

N9960A-01

# Modification Recommended Service Note

Supersedes:  
NONE

## N9960A – 32 GHz FieldFox RF analyzer

Serial Numbers: See **Serial Numbers** below.

**The Problem** – The internal Main Memory (SD) card can fail. Refer to [www.keysight.com](http://www.keysight.com) and the **Contact Keysight** link.

### Equipment and Parts Required:

See tables 1 and 2 below.

**IMPORTANT!** This modification **MUST** be done at a Keysight Service Center.

### ADMINISTRATIVE INFORMATION

|                          |                  |
|--------------------------|------------------|
| ACTION                   | STANDARDS        |
| CATEGORY: AGREEABLE TIME | LABOR: 1.0 Hours |

|                          |                  |
|--------------------------|------------------|
| LOCATION                 | SERVICE:         |
| CATEGORY: SERVICE CENTER | INVENTORY: SCRAP |

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| AVAILABILITY: PRODUCT'S SUPPORT LIFE | NO CHARGE AVAILABLE UNTIL: 31july2020 |
|--------------------------------------|---------------------------------------|

Calibration Required

PRODUCT LINE: PLWN  
AUTHOR: CR/KS

### ADDITIONAL INFORMATION:

**Affects:** N9950/1/2A and N9960/1/2A

**Situation:**

The internal Main Memory (SD) card can fail. Refer to [www.keysight.com](http://www.keysight.com) and the **Contact Keysight** link.

**IMPORTANT!** The following Table 1 list of parts is provided for reference only! This modification **MUST** be done at a Keysight Service Center.

Table 1 Equipment Required

| Description                                                                                                      | Qty | Part Number |
|------------------------------------------------------------------------------------------------------------------|-----|-------------|
| Exacto knife                                                                                                     | 1   | --          |
| SD card (32 GB's) or less Formatted to FAT32 (used for partitioning and loading the new SD card in the FieldFox) | 1   | --          |
| T-8 Torx driver; set to 6 in-lb                                                                                  | 1   | --          |
| T-10 Torx driver; set to 9 in-lb                                                                                 | 1   | --          |
| T-6 Torx driver; set to 3 in-lb (A 1.5 mm allen wrench works fine.)                                              | 1   | --          |
| Dow Corning 3145 RTV                                                                                             | 1   | 0470-0450   |

Table 2 Parts Required

| Description                                   | Qty | Part Number |
|-----------------------------------------------|-----|-------------|
| Repair and Re-assembly kit (Refer to Table 2) | 1   | N9950-60130 |
| Delkin SD Card                                | 1   | 1819-1343   |

**Solution/Action:**

**IMPORTANT!** This modication **MUST** be performed at a Keysight Service Center. Contact Keysight Technologies to arrange repair ([www.keysight.com](http://www.keysight.com)).

**Before Starting the Service Note Process:**

1. Ensure the unit will boot to the FW.
2. Verify the unit to see that it is running FW version A.10.17 or above. If an older version of the FW is present then upgrade the FW to the latest version. This will be needed to back up the User Data and Factory Data.
  - a. To verify the FW version, follow these steps:
    - i. Press the System Button (7)
    - ii. Press the Soft Key **Service Diagnostics**
    - iii. Press the Soft Key **System Information**
    - iv. Find the Firmware Release and verify the version number.
  - b. If the FW is less than A.10.17 upgrade the FW to the latest version from the FW download page <https://www.keysight.com/main/editorial.jsp?cc=US&lc=eng&ckey=2639018&nid=-32495.1150124.02&id=2639018>
3. Backup the User Data and Factory Data on the unit:
  - a. The process will require a SD Card or USB Flash Drive formatted in FAT32 and less than 32 GB's in size.
  - b. FW version will need to A.10.17 or above, if an earlier version of the FW is loaded use the

process above to upgrade the FW.

c. Use the following steps to start the backup process:

- i. Press the System Button **(7)**
- ii. Press the Soft Key **System Configuration**
- iii. Press the Soft Key **More**
- iv. Press the Soft Key **Firmware Update**
- v. Press the Soft Key **Start Installer**
- vi. Press the Soft Key **Utility**
- vii. Press the Soft Key **Backup Data**
- viii. When prompted to include user data press the Soft Key **Yes**
- ix. When prompted to include factory data press the Soft Key **Yes**
- x. When prompted to select the backup file location press the Soft Key **(SD Card)** for SD cards and **(USB)** for USB Flash Drives.
- xi. When the process is complete press the Soft Key **Close**

4. Save the SD card or USB flash drive in a safe location (i.e., you will need it to restore the data after re-assembling the unit).

5. Download the file FFoxbuild.exe from <http://69.12.214.222/fieldfox/FieldFoxServiceNote/>.

6. Use your laptop or PC to build the FFoxBuild bootable SD card:

- a. Download the FFoxBuild.exe file.
- b. Insert a SD card of 32 GB's or less Formatted in FAT32 into your PC or Laptop.
- c. Run the FFoxBuild.exe file on your PC or Laptop.
- d. Follow the onscreen prompts (you will need to run this as an Administrator on your PC or Laptop.
- e. Once the SD card build process is complete, set the card aside it will be used later. Be careful to only use this SD card when instructed to, it will format and delete all data on the FieldFox including Factory Calibration information.

7. All of the preliminary processes are now completed. You can now move on to the SD card replacement.

### SD Card Replacement Process:

1. Power down the FieldFox and remove the battery

2. Refer to the "Replacing the A6 SOM Board" section in the Keysight FieldFox Handheld Analyzers Service Guide (N9927-90003) located here <https://literature.cdn.keysight.com/litweb/pdf/N9927-90003.pdf>.

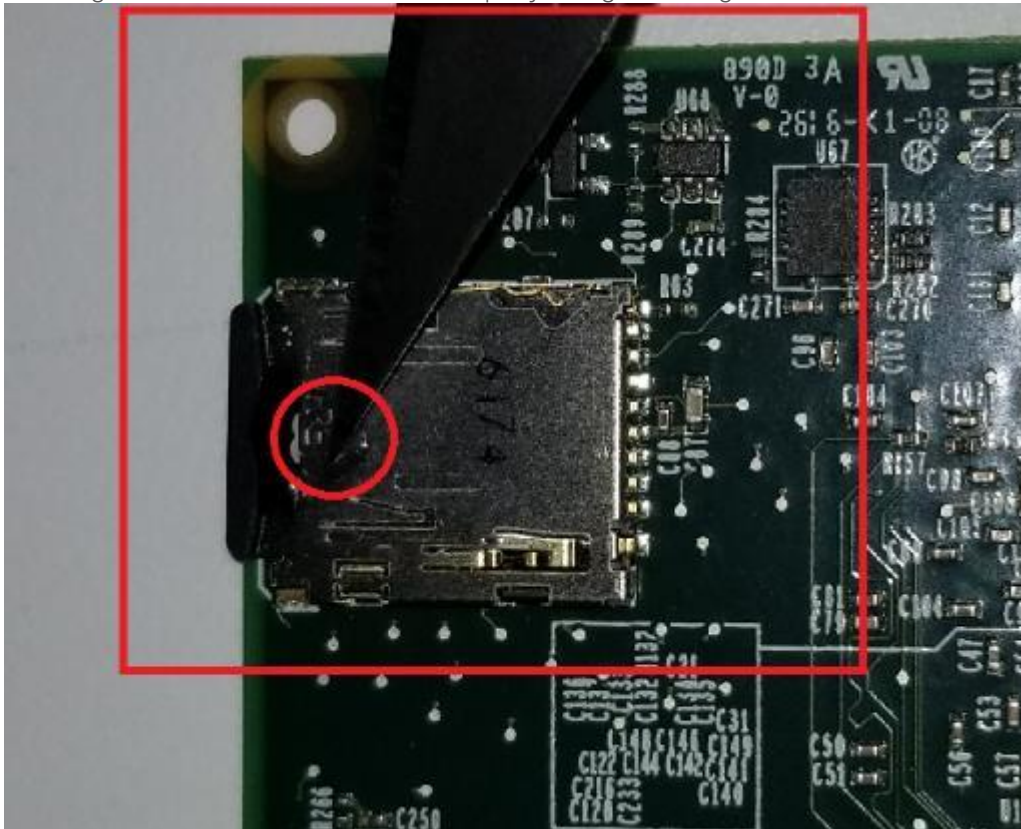
- a. Be sure NOT to remove the System board. Only remove the screws on the system board shield to access the CPU board. Leave the system board attached to the RF Assembly.

3. Once you have removed the 4 screws holding down the CPU board use the following instructions to remove the SD card:

- a. Place the CPU board on an ESD safe mat or work area.
- b. Turn the CPU board so the SD Card Socket is facing up.

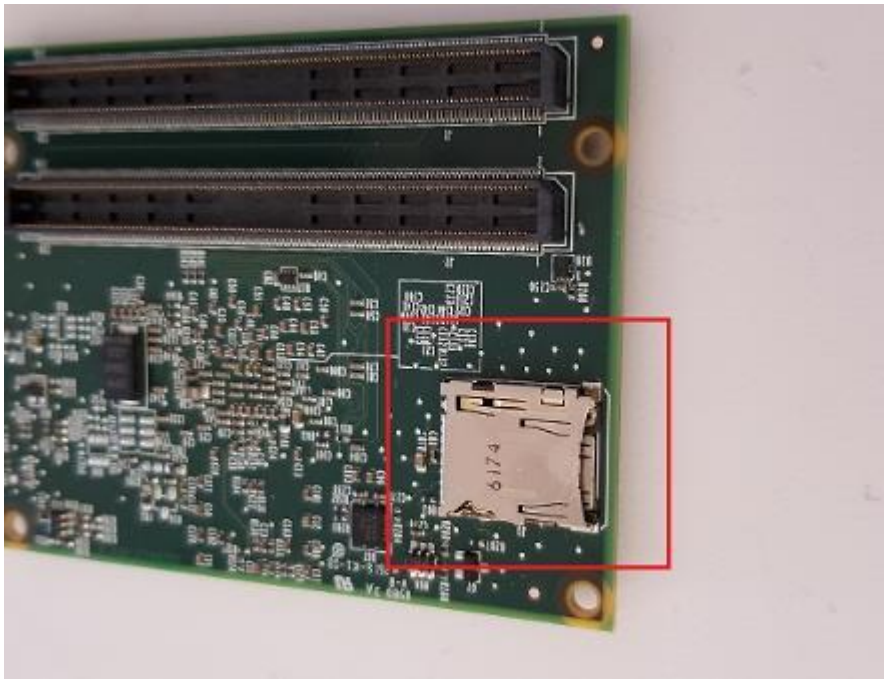


c. Using an Exacto Knife remove the Epoxy bridge holding the SD Card into the SD card socket.

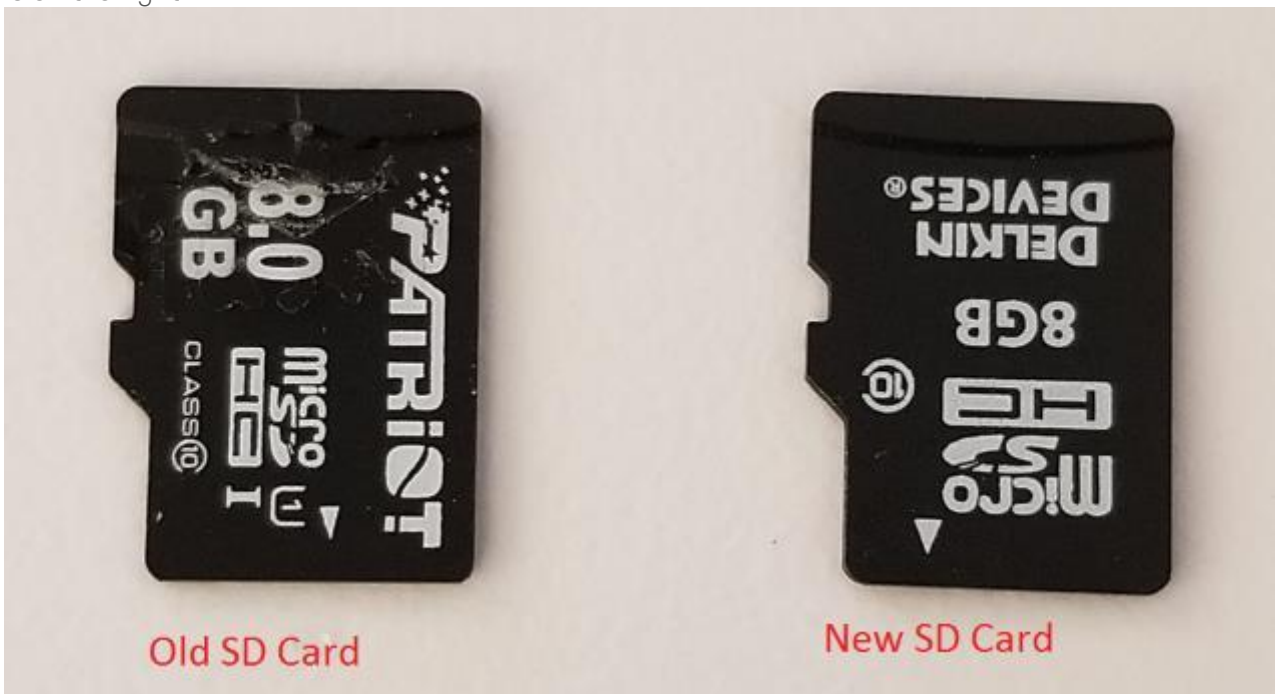


d. Use caution to not damage the socket or other parts of the CPU board.

e. To remove the SD card, press the SD card slightly in towards the socket, it will click and then release to remove the SD card. Remove any extra epoxy that may be left.

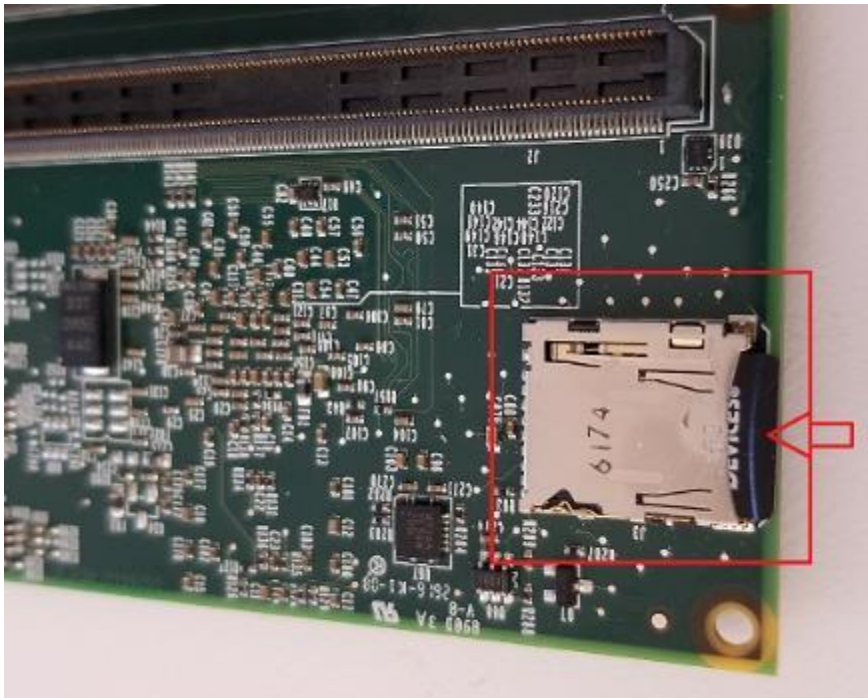


f. Here are the Old and New SD cards. The old SD card (Patriot) is on the left. The New (Delkin) is on the right.

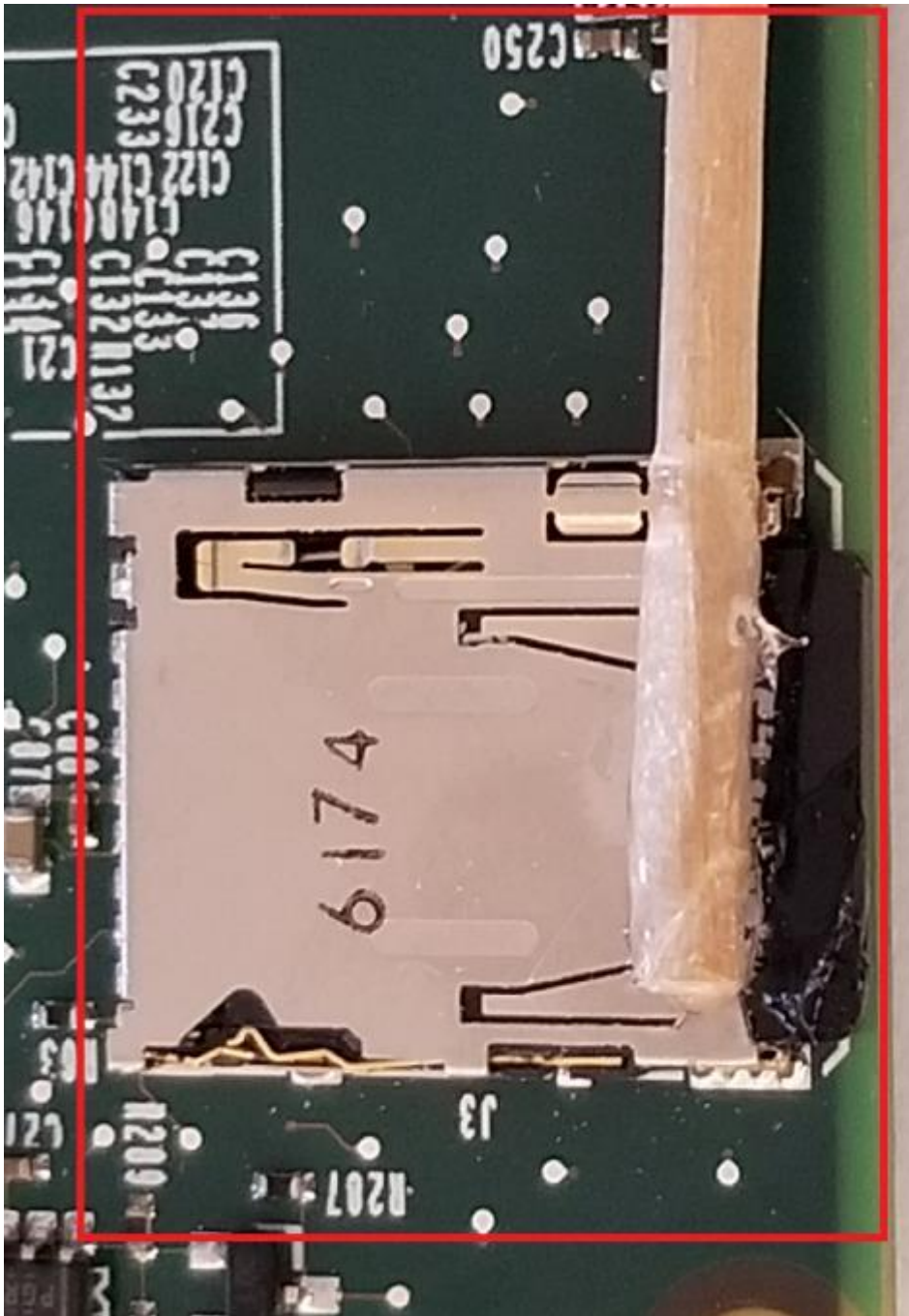


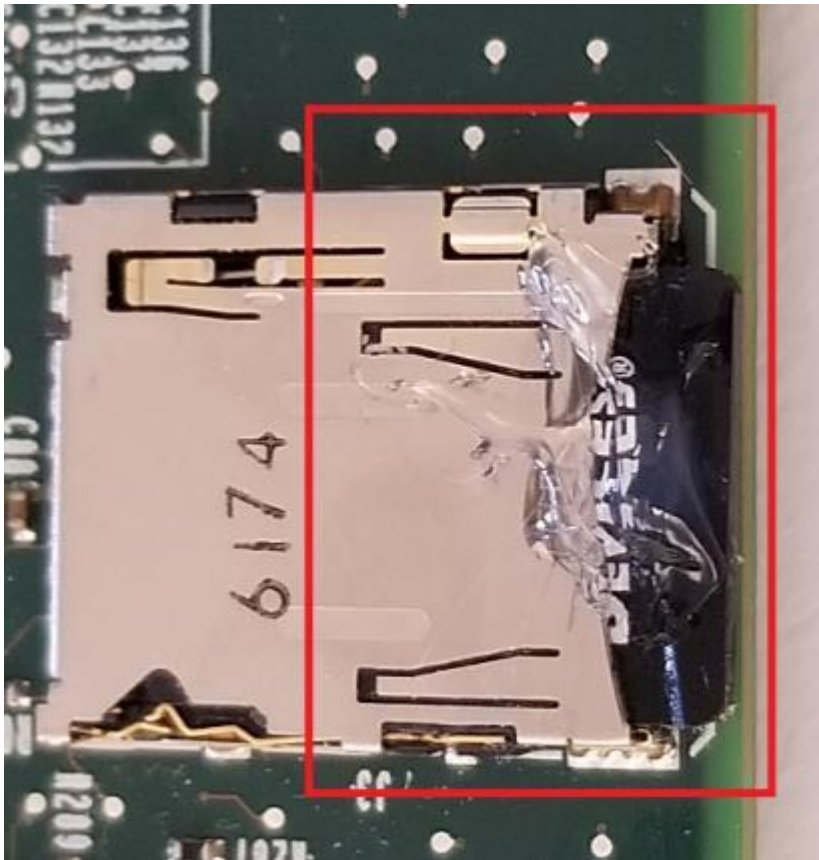
g. Insert the NEW SD card into the SD card socket and press it in until you hear a click, then release. The SD card is now locked in the socket.





h. It is now necessary to add a small amount of RTV (part number 0470-0450) to bridge the SD card to the SD card socket. Using a wooden Q-Tip place a small amount of RTV on both the SD card and the socket.





- i. Set the CPU aside for about 20 min to allow the RTV to harden. It will not become completely hard and may be a bit tacky to the touch. This is ok and it will completely dry in the unit.
4. Refer to page 145 in the Keysight FieldFox Handheld Analyzers Service Guide (N9927-90003) located [here http://literature.cdn.keysight.com/litweb/pdf/N9927-90003.pdf](http://literature.cdn.keysight.com/litweb/pdf/N9927-90003.pdf) for re-assembly.
5. Once re-assembled, it is time to load the OS and FW on the SD card.
  - a. Located the FFoxBuild SD card you made earlier to load the FW.
  - b. Insert the FFoxBuild SD card into the external SD card slot on the right side of the FieldFox. This is located in the middle door.
  - c. Plug in the Power Supply
  - d. Power up the FieldFox by using the power button in the bottom left corner of the unit.
  - e. Follow the on-screen prompts, this is mostly an automated process.
  - f. This process will take about 15 minutes to complete.
  - g. Once the process is complete and the FW is up and running the process is complete.
6. It is now time to recover the User Data and Factory Data on the unit.
  - a. Use the following steps to start the Recovery process.
    - i. Press the System Button (7)
    - ii. Press the Soft Key **System Configuration**
    - iii. Press the Soft Key **More**
    - iv. Press the Soft Key **Firmware Update**
    - v. Press the Soft Key **Start Installer**
    - vi. Press the Soft Key **Utility**



- vii. Press the Soft Key **Restore Data**
- viii. Use the arrow keys to select the Backup File. The Backup File will have the unit's Model and Serial number in the file name.
- ix. Press the Soft Key **Select** to select the file.
- x. When prompted to Restore USER DATA Press the Soft Key **Yes**.
- xi. When prompted to Restore the FACTORY DATA Press the Soft Key **Yes**.
- xii. When prompted ("ARE YOU SURE") Press the Soft Key **Yes**.
- xiii. Once the Restore process has completed. Press the Soft Key **Close**.
- xiv. Press the Soft Key Exit.
- xv. Reboot the FieldFox to insure the Factory Data has been restored.

7. The Service Note process is complete and the unit can be returned to the normal Service Center Process.

If you have any questions about this process please contact:  
 Christopher Rich  
[Christopher\\_rich@keysight.com](mailto:Christopher_rich@keysight.com)

#### Revision History:

| Date         | Service Note Revision | Author            | Reason for Change |
|--------------|-----------------------|-------------------|-------------------|
| 18 sept 2018 | 01                    | C. Rich/K. Stengl | As Published      |
|              |                       |                   |                   |
|              |                       |                   |                   |
|              |                       |                   |                   |

Serial Numbers:

|            |
|------------|
| MY56161089 |
| MY57201007 |
| MY57201022 |
| MY57201023 |
| MY57201068 |
| MY57201071 |
| MY57201090 |
| MY57201100 |
| MY57201119 |
| SG57207001 |
| US55240364 |