4 – Service Tools
# Table of Contents

<table>
<thead>
<tr>
<th>Service Tools</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Service Tools</td>
<td>3</td>
</tr>
<tr>
<td>JVB-1 Docking station (Product Code: 0770298) with MJF-17 Docking Station Adapter</td>
<td>3</td>
</tr>
<tr>
<td>MJF-17 Docking Station Adapter (Product Code: 0774282)</td>
<td>4</td>
</tr>
<tr>
<td>CPL-10 Antenna Coupler (Product Code: 0770548)</td>
<td>4</td>
</tr>
<tr>
<td>MJS-52 Module Repair Jig (Product Code: 0770476)</td>
<td>5</td>
</tr>
<tr>
<td>MJS-53 Soldering Jig (Production Code: 0774281)</td>
<td>7</td>
</tr>
<tr>
<td>LRK-2 LGA component rework kit</td>
<td>8</td>
</tr>
<tr>
<td>Rework procedure</td>
<td>8</td>
</tr>
<tr>
<td>MJS-76 PA LGA re-work jig (Product code 0770417)</td>
<td>9</td>
</tr>
<tr>
<td>FPS-8 Flash Prommer (Product Code: 0080321)</td>
<td>10</td>
</tr>
<tr>
<td>FPS-8C Parallel Flash Prommer (Product Code: 0080396)</td>
<td>11</td>
</tr>
<tr>
<td>ACF-8 Universal Power Supply (Product Code: 0680032)</td>
<td>11</td>
</tr>
<tr>
<td>FLC-2 DC Cable (Product Code: 0730185)</td>
<td>12</td>
</tr>
<tr>
<td>AXS-4 Service cable (Product Code: 0730090)</td>
<td>12</td>
</tr>
<tr>
<td>XCS-1 Service Cable (Product Code: 0730218)</td>
<td>13</td>
</tr>
<tr>
<td>SW Security Device PKD-1 (Product Code: 0750018)</td>
<td>13</td>
</tr>
<tr>
<td>FLS-4S POS (Point of Sale) Flash Device (Sales Pack)</td>
<td>14</td>
</tr>
<tr>
<td>PCS-1 Power Cable (Product Code: 0730012)</td>
<td>14</td>
</tr>
<tr>
<td>XRF-1 RF Cable (Product Code: 0730085)</td>
<td>15</td>
</tr>
<tr>
<td>DAU-9S MBUS Cable (Product Code: 0730108)</td>
<td>15</td>
</tr>
<tr>
<td>SCB-3 DC Cable (Product Code: 0730114)</td>
<td>16</td>
</tr>
<tr>
<td>XCS-4 Modular Cable (Product Code: 073017)</td>
<td>16</td>
</tr>
<tr>
<td>Printer Cable (Product Code: 0730029)</td>
<td>17</td>
</tr>
<tr>
<td>FLA-30 Flash Adapter (Product Code: 0770472)</td>
<td>17</td>
</tr>
</tbody>
</table>
Service Tools

List of service tools

The table below gives a short overview of service tools that can be used for testing, error analysis and repair of product NPL-2, refer to various set-ups.

<table>
<thead>
<tr>
<th>Type Designator</th>
<th>Description</th>
<th>Part Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPL-10</td>
<td>RF Coupler 900–1900</td>
<td>0770548</td>
</tr>
<tr>
<td>FLA-30</td>
<td>POS flash adapter</td>
<td>0770472</td>
</tr>
<tr>
<td>PCS-1</td>
<td>DC power cable</td>
<td>0730012</td>
</tr>
<tr>
<td>SCB-3</td>
<td>DC cable</td>
<td>0730114</td>
</tr>
<tr>
<td>XCS-1</td>
<td>Service cable</td>
<td>0730218</td>
</tr>
<tr>
<td>XCS-4</td>
<td>Modular cable</td>
<td>0730178</td>
</tr>
<tr>
<td>FLS-4S</td>
<td>POS flash dongle for E/A area</td>
<td>0080541</td>
</tr>
<tr>
<td></td>
<td>POS flash dongle for APAC area</td>
<td>0080542</td>
</tr>
<tr>
<td></td>
<td>POS flash dongle for Americas area</td>
<td>0080543</td>
</tr>
<tr>
<td>FPS-8</td>
<td>Parallel flash prommer (inc. AXS-4, AXS-8, universal power supply)</td>
<td>0080321</td>
</tr>
<tr>
<td></td>
<td>Printer cable (inc. in FSP-8 sales pack)</td>
<td>0730029</td>
</tr>
<tr>
<td>FPS-8C</td>
<td>Flash prommer box</td>
<td>0080396</td>
</tr>
<tr>
<td>JBV-1</td>
<td>Docking station</td>
<td>0770298</td>
</tr>
<tr>
<td>MJF-17</td>
<td>Docking station adapter</td>
<td>0774282</td>
</tr>
<tr>
<td>MJS-52</td>
<td>Service jig</td>
<td>0770476</td>
</tr>
<tr>
<td>MJS-53</td>
<td>Solder jig</td>
<td>0774281</td>
</tr>
<tr>
<td>LRK-2</td>
<td>LGA repair kit 1</td>
<td>0273645</td>
</tr>
</tbody>
</table>

JVB-1 Docking Station (Product Code 0770298) with MJF-17 Docking Station Adapter

The JVB-1 Docking Station has been designed for calibration and software update use. The MJF-17 Docking Station Adapter makes signal connections to the phone. JVB-1 and MJF-17 are used as one unit.

JVB-1 main electrical functions include the following:

- adjustable VBATT calibration voltage, current measurement limit voltage “VCHAR”, current measurement calibration “ICHAR”
- adjustable ADC calibration voltage via BTEMP and BSI signal
- BTEMP and BSI calibration resistor
- signals from FBUS to the phone via parallel jig
- control via FBUS or USB
- Flash OK/FAIL indication
In calibration mode JVB-1 is powered by external power supply 11-16V DC. In flashing power for the phone can be taken from FPS-8 or external power supply 11-16V DC.

**MJF-17 Docking Station Adapter (Product Code: 0774282)**

Docking Station Adapter for assembled NPL-2 phones. MJF-17 supports testing, flashing, energy management calibration. If used in conjunction with CPL-10, also RF function testing is possible.

Features include:
- compatible for JBV-1
- easy phone attachment and detachment
- reliable phone locking
- switch for reliable detection of phone attachment
- replaceable test pins
- internal SIM holder with interface to phone SIM reader

**View of MJF-17**

![View of MJF-17](image)

**CPL-10 Antenna Coupler (Product Code: 0770548)**

RF antenna coupler for use with MJF-17.

Extends MJF-17 to allow RF function tests in GSM bands 900, 1800 and 1900 MHz.

Features include:
- easy attachment to MJF-17 without use of tools
- reliable RF connection to phone module under test
- low attenuation and small “ripple” over the width of each GSM band

View of CPL-10

MJS-52 Module Repair Jig (Product Code: 0770476)
Repair Jig for NPL-2 Maxwell Phone Module that allows full phone function.

General features include:
- easy phone module insertion and removal, proven jig locking mechanism
- ESD-proof base material and jig design
- unlimited operation of a disassembled NPL-2 phone module
- unrestricted access to phone module components
- access to system connector for accessory testing
- jig SIM holder with interface to phone SIM reader
- LCD assembly mounted on MJS-52 allows key and display function test
- microphone, ear speaker and integrated handsfree speaker supplied on jig for testing
- LOCAL/NORMAL switch
- push-buttons for side (=volume) key function test
- access to phone module POWER-ON push-button
- possibility for IrDA testing
- quick and easy repair of jig components
View of MJS-52

Power supply features
- jig and phone power supply via 3mm DC jack, fuse
- power stabilization and voltage regulator on jig (can be bypassed by jumper)
- reverse and over-voltage protection of jig and phone module

Communication and status LED's
- green: Power supply
- green: MBUS activity
- orange: FBUS activity
- jumper to disable LED’s for precise phone module current consumption measurements

Spare Parts
- spring loaded test pins (used in upper part, can be replaced by soldering)
  Test pins (10pcs / plastic bag) 0770442
- both ends spring loaded test pin (used in lower part, can be replaced by hand after disassembly of lower PCB)
  Test pins (10pcs / plastic bag) 0770557
- fuse inside holder
  FUSE 2A SMD, manufacturer is “LITTLEFUSE”, type 154002T
- wing screw M3x20
  (open)
Usage Hints

- **before first use** verify setting of power supply jumper on the rear (=bottom PCB) of the jig; if power supply is >4.2 V, make sure jumper enables power regulation of the jig in order to prevent overvoltage for the phone module under test and the jig

- in case of **flashing problems** in the jig, verify the switch on the upper part of the jig is in position “Flash”; position “Accessory” is intended for ACI tests with connected ACI-communication enabled accessories, such as car kits or camera headsets

**MJS-53 Soldering Jig (Product Code: 0774281)**

Soldering Jig is used for module level repair, either as fixation in μBGA rework places or when there is need to hold a module on the work bench for any other repair.

Features include:

- one hand phone module insertion
- convenient locking mechanism
- four (optional mount) rubber feet allow usage also on repair benches
- fixation of phone module in both ways possible (bottom or top side up)
- ESD proof material
- standard μBGA jig thickness and outer dimensions

Views of MJF-53

(note: phone module not included)
LRK-2  LGA component rework kit

<table>
<thead>
<tr>
<th>Type designator</th>
<th>Description</th>
<th>Part code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRK-2 (0273645)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MJS-76</td>
<td>LGA Re-work Jig</td>
<td>0770417</td>
</tr>
<tr>
<td>SES-2</td>
<td>Stencil</td>
<td>0770415</td>
</tr>
<tr>
<td>SPS-2</td>
<td>Spreader</td>
<td>0770471</td>
</tr>
</tbody>
</table>

Rework procedure

Due to the large mechanical tolerance of the power amplifiers the following procedure is necessary:

1. Put power amplifier into the MJS-76 re-work jig, the PA should be placed in the best fit location, this is determined by firstly placing it in the largest location if this is to large re-position the pa in the next size location, this should be carried out until the best fit location is found.
2. Once the best fit location has been found, leave the PA there and put stencil on top of the jig and PA.

3. Put soldering paste on the PA properly.

4. Remove stencil and the PA from the jig.

5. Start soldering process.

**MJS-76 PA LGA re-work jig (Product code 0770417)**

**Introduction**

This tool is used in LGA type component reworking purposes in central service centers. It consists of the following parts:

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Name of Part</th>
<th>Material Code</th>
<th>Drawing number</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frame</td>
<td>SME55910</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Cylindrical pin 3x12</td>
<td>640b003</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Cylindrical pin 2x12</td>
<td>640B012</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Type label</td>
<td>9380601</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Exploded view

FPS-8 Flash Prommer (Product Code: 0080321)

The Flash Prommer FPS-8 is used with e.g. MJF-13 and JVB-1. Power is supplied to FPS-8 from the Universal Power Supply.

The sales pack includes:

- FPS-8 Flash Prommer 0750123
- FPS-8 Activation Sheet 9359289
- Universal Power Supply 0680032
- AXS-4 Service Cable (D9-D9) 0730090
- Printer cable 0730029

View of FPS-8
FPS–8C Parallel Flash Prommer (Product Code: 0080396)
The Parallel Flash Prommer FPS–8C is used with MJF–13 and JVB–1. Flash programming can be done to maximum of 8 phones parallel. FPS–8C consists of eight SF11C programming cards. SF11C card is functionally identical to FPS–8.

View of FPS–8C

ACF–8 Universal Power Supply (Product Code: 0680032)
ACF–8 Universal Power Supply is used to power FPS–8. ACF–8 has 6 V DC and 2.1 A output.

View of ACF–8
FLC-2 DC Cable (Product Code: 0730185)

The FLC-2 is used to supply a controlled operating voltage.

View of FLC-2

AXS-4 Service Cable (Product Code: 0730090)

The AXS-4 D9-D9 Service Cable is used to connect two 9 pin D connectors e.g. between PC and FPS-8. Cable length is 2 meters.

View of AXS-4
XCS–1 Service Cable (Product Code: 0730218)

The XCS–1 Service Cable is used to connect FLS–4 to FLA–27.

View of XCS–1

---

SW Security Device PKD–1 (Product Code: 0750018)

SW security device is a piece of hardware enabling the use of the service software when connected to the parallel (LPT) port of the PC. Without the dongle present it is not possible to use the service software. Printer or any such device can be connected to the PC through the dongle if needed.

Caution: Make sure that you have switched off the PC and the printer before making connections!

Caution: Do not connect the PKD–1 to the serial port. You may damage your PKD–1!

View of SW Security Device
FLS-4S POS (Point Of Sale) Flash Device (Sales Pack)

FLS-4S is a dongle and flash device incorporated into one package, developed specifically for POS use.

Product Code

| Sales Pack - Europe/Africa  | 0080541 |
| Sales Pack - APAC           | 0080542 |
| Sales Pack - US             | 0080543 |

View of FLS-4S

![FLS-4S Diagram](image)

PCS-1 Power Cable (Product Code: 0730012)

The PCS-1 Power Cable (DC) is used to connect e.g. JVB-1 to FPS-8.

View of PCS-1

![PCS-1 Diagram](image)
XRF-1 RF Cable (Product Code: 0730085)
RF cable XRF-1 is used to connect e.g. Module Jig MJS-38 to RF measurement equipment.

View of XRF-1

DAU-9S MBUS Cable (Product Code: 0730108)
The MBUS Cable DAU-9S has a modular connector, and is used with be tween PC's serial port and e.g. Module Jig MJS-38.

View of DAU-9S
SCB-3 DC Cable (Product Code: 0730114)

The DC Cable SCB-3 is used to connect e.g. JVB-1 to the phone.

View of SCB-3

XCS-4 Modular Cable (Product Code: 073017)

XCS-4 is a shielded cable (one specially shielded conductor) modular cable for flashing and service purposes.

View of XCS-4
**Printer Cable (Product Code: 0730029)**

This cable is used to connect the PC to FPS-8.

**View of Printer Cable**

---

**FLA-30 Flash Adapter (Product Code: 0770472)**

Point of sales flash adapter for NPL-2 phones.

FLA-30 establishes a simple environment for SW update purposes and connects to the same flash test pattern and the phone battery contacts. When using FLA-30 the phone SIM card must be removed and the SIM flap has to be locked close.

Features include:

- flashing and testing of the attached phone
- overvoltage and reverse polarity protection of adapter and attached phone
- green LED: power supply valid and attached to the phone (3.5V<Vcc<7V)
- red LED: overvoltage condition, phone power supply disconnected (Vcc>7V)
- shielded 10-pin Western connector towards flash equipment or PC
- 3mm DC-jack for phone and adapter power supply
- phone battery contacts (VCC, GND, BSI)
- flash test pattern pins
Spare Parts

There are no serviceable parts inside FLA-30, and FLA-30 is not designed for disassembly. Only serviceable part are the spring loaded test pins that can be replaced without soldering and disassembly. Used test pin type is SX-1-J-2.0-G from manufacturer IDI.

Bent pins can be extracted from adapter’s receptacle using a tool. Torn off pins can be replaced using a slowly spinning 0.8 mm. For more detail, please refer to the Service Tool Troubleshooting section.

Test pins (10pcs / plastic bag) NMP 0770450