FATAR
KEY ACTION TECHNOLOGIES SINCE 1956

# TP/7BA

## SYNTHESIZER ACTION KEYBOARD

## TABLE OF CONTENTS

## REVISION HISTORY

| REV | DATE | MAJOR CHANGE |
|---|---|---|
| 0.1 | 04/1/2016 | First Draft |

## DEVICE SELECTION TABLE

| Part | DESCRIPTION |
|---|---|
| 6507xxxx | TP/7BA |
| C(DF) | Contact Board with Forward Diodes |

## FEATURES

- 25-37-44-49-61 Synth action keyboard
- Universal keyboard appliance
- Keyboard endurance: 3 million times at fortissimo level
- Temperature range:
  - Operation: -5° to +45 °C
  - Storage: -25° to +65 °C

## DESCRIPTION

The TP/7BA keyboard produces a quick and light feel and works well for certain types of music and for playing a wide range of sounds.

Due to its features, TP/7BA is a universal keyboard for any kind of instrument: Synthesizers, Organs, Arrangers, Workstations and Controllers.

The keyboard is available in various configurations: 25, 37, 44, 49 and 61 weighted keys with dynamic rubber contacts.

## BLOCK DIAGRAM

Below is the block diagram of TP/7BA keyboard where all its parts are showed.

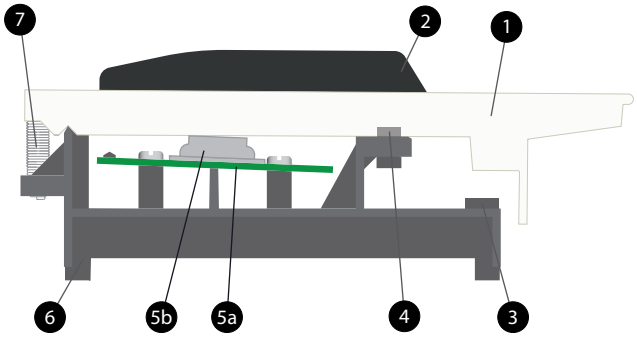



*Figure 1: TP/7BA Block Diagram*

With reference to the Figure 1 above, below are terms and definitions:

1. White key
2. Black key
3. White key stop felt
4. Contact board
   (a) PCB Board
   (b) Rubber Contact strip
5. Plastic frame
6. Spring

## MECHANICAL CHARACTERISTICS

The keyboard is made of plastic keys and uses springs to let the key return to its initial position. The frame is made by a special over-molding process to get a solid body.

The TP/7BA keyboard with his features comes in a compact size and it is adaptable to different uses in various types of cabinets.

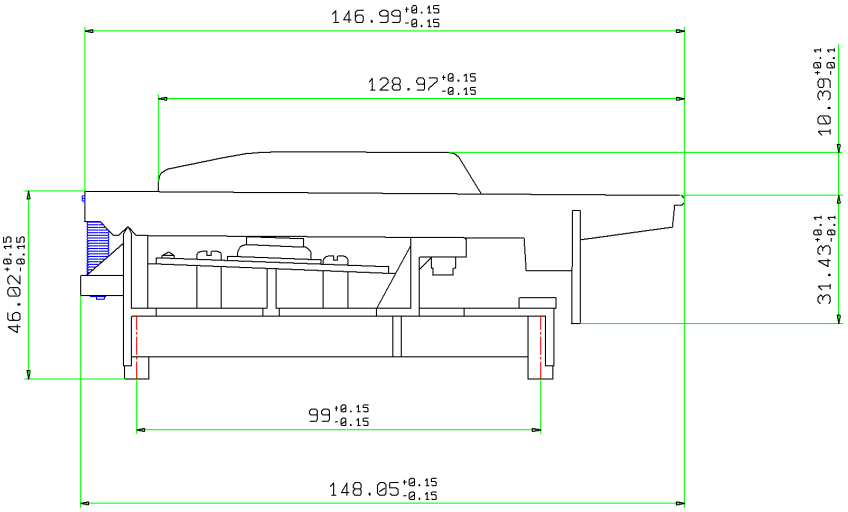
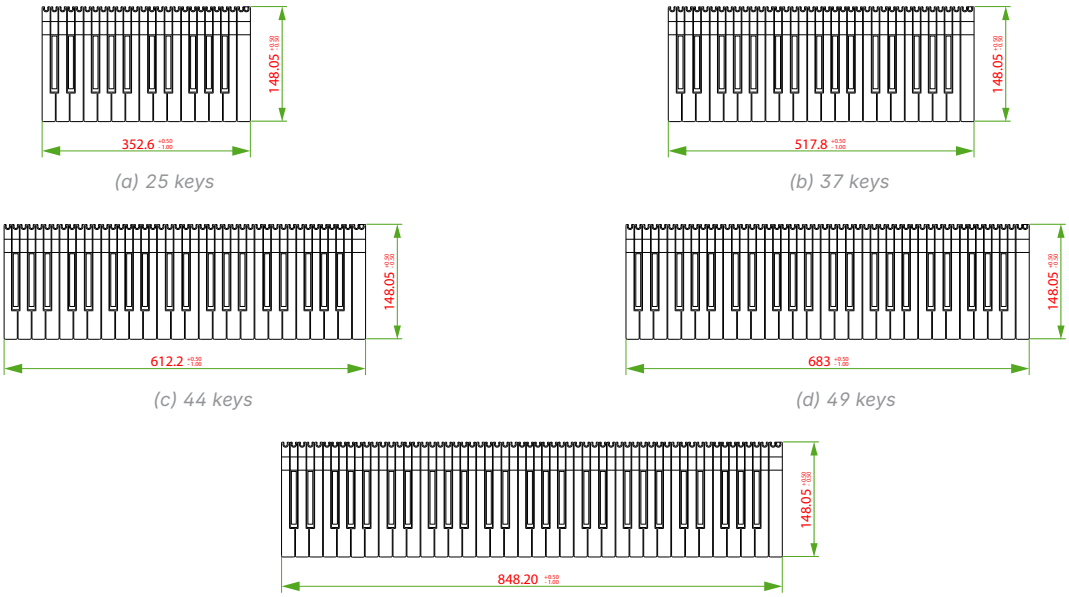



*Figure 2: TP/7BA Side View*




*(a) 25 keys*

*(b) 37 keys*

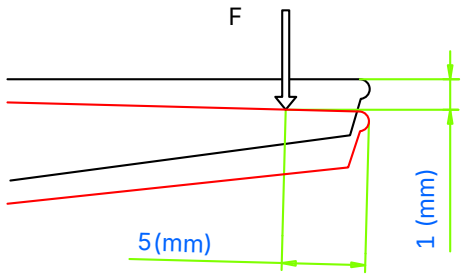
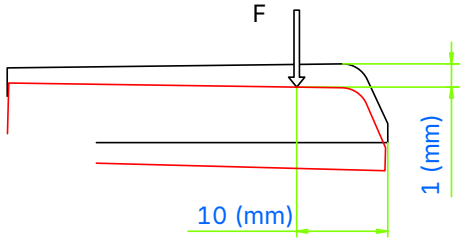
*(c) 44 keys*

*(d) 49 keys*

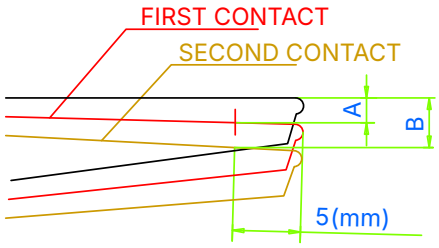
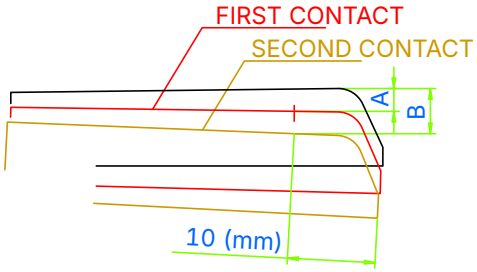
*(e) 61 keys*

*Figure 3: TP/7BA top view*

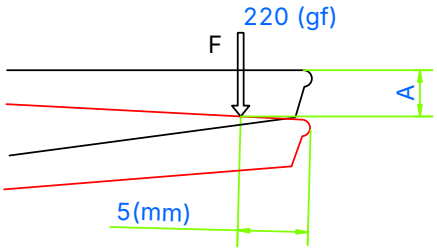
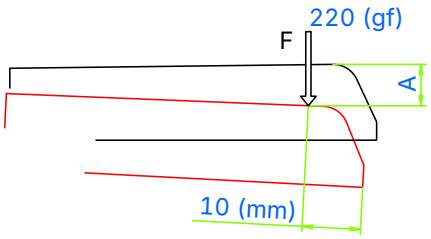
## TABLE 1-1 PRESS FORCE OF KEY

| ITEM | CONDITION | STANDARD |
|---|---|---|
| Measured force on white key after 1mm of travel at 5mm depth from the front. |  | F= 45 ± 7 gr |
| Measured force on black key after 1mm of travel at 10mm depth from the front. |  | F = 45 ± 7 gr |

## TABLE 1-2 CONTACT TRAVEL

| ITEM | CONDITION | STANDARD |
|---|---|---|
| WHITE KEY<br>A: Travel at first contact<br>B: Travel at second contact<br>B-A: Gap between 1st and 2nd contact |  | A= 2.5 ±0.8 mm<br>Weight at A = 50 ± 7 gr<br><br>B = 6.5 ± 0.8 mm<br>Weight at B = 62 ± 7 gr<br><br>B – A = 4.0 ± 0.5 mm |
| BLACK KEY<br>A: Travel at first contact<br>B: Travel at second contact<br>B-A: Gap between 1st and 2nd contact |  | A= 2.5 ±0.8 mm<br>Weight at A = 55 ± 7 gr<br><br>B = 5.0 ± 0.8 mm<br>Weight at B = 80 ± 7 gr<br><br>B – A = 2.5 ± 0.5 mm |

## TABLE 1-3 ENTIRE TRAVEL

| ITEM | CONDITION | STANDARD |
|---|---|---|
| WHITE KEY<br>F: Applied force on white key to go at maximum travel<br>A: Measured travel of white key |  | A = 10.0 ± 1.0 mm |
| BLACK KEY<br>F: Applied force on black key to go at maximum travel<br>A: Measured travel of black key |  | A = 6.2 ± 1.0 mm |

## ELECTRICAL SCHEMATICS

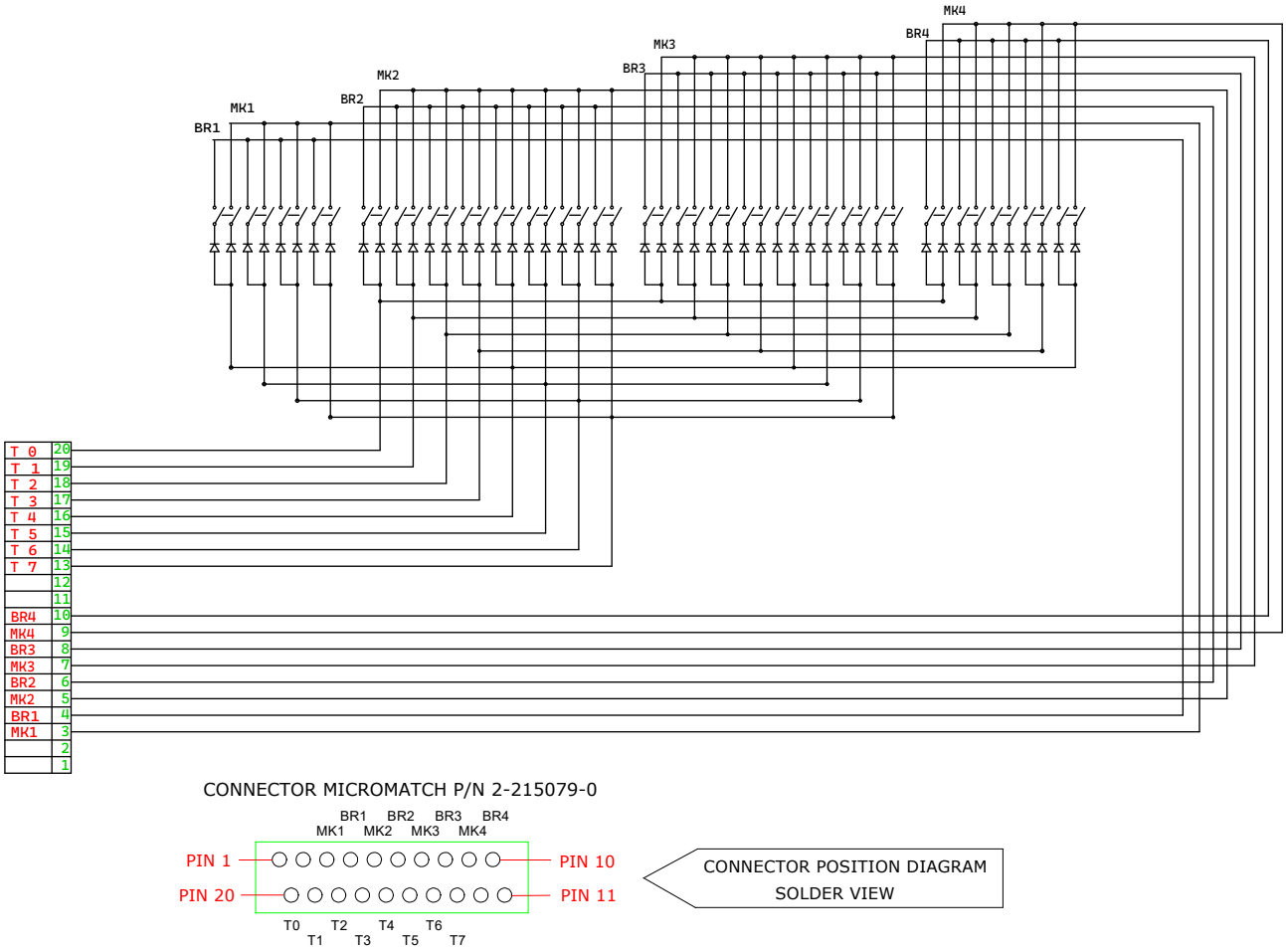



*Figure 4: 25notes, 2 switches contact board.*

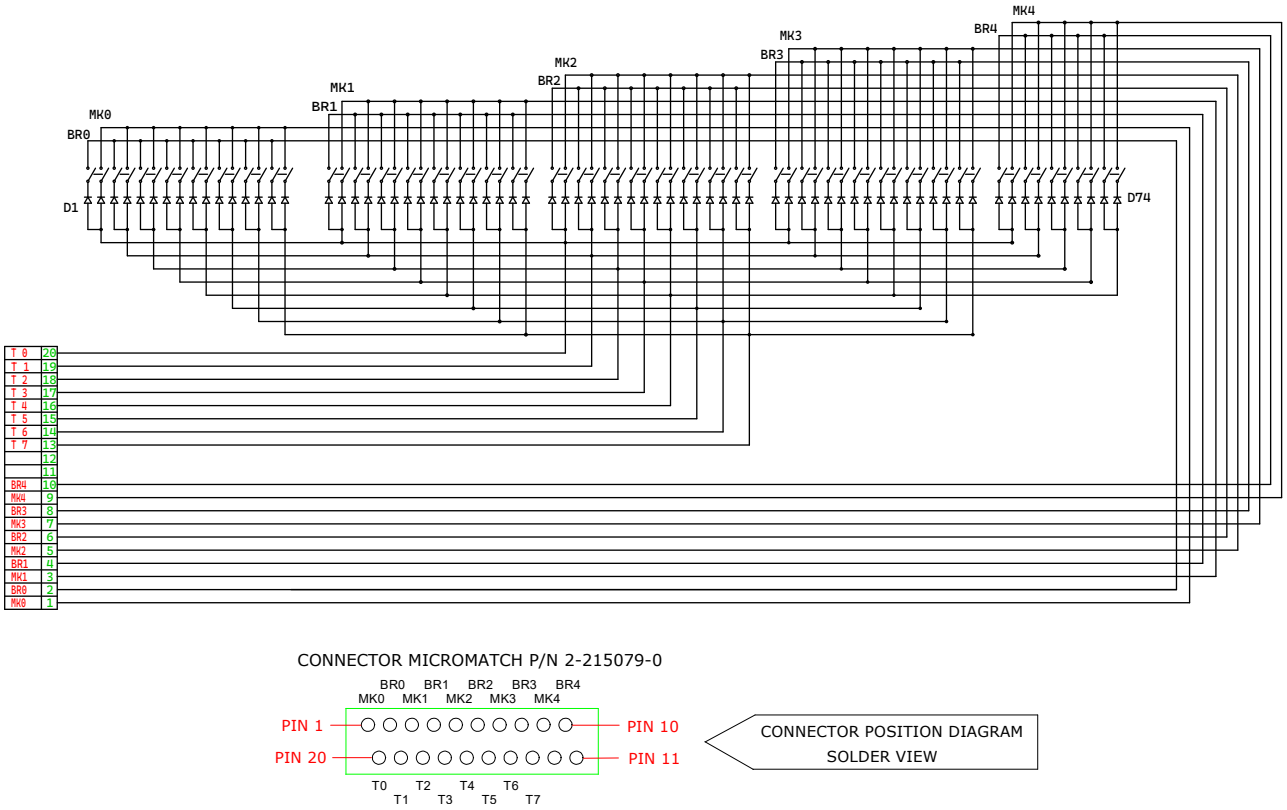
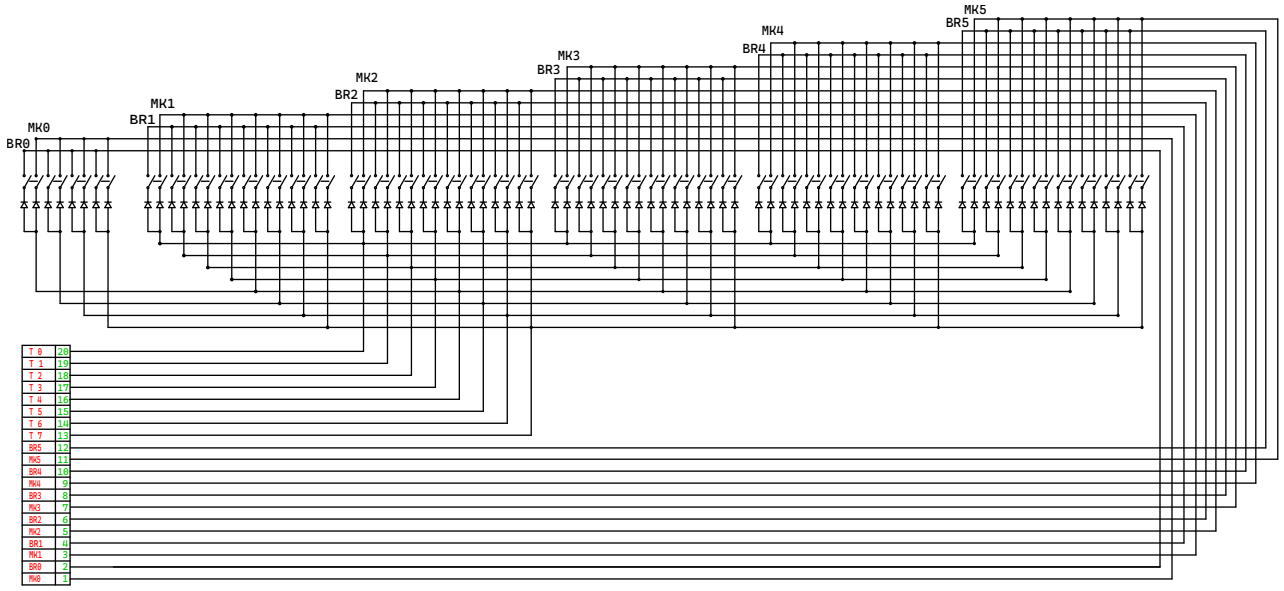






*Figure 5: 37notes, 2 switches contact board.*



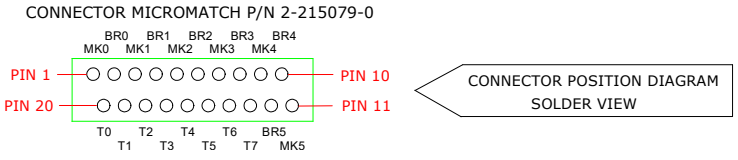




*Figure 6: 44notes, 2 switches contact board.*

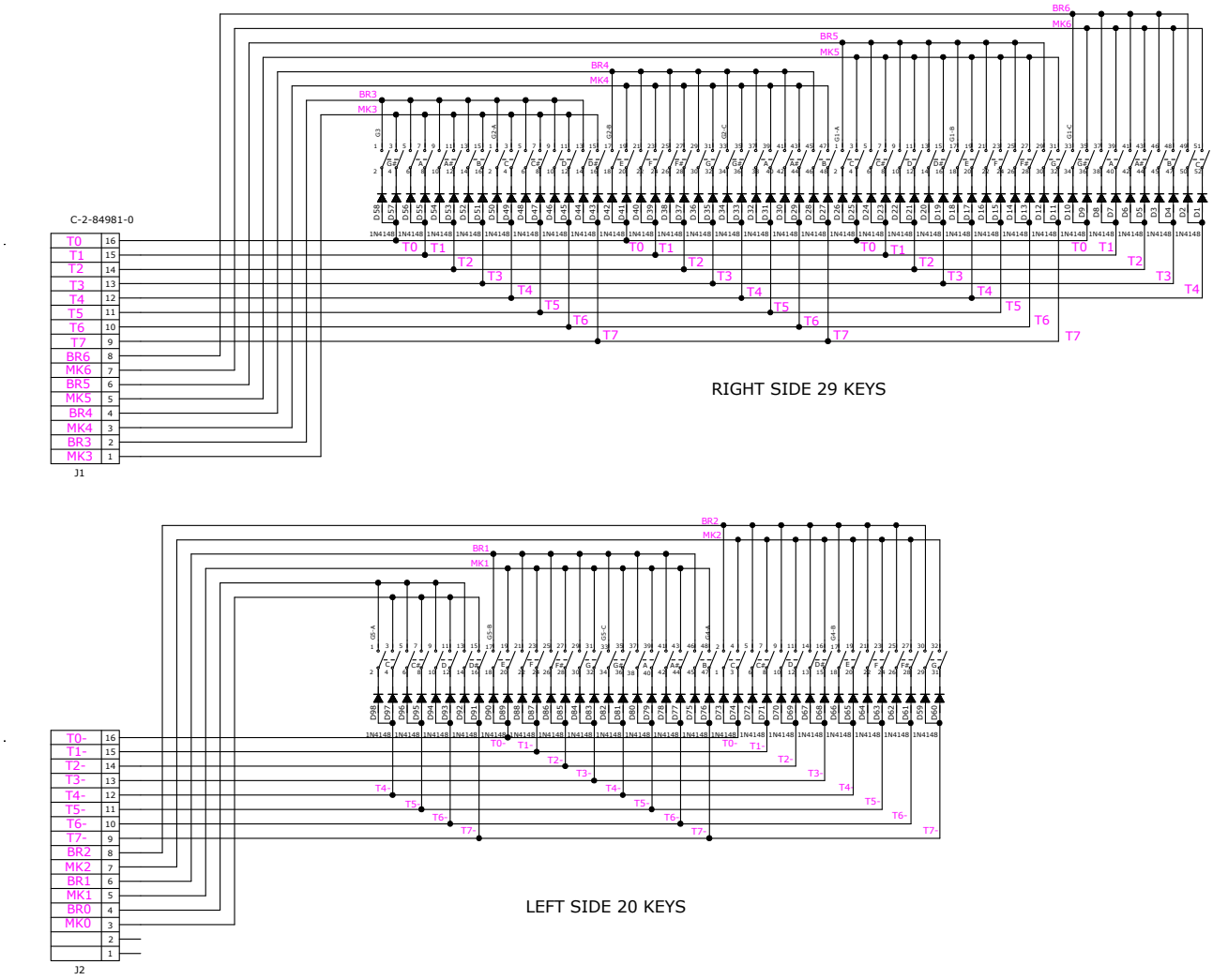



*Figure 7: 49notes, 2 switches contact board.*

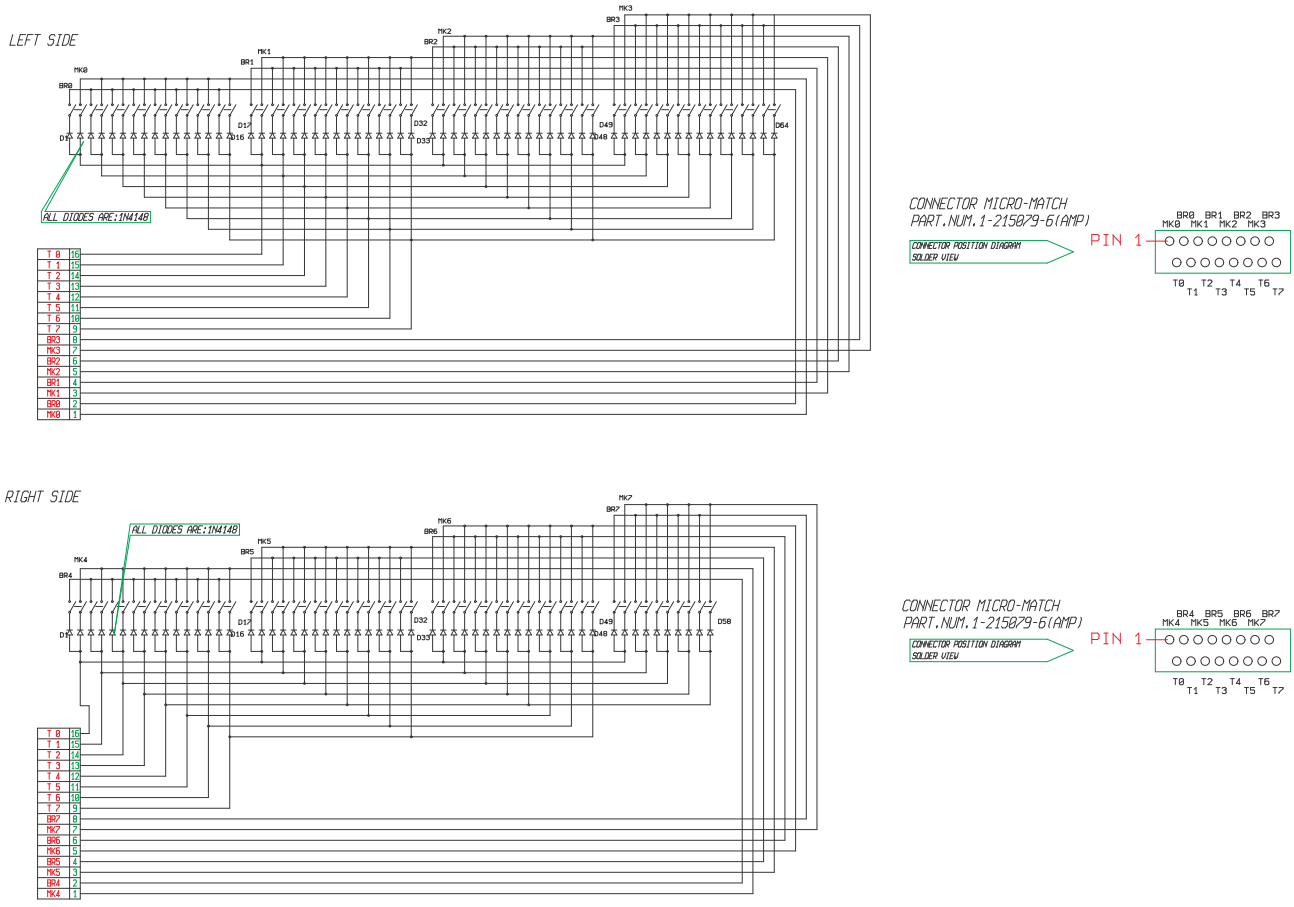
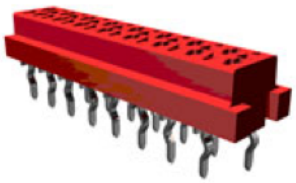
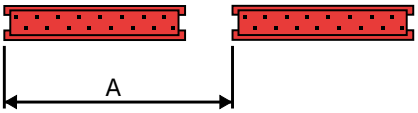



*Figure 8: 61notes, 2 switches contact board.*

## CONNECTORS



Connector: Tyco/AMP Micro-Match
Type: Female-On-Board
Mount Angles: Vertical



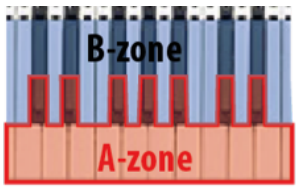
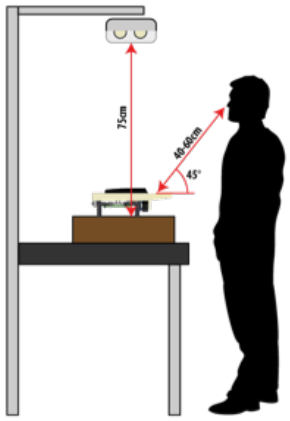
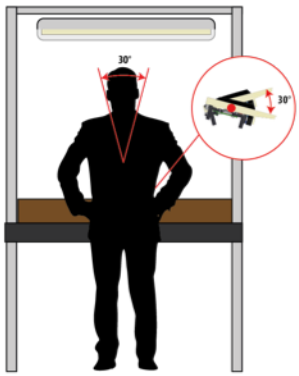

A: distance between connectors
A = 54,7 mm

Pin:

- 25 notes: 1x 20vie
- 37 notes: 1x 20vie
- 44 notes: 1x 20vie
- 49 notes: 2x 16vie
- 61 notes: 2x 16vie

# COSMETIC INSPECTION

## TEST CONDITIONS

| | | |
|---|---|---|
| Definition of appearance part | A-zone: important zone<br>B-zone: not important zone |  |
| Photometric condition | The light source must be cold and illuminate the keyboard vertically;<br>Source: 2 x 36W/865 neon;<br>Distance from top table: 75cm. |  |
| Operator position | Distance between eyes and top keys surface: from 40 to 60 cm;<br>View angle: 45° (approx.)<br>Operator Visual Acuity: 1.00 decimal (including lens correction and no color blindness). | |
| Procedure | Check the A-zone varying the inclination of the keyboard by 30° and the inclination of the head by 30° as well;<br>Test duration: 10sec max. |  |

### APPEARANCE CRITERIA

| TEST ITEM | TEST METHOD | ACC. CRITERIA | | |
|---|---|---|---|---|
| Gap of adjacent white keys | Caliber | 1.1 ± 0.5mm | | |
| Height tolerance of adjacent white keys | Ruler | ≤ 0.50mm | | |
| Scratches | Check by film | Scratches dimension | A-Zone | B-Zone |
| | | ≤ 0.8mm | ≤ 2pcs | ≤ 4pcs |
| | | ≤ 1.5mm | 0pcs | ≤ 2pcs |
| Contaminations | Check by film | Spots dimension | A-Zone | B-Zone |
| | | ≤ 0.3mm | ≤ 2pcs | ≤ 4pcs |
| | | ≤ 0.5mm | 0pcs | ≤ 3pcs |
| Color | Visual | Not acceptable any visible color variation between different keys | | |
| Shrink | Visual | Not acceptable any visible shrink | | |

## QC – INCOMING INSPECTION

### SAMPLING PLAN

According to ISO2859, ANSI/ASQ Z1.4-2003, NF06-022, BS 6001, DIN 40080, use the following:

- General Level I
- AQL 1.5

### INCOMING INSPECTION TEST

- Cosmetic Inspection
- Measurement of the AFTERTOUCH values (TABLE 2-4)

## QC – ASSEMBLY LINE INSPECTION

### ASSEMBLY LINE QC

- 100% inspection
- Play all the keys
  - Every key must play sound
  - o Noise across the whole keyboard must be consistent such that no one key sounds louder or lower than any other. Noise character must remain consistent across the keyboard

# CERTIFICATIONS

## DECLARATION OF CONFORMITY

Fatar srl
Zona Ind.le Squartabue
62019 Recanati MC Italy

Declares that this product complies with the following European Directives and related standards:

| | | |
|---|---|---|
| **2006/95/EC** | | Low Voltage Directive |
| **EN 60065** | **1998** | Safety Requirement for Audio, Video and audio-visual apparatus for professional use |
| **2004/108/EC** | | Electromagnetic Compatibility Directive (EMC) |
| **EN 55103-1/E1:** | **1997** | Product Standard – Audio, Video and audio-visual apparatus for professional use, Electromagnetic compatibility of audio equipment: Emission |
| **EN 55103-2/E1** | **1997** | Product Standard – Audio, Video and audio-visual apparatus for professional use, Electromagnetic compatibility of audio equipment: Immunity |

Technical files are maintained at corporate head-quarter of Fatar Srl, 62019 Recanati MC, Italy.
Above declarations are void by modification of the device without approval, or unauthorized servicing.

## RoHS CONFORMITY

This is to certify that the product is RoHS compliant and meets the requirements and specified limits of restricted substances according to 2002/95/EC directive.

## WEEE

This product is marked with the WEEE symbol to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. The symbol indicates that this product should not be treated as household waste. It must be disposed and recycled as electronic waste. Please assist to keep our environment clean.

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