display of number of stitches over 10 stitches will be abridged therefore, refer to following display when setting the stitch count)

```
10 Stitches \( \Rightarrow \) A 13 Stitches \( \Rightarrow \) d
11 Stitches \( \Rightarrow \) b 14 Stitches \( \Rightarrow \) E
12 Stitches \( \Rightarrow \) c 15 Stitches \( \Rightarrow \) F
```

4. DIP SWITCH "4" : SELECTION OF SPEED CONTROL (When optional ES-200 is used)
- Dip switch "4" can be used only when ES-200 (optional) is connected, therefore it should be turned OFF when ES-200 is not connected.
5. ADJUSTMENT OF CONSOLE
1. TO ADJUST PEDAL VOLTAGE

When pedal cannot be operated in normal condition due to voltage variation, adjust pedal voltage as instructed below.

(1) Turn dip switch "1" ON. (Test mode)

(2) The following will be displayed on the screen when switch is pressed. 

\[
\begin{align*}
4049 & \quad \text{(XS-2000)} \\
404900 & \quad \text{(XS-3000)}
\end{align*}
\]

(3) If figures under A and B do not conform to above, turn VR-1 shown in Fig.9 so that the figures will be "40".

![Fig.9](image)

(4) After making the above adjustment, check and make sure;

* The motor will rotate when pedal is depressed.
* The presser foot will rise when pedal is heeled back one step.
* The trimmer will function when pedal is heeled back two steps.

If in case the following phenomenon is noted due to voltage variation, adjust pedal voltage as instructed below.

* If presser foot rises when pedal is at its neutral position:
  Adjust pedal voltage to slightly above 40.
* If motor rotates when pedal is at its neutral position:
  Adjust pedal voltage to slightly below 40.
* If trimmer does not function when pedal is heeled back two steps:
  Adjust pedal voltage to slightly below 40.

(5) Press switch \[ \Rightarrow \] and restore to initial test mode.

(6) Turn dip switch "1" OFF.
2. TO ADJUST BACK TACK SPEED
Back tack speed can be varied from 1300-3000RPM in increments of 100RPM. (Adjusted to 1500 RPM when machine leaves the factory)

TO ADJUST
(1) Turn dip switch "1" ON.

(2) The following will be displayed on the screen when switch  is pressed.

\[
\begin{array}{c}
30 \ 15 \\
\text{(XS-2000)}
\end{array}
\quad \quad \quad
\begin{array}{c}
30 \ 1500 \\
\text{(XS-3000)}
\end{array}
\]

(3) The figures under C and D will change when VR2 shown in Fig.9 is turned.

- The figures under C and D in the display represent higher two digits of the back tack speed. (For instance, if the speed is 1500RPM, the figures displayed will be 15.)

(4) Press switch  and restore to initial test mode.

(5) Turn dip switch "1" OFF.

NOTE: When speed is increased, drifting of the stitches may occur. In such case, adjust with VR3 as instructed under "Adjustment of Back Tack Stitch" or with number of stitches.

3. ADJUSTMENT OF BACK TACK STITCH
Correct drifting of stitches which occurs during back tacking and line tacking (XS-3000) as instructed below.

ADJUSTMENT 1
(1) Press switches  and .

(2) Adjust VR3, fig.9, while actually sewing.

- When stitch formation is as shown in fig.10-A, correct by turning VR3 counterclockwise.
- When stitch formation is as shown in fig.10-C, correct by turning VR3 clockwise.
* If adjustment can not be made with VR3, check the machine for cause of drifting.
ADJUSTMENT 2

If correct stitch pattern as shown in Fig.10-B can not be obtained even after adjusting the machine and VR3, readjust as instructed below.

(1) Turn dip switch "1" ON. (Test mode)

(2) When switch for no end back tack is pressed the display will change as shown below.

```
2005 (XS-2000)  200500 (XS-3000)
```

(3) Adjust by changing the figures displayed under A and B.

- The figures will increase in increments when switch is pressed.
- The figures will decrease in increments when switch is pressed.

* These figures are for changing the timing to energize the back tack solenoid and higher figures quickens the timing to energize the solenoid and stitch pattern will result as shown in Fig.11-A.
Lower figures will delay the above timing and stitch pattern will result as shown in Fig.11-B.

Fig.11
When stitch pattern results as shown in Fig.11-A, decrease the figures.
When stitch pattern results as shown in Fig.11-B, increase the figures.

(4) When switch is pressed, the display will change to initial test mode display.
(5) Turn dip switch "1" OFF.

NOTE: The figures set under Adjustment 2 will be restored to initial figures 20 when machine is left idle for lengthy period and when pedal is depressed the LED will start flashing. In such case, the figures should be reset once more.
When power switch of a machine that has been left idle for a lengthy period is turned on, the display of the console would be as shown below.

\[
\begin{array}{cccc}
A & B & C & D \hline
4 & 4 & 4 & 4 \null \\
\text{XS-2000} & \text{XS-3000} \\
\end{array}
\]

4. TO SET LENGTH OF TIME AUTOMATIC FOOT LIFT IS HELD RAISED

The length of time the automatic foot lift can be held in raised position after completion of automatic stitching or completion of sewing with dip switch "2" ON, can be set to desired length of time from 5 to 30 seconds. To set the length of time, follow instructions below. (The time is set to 5 seconds when console leaves the factory)

To set the time
(1) Turn dip switch "1" ON. (Test mode)
(2) The following will be display on the screen when switch for no end back tack is pressed.

\[
\begin{array}{cccc}
A & B & C & D \hline
2 & 0 & 0 & 5 \null \\
\text{XS-2000} & \text{XS-3000} \\
\end{array}
\]

(3) The figures displayed under C and D indicate length of time in seconds the presser foot is raised.
\( \triangleright \) The figures will increase in increments of one second at a time when switch for no start back tack is pressed.
\( \triangleright \) The figures will decrease in increments of one second at a time when switch for no end back tack is pressed.
(4) Display will be restored to initial test mode when switch is pressed.
(5) Turn dip switch "1" OFF.

NOTE: The foot lift can be held raised until sewing is resumed by changing the figure displayed to "00".
6. TEST MODE

Tests necessary for trouble shooting can also be done in addition to the test mode mentioned in preceding paragraphs.

1. SWITCH TEST

(1) Turn dip switch "1" ON.

(2) When switch is pressed, the display will change as shown below and at the same time LED on all switches will light up.

![XS-2000](image)  ![XS-3000](image)

(3) First, press "+" switch. The display of switch pressed will disappear.

(4) Next, press "-" switch. The display of switch pressed will disappear. Press remaining switches and turn off all display in the same manner as above.

(5) Then press pattern switches consecutively and when LED on all pattern switches go out, press switch .

If all switches are in good order, the test mode display will be restored to initial display.

* If in case there is a defective switch, turn off the main switch and repair or replace the defective switch.

2. PEDAL CURVE TEST

Check whether the speed data output from the console correspond with the speed of motor.

(1) Turn dip switch "1" ON.

(2) When switch is pressed, the display will change as shown below.

![XS-2000](image)  ![XS-3000](image)
(3) When switch \[ \text{\textarrow{1}} \] is pressed once more, the display will change as shown below and the motor will start rotating.

CAUTION: Before pressing the switch, make sure it is safe to run the motor because it will start to rotate immediately when switch is pressed.

\[ \begin{array}{c}
\text{0600} \\
\text{(XS-2000)}
\end{array} \quad \begin{array}{c}
\text{060000} \\
\text{(XS-3000)}
\end{array} \]

- The speed of the motor is displayed on the screen under A - D and is approximately 500 - 600 RPM when in normal condition.

* If in case the speed is lower, or higher than above, adjust speed to 500 - 600 RPM by turning the volume on the control box, as required.

Fig. 12

(4) Press switch \[ \text{\textarrow{2}} \] and restore display to initial test mode. The motor will stop when display is restored to initial test mode.
7. TROUBLE SHOOTING
Whenever sewing difficulty is encountered, check functions of the console making reference to the following table. If adjustment cannot be made, call your local dealer for repair.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>When display does not appear on the screen or when LED does not light up</td>
<td>Check power supply source voltage</td>
<td>Check wiring</td>
</tr>
<tr>
<td></td>
<td>Cable connections</td>
<td>Connect connectors properly</td>
</tr>
<tr>
<td>Display flashes on and off when switch is turned on</td>
<td>Pedal voltage</td>
<td>Adjust pedal voltage</td>
</tr>
<tr>
<td></td>
<td>Installation condition of pedal</td>
<td>Install pedal in correct position</td>
</tr>
<tr>
<td>LED and display do not react even when switches on console is pressed</td>
<td>There are switches that cannot be used depending on sewing pattern</td>
<td>Change to other sewing pattern or test switch as per the test mode</td>
</tr>
<tr>
<td>Motor does not rotate even when pedal is depressed</td>
<td>Stitch count setting</td>
<td>Set switch count correctly</td>
</tr>
<tr>
<td></td>
<td>Trouble in motor or control box</td>
<td>Check in accordance with instructions on motor</td>
</tr>
<tr>
<td>Does not rotate at high speed</td>
<td>Heavy machine torque</td>
<td>Adjust machine</td>
</tr>
<tr>
<td></td>
<td>Speed control knob</td>
<td>Turn knob clockwise</td>
</tr>
<tr>
<td></td>
<td>Matching of pedal curve</td>
<td>Adjust pedal curve</td>
</tr>
<tr>
<td>Does not stop even when pedal is returned to its neutral position</td>
<td>Pedal voltage</td>
<td>Adjust pedal voltage</td>
</tr>
<tr>
<td></td>
<td>Trouble in motor or control box</td>
<td>Check in accordance with instruction on motor</td>
</tr>
<tr>
<td>Thread trimmer does not function when pedal is heeled back</td>
<td>Pedal voltage</td>
<td>Adjust pedal voltage</td>
</tr>
<tr>
<td></td>
<td>Connector loosened or disconnected</td>
<td>Connect connectors properly</td>
</tr>
<tr>
<td></td>
<td>Trouble in machine or motor</td>
<td>Check in accordance with the service manual</td>
</tr>
<tr>
<td>Does not back tack</td>
<td>Improper selection of back tack pattern</td>
<td>Set back tack pattern correctly</td>
</tr>
<tr>
<td></td>
<td>Connector loosened or disconnected</td>
<td>Connect connectors properly</td>
</tr>
<tr>
<td></td>
<td>Trouble in machine or motor</td>
<td>Check in accordance with the service manual</td>
</tr>
</tbody>
</table>
### 8. PARTS LIST AND CHART

#### XS-1000

<table>
<thead>
<tr>
<th>No.</th>
<th>P/N</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>369037-001</td>
<td>Console Complete</td>
</tr>
<tr>
<td>2</td>
<td>369038-001</td>
<td>Console Ass’y</td>
</tr>
<tr>
<td>3</td>
<td>369039-001</td>
<td>Console (Body)</td>
</tr>
<tr>
<td>4</td>
<td>369040-001</td>
<td>P.C. Board Complete</td>
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<tr>
<td>5</td>
<td>544220-003</td>
<td>P.C. Board Complete Set Screw</td>
</tr>
<tr>
<td>6</td>
<td>544212-002</td>
<td>Console Ass’y Set Screw (4)</td>
</tr>
<tr>
<td>7</td>
<td>369041-001</td>
<td>Rubber Cap (2)</td>
</tr>
</tbody>
</table>

#### XS-2000

<table>
<thead>
<tr>
<th>No.</th>
<th>P/N</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>369042-002</td>
<td>Console Complete</td>
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<tr>
<td>7</td>
<td>369045-002</td>
<td>Console Ass’y</td>
</tr>
<tr>
<td>8</td>
<td>369046-001</td>
<td>Console Body And Panel Ass’y</td>
</tr>
<tr>
<td>9</td>
<td>369050-002</td>
<td>P.C. Board And Cable Ass’y</td>
</tr>
<tr>
<td>10</td>
<td>369049-001</td>
<td>LED Board Complete</td>
</tr>
<tr>
<td>12</td>
<td>369052-002</td>
<td>Display Board Complete</td>
</tr>
<tr>
<td>13</td>
<td>369063-001</td>
<td>CPU Board Complete</td>
</tr>
<tr>
<td>19</td>
<td>369064-001</td>
<td>I/O Board Complete</td>
</tr>
</tbody>
</table>

#### XS-3000

<table>
<thead>
<tr>
<th>No.</th>
<th>P/N</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>369054-002</td>
<td>Console Complete</td>
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<tr>
<td>7</td>
<td>369055-002</td>
<td>Console Ass’y</td>
</tr>
<tr>
<td>8</td>
<td>369056-001</td>
<td>Console Body And Panel Ass’y</td>
</tr>
<tr>
<td>9</td>
<td>369050-020</td>
<td>P.C. Board And Cable Ass’y</td>
</tr>
<tr>
<td>10</td>
<td>369049-010</td>
<td>LED Board Complete</td>
</tr>
<tr>
<td>12</td>
<td>369052-020</td>
<td>Display Board Complete</td>
</tr>
<tr>
<td>13</td>
<td>369063-010</td>
<td>CPU Board Complete</td>
</tr>
<tr>
<td>19</td>
<td>369064-010</td>
<td>I/O Board Complete</td>
</tr>
</tbody>
</table>

#### XS-2000/3000 Common Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>P/N</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>2</td>
<td>369043</td>
<td>Console Ass’y Mounting Bracket</td>
</tr>
<tr>
<td>3</td>
<td>544212-001</td>
<td>Console Ass’y Mounting Bracket Set Screw</td>
</tr>
<tr>
<td>4</td>
<td>544212-011</td>
<td>Console Ass’y Set Screw (4)</td>
</tr>
<tr>
<td>5</td>
<td>543804-003</td>
<td>Console Ass’y Set Screw Washer (4)</td>
</tr>
<tr>
<td>6</td>
<td>369044</td>
<td>Console Ass’y Set Screw Collar (4)</td>
</tr>
<tr>
<td>11</td>
<td>544251</td>
<td>LED Board Complete Set Screw (3)</td>
</tr>
<tr>
<td>14</td>
<td>544220-003</td>
<td>I/O Board Complete Set Screw (3)</td>
</tr>
<tr>
<td>15</td>
<td>369060-002</td>
<td>Cable Complete</td>
</tr>
<tr>
<td>16</td>
<td>369053-002</td>
<td>Base Plate</td>
</tr>
<tr>
<td>17</td>
<td>544223-001</td>
<td>Base Plate Set Screw (4)</td>
</tr>
<tr>
<td>18</td>
<td>369061</td>
<td>Rubber Cap</td>
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</table>