

Part A Introduction

This part introduces the TA703-01-0000 Change Over Module. It contains the following sections:

Section	Title	Page
1	Overview	A3
2	System Configuration	A5
3	Variants	A7
4	Specifications	A9
5	Operating Modes	A11
6	Hardware Description	A13
6.1	General	A13
6.2	Front Panel	A14
6.3	Rear Panel	A14
6.4	Mechanical Parts List	A15

1 Overview

The TA703-01-0000 Change Over Module provides automated failure protection for a Tait T800 base station which has a standby transmitter, receiver and power supply. If a fault is detected in the operating base station, the unit can automatically switch operation to the standby base station and indicate the fault on the front panel.

The module either identifies a fault condition in the active repeater, or compares a measure on the active repeater and a measure on the standby repeater. It gives flexibility in alarm monitoring and switching and can be operated locally or remotely.

The TA703-01-0000 Change Over Module replaces the TA703-01 and has many added features, including:

- Simultaneous monitoring Active and standby Base stations
- Intelligent switchover on failure.
- Enhanced alarm connection options
- Removal of internal RF plumbing
- Optional +5v regulator for use by other modules.
- A DB25 connector for flexible connection configurations.
- RSSI switching
- Future modem option allows technicians in the field to easily detect the error condition after change over.
- Mode B provides continuous alarm monitoring and switching, and independent TX and RX switching

The TA703-01-0000 Change Over Module has a wide range of options and functions. For more information on these, power monitoring options and the installation kits, see **Variants** on page A7.

Note: Throughout this manual, the upper T800 is called Base A, the lower T800 is Base B. Base A is the normally active T800 and Base B is the standby, unless stated otherwise.

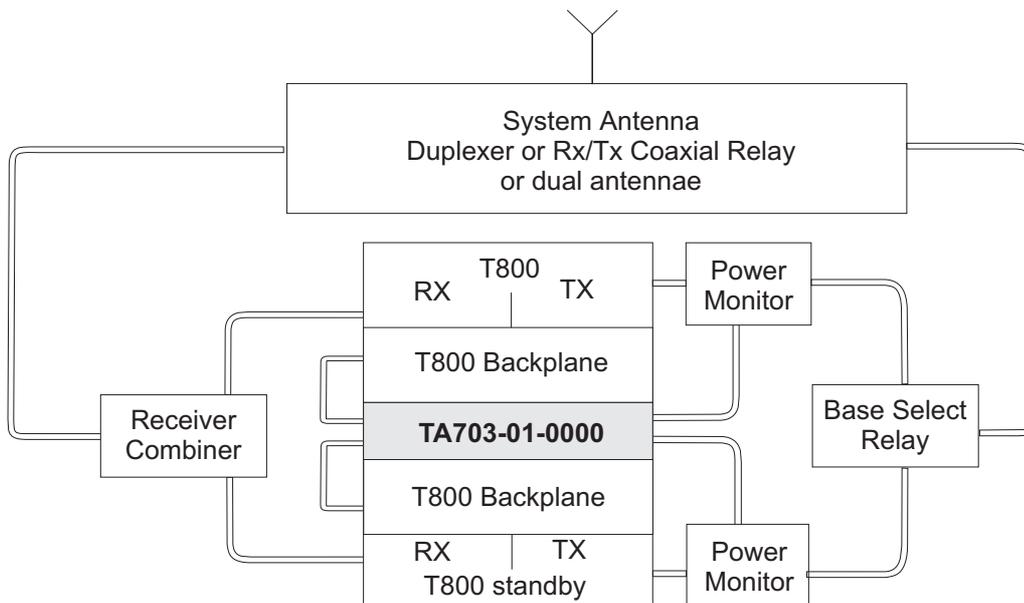
2 System Configuration

A TA703-01-0XXX Change Over Module system can be configured in a number of ways, according to customer requirements.

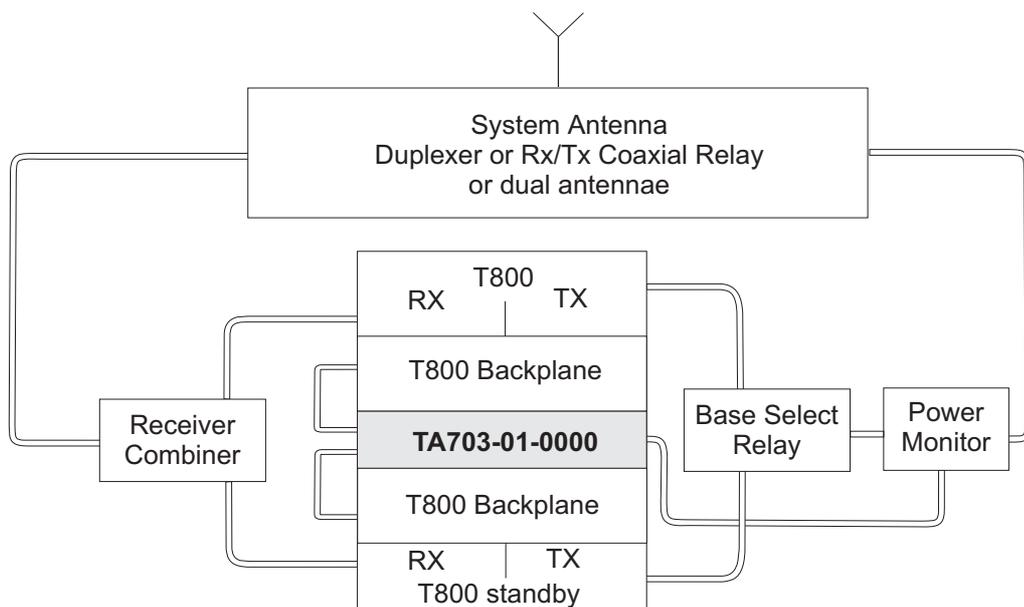
The system can be set up with either a single, dual or no power monitors. Where no power monitor is fitted, power is monitored by the T800 transmitter power monitor signals. The system may have a duplexer, RX/TX Coaxial Relay or dual antennae.

The three block diagrams that follow show some typical configuration options:

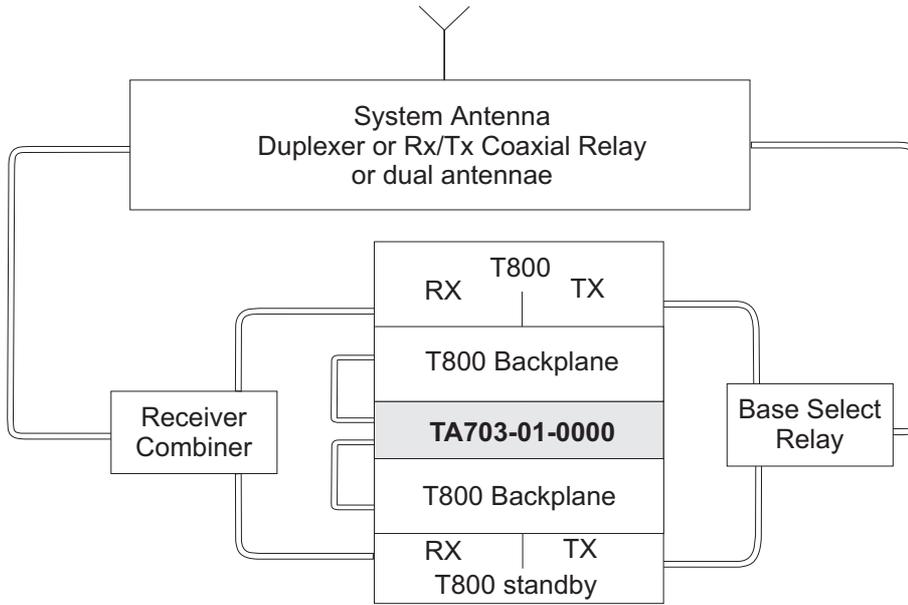
Typical Two Power Monitor System Configuration



Typical One Power Monitor System Configuration



Internal T800 Power Monitoring Configuration



3 Variants

The TA703-01-XXXX Change Over Module is available in six variants according to the frequency, with further options provided within each variant.

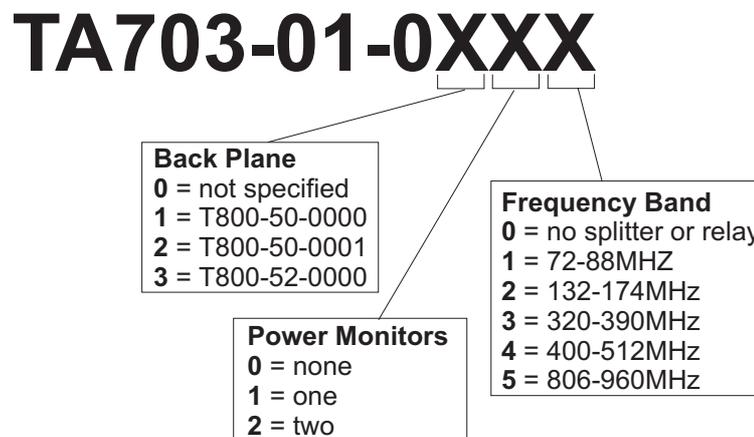
TA703-01-0000	Standard change over module, two antennae working
TA703-01-0XX1	Change over 72-88MHz
TA703-01-0XX2	Change over 132-174 MHz
TA703-01-0XX3	Change over 320-390MHz
TA703-01-0XX4	Change over 400-512MHz
TA703-01-0XX5	Change over 806-960MHz

The difference between the variants is the receiver splitter and transmitter power monitor modules, which are specific for a particular frequency range. Model -0XX1 to -0XX5 require a single power monitor to monitor power from both base stations. The Change Over Module is also able to monitor each base station separately. In this case, the module requires a receiver splitter and an additional power monitor module which require installation with the Change Over Module. Note that the additional power monitor modules are frequency sensitive, and must be compatible with the base stations they monitor.

Models -0XX1 to -0XX5 include a coaxial relay for transmitter output change over.

The Change-Over Module system is called TA703-01-XXXX and contains a TA703-01-0000 Change-Over Unit plus a coaxial Relay and a Receiver Splitter in the ordered frequency band. A wide range of power monitoring options are available with the unit, and installation kits are included, based on the T800 back plane model.

The diagram below shows how the variant numbering system operates:



For example: TA703-01-0121 monitors T800 base stations which

- have back planes T800-50-0000
- require two separate power monitors
- operate in the 72-88MHz band

The table on the following page provides details of all variants.

IPN	Back Plane	Install Kit IPN	Power Mon	Power Monitor Kit IPN	TA703-01-000X	Frequency
TA703-01-0000	None	None	0		TA703-01-0000	None
TA703-01-0101	T800-50-0000	TA703-11-0010	0		TA703-01-0001	72-88MHz
TA703-01-0102	T800-50-0000	TA703-11-0010	0		TA703-01-0002	132-174MHz
TA703-01-0103	T800-50-0000	TA703-11-0010	0		TA703-01-0003	320-390MHz
TA703-01-0104	T800-50-0000	TA703-11-0010	0		TA703-01-0004	400-512MHz
TA703-01-0105	T800-50-0000	TA703-11-0010	0		TA703-01-0005	806-960MHz
TA703-01-0111	T800-50-0000	TA703-11-0010	1	TA703-10-0010	TA703-01-0001	72-88MHz
TA703-01-0112	T800-50-0000	TA703-11-0010	1	TA703-10-0011	TA703-01-0002	132-174MHz
TA703-01-0113	T800-50-0000	TA703-11-0010	1	TA703-10-0011	TA703-01-0003	320-390MHz
TA703-01-0114	T800-50-0000	TA703-11-0010	1	TA703-10-0011	TA703-01-0004	400-512MHz
TA703-01-0115	T800-50-0000	TA703-11-0010	1	TA703-10-0012	TA703-01-0005	806-960MHz
TA703-01-0121	T800-50-0000	TA703-11-0010	2	TA703-10-0010	TA703-01-0001	72-88MHz
TA703-01-0122	T800-50-0000	TA703-11-0010	2	TA703-10-0011	TA703-01-0002	132-174MHz
TA703-01-0123	T800-50-0000	TA703-11-0010	2	TA703-10-0011	TA703-01-0003	320-390MHz
TA703-01-0124	T800-50-0000	TA703-11-0010	2	TA703-10-0011	TA703-01-0004	400-512MHz
TA703-01-0125	T800-50-0000	TA703-11-0010	2	TA703-10-0012	TA703-01-0005	806-960MHz
TA703-01-0201	T800-50-0001	TA703-11-0011	0		TA703-01-0001	72-88MHz
TA703-01-0202	T800-50-0001	TA703-11-0011	0		TA703-01-0002	132-174MHz
TA703-01-0203	T800-50-0001	TA703-11-0011	0		TA703-01-0003	320-390MHz
TA703-01-0204	T800-50-0001	TA703-11-0011	0		TA703-01-0004	400-512MHz
TA703-01-0205	T800-50-0001	TA703-11-0011	0		TA703-01-0005	806-960MHz
TA703-01-0211	T800-50-0001	TA703-11-0011	1	TA703-10-0010	TA703-01-0001	72-88MHz
TA703-01-0212	T800-50-0001	TA703-11-0011	1	TA703-10-0011	TA703-01-0002	132-174MHz
TA703-01-0213	T800-50-0001	TA703-11-0011	1	TA703-10-0011	TA703-01-0003	320-390MHz
TA703-01-0214	T800-50-0001	TA703-11-0011	1	TA703-10-0011	TA703-01-0004	400-512MHz
TA703-01-0215	T800-50-0001	TA703-11-0011	1	TA703-10-0012	TA703-01-0005	806-960MHz
TA703-01-0221	T800-50-0001	TA703-11-0011	2	TA703-10-0010	TA703-01-0001	72-88MHz
TA703-01-0222	T800-50-0001	TA703-11-0011	2	TA703-10-0011	TA703-01-0002	132-174MHz
TA703-01-0223	T800-50-0001	TA703-11-0011	2	TA703-10-0011	TA703-01-0003	320-390MHz
TA703-01-0224	T800-50-0001	TA703-11-0011	2	TA703-10-0011	TA703-01-0004	400-512MHz
TA703-01-0225	T800-50-0001	TA703-11-0011	2	TA703-10-0012	TA703-01-0005	806-960MHz
TA703-01-0301	T800-52-0000	TA703-11-0012	0		TA703-01-0001	72-88MHz
TA703-01-0302	T800-52-0000	TA703-11-0012	0		TA703-01-0002	132-174MHz
TA703-01-0303	T800-52-0000	TA703-11-0012	0		TA703-01-0003	320-390MHz
TA703-01-0304	T800-52-0000	TA703-11-0012	0		TA703-01-0004	400-512MHz
TA703-01-0305	T800-52-0000	TA703-11-0012	0		TA703-01-0005	806-960MHz
TA703-01-0311	T800-52-0000	TA703-11-0012	1	TA703-10-0010	TA703-01-0001	72-88MHz
TA703-01-0312	T800-52-0000	TA703-11-0012	1	TA703-10-0011	TA703-01-0002	132-174MHz
TA703-01-0313	T800-52-0000	TA703-11-0012	1	TA703-10-0011	TA703-01-0003	320-390MHz
TA703-01-0314	T800-52-0000	TA703-11-0012	1	TA703-10-0011	TA703-01-0004	400-512MHz
TA703-01-0315	T800-52-0000	TA703-11-0012	1	TA703-10-0012	TA703-01-0005	806-960MHz
TA703-01-0321	T800-52-0000	TA703-11-0012	2	TA703-10-0010	TA703-01-0001	72-88MHz
TA703-01-0322	T800-52-0000	TA703-11-0012	2	TA703-10-0011	TA703-01-0002	132-174MHz
TA703-01-0323	T800-52-0000	TA703-11-0012	2	TA703-10-0011	TA703-01-0003	320-390MHz
TA703-01-0324	T800-52-0000	TA703-11-0012	2	TA703-10-0011	TA703-01-0004	400-512MHz
TA703-01-0325	T800-52-0000	TA703-11-0012	2	TA703-10-0012	TA703-01-0005	806-960MHz

4 Specifications

Supply Voltage 10.8 - 16V DC

Current Consumption 100mA

Change Over by transparent latching relays
 2 wire Rx Audio
 2 wire Tx Audio
 Rx-Gate + RSSI
 Tx-Key
 Coaxial Relay for Transmitter Output
 Switch time 3mSec after fault detection

Note: Receiver signals are derived from a single antenna and split to the respective receivers by a low insertion loss power splitter.

Change Over Criteria Supply
 Forward Power
 Reverse Power
 RSSI
 Rx-Gate

External Alarms All Alarm - Base A
 Supply - Base A
 Forward Power - Base A
 Reverse Power - Base A
 RSSI - Base A
 Rx-Gate - Base A
 All Alarm - Base B
 Supply - Base B
 Forward Power - Base B
 Reverse Power - Base B
 RSSI - Base B
 Rx-Gate - Base B
 Low Battery Alarm combined with All Alarm A and B

Alarm Polling Mode A 20mSec
 Mode B 10mSec

Additional Features Output for Rx/Tx Relay for operation in simplex mode
 Optional DC-DC converter to power third party equipment

5 Operating Modes

The TA703-01-0000 Change Over Module currently operates in two standard modes, with up to six additional modes available for customisation.

- Mode A is the standard operating mode, enhanced but backward-compatible with the TA703-01
- Mode B is an additional mode with specific customised features

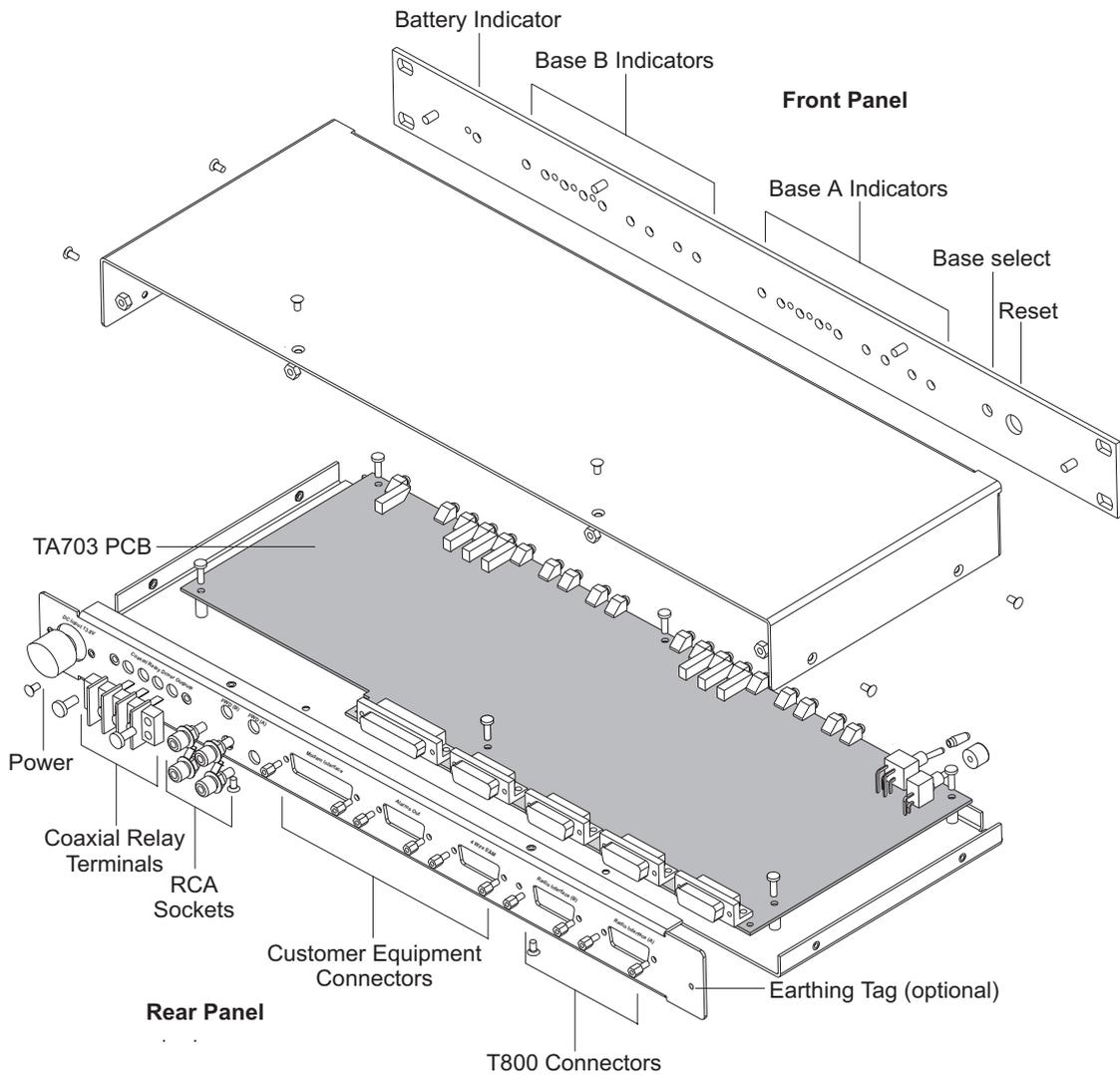
Throughout this manual references are made to both modes. This table highlights the differences and similarities between Mode A and B.

	Mode A	Mode B
Power reset sequence	✓	✓
Remote Select	✓	✓
Remote Reset	✓	✓
Front panel base station selection	✓	✗
Front panel reset	✓	✓
PSU monitor	✓	✓
FWD monitor	✓	✓
REV monitor	✓	✓
RSSI monitor	✓	✓
Mute monitor	✓	✓
Independent TX and Rx switching	✗	✓
Operation following error condition	One shot	Continuous
Combined Rx gate	✗	✓
Combined RSSI and mute alarm	✗	✓
Alarm polling interval	20mSec	10mSec
Consecutive error samples before alarm activates	8	4
Tx-Key change over	✓	✗
Tx change over	Automatic or Manual (local or remote)	Manual (remote only)
Rx change over	Automatic or Manual (local or remote)	Manual (remote only)

6 Hardware Description

6.1 General

The TA703-01-000X Change Over Module consists of a 1U 19" rack mount unit with switches and LED indicators on the front panel, and connectors on the rear. Inside the unit a single Control PCB, flush-mounted against the front panel, interfaces to T800 base stations and customer's equipment via D Range connectors on the back panel. Power monitor cables connect via RCA sockets on the back panel. A four way terminal block connects to two coaxial relays, one for base selection and one for RX/TX change over.



6.2 Front Panel

The Change Over Module front panel has a series of LED indicators, switches, and preset resistors.

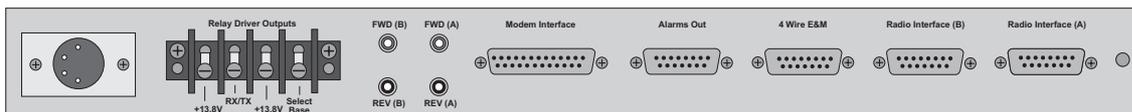


- 1 x Momentary push button switch to clear and reset after an error condition
- 1 x Double throw, double poll toggle switch for local, manual T800 selection
- 2 x yellow LEDs indicating active or standby status for Base A T800
- 2 x green LEDs indicating TX and RX activity for Base A T800
- 5 x red LEDs indicating error conditions on Base A T800
- 3 x preset resistors for adjusting fault condition trigger levels for Base A faults
- 2 x yellow LEDs indicating active or standby status for Base B T800
- 2 x green LEDs indicating TX and RX activity for Base B T800
- 5 x red LEDs indicating error conditions on Base B T800
- 3 x preset resistors for adjusting fault condition trigger levels for Base B faults
- 1 x red LED indicating battery power status
- 1 x preset resistor for adjusting battery fault trigger level

Note: A more detailed description of these components is included in Part B, **Operation**.

6.3 Rear Panel

The Change Over Module rear panel has a series connectors as shown below.



Connection to the Change Over Module is as follows:

- 4 pin XLR plug Power Input (+13.8v, 1.2A max)
- Tag-strip for Co-axial relay control output.
- 4 x RCA sockets for Forward and Reverse power on Base A and Base B
- A separate 25 pin D-range plug provides customer-specific interface.
- 1 x 15 pin D-range plug to provide the switched receiver and transmitter signals to the customers remote control site
- 1 x 15 pin D-range plug to provide the alarm signals to the remote control site
- 2 x 25 pin D-range connectors plug for connection to Base A and Base B.
- Earthing tag (optional)

Note: Pin out information for these connectors is included in Part C, **Circuit Description**.

6.4 Mechanical Parts List

The table below lists all mechanical parts which are not covered elsewhere in this manual. When ordering parts, please use the IPN and description.

IPN	Qty	Description	Where used
240-02100-53	2	SKT PHONO PNL MTG NICKEL RED	Rear panel - FWD PWR Base A and Base B
240-02100-54	2	SKT PHONO PNL MTG NICKEL BLK	Rear panel - REV PWR Base A and Base B
303-11208-00	1	CHASSIS TA703 CHANGEOVER UNIT	Module Tray
303-23158-00	1	COVER TA703 CHANGEOVER UNIT	Module top cover
316-06739-01	1	PNL FRT TA703 CHANGEOVER UNIT	Module Front panel
345-00040-09	10	SCRW M3*6MM CSK POZI TRUNCATE	
345-00040-11	6	SCRW M3*10MM P/POZI ST BZ	
345-00040-12	2	SCRW M3*10MM CSK POZI ST BZ	
349-00020-46	2	SCRW M4X16MM P/POZ T/T BLK	Rear panel - Relay Driver terminal block
352-00010-10	4	NUT M4 COLD FORM HEX ST BZ	
354-01043-00	10	FASTENER 4-40 SCREW LOCK	
369-00010-14	3	TIE CABLE NYLON 100*2.6MM	Internal - PCB wiring
316-21260-01	1	PNL REAR TA703 CHANGEOVER UNIT	Module rear panel
240-04030-29		BARRIER SCREW TO TAG T/B 4WAY	Rear panel - relay driver t/b
W703-00-0000	1	WIRING KIT TA703-XX-XXXX	Wires PCB to power input, relay driver output and FWD and REV PWR connectors.*
* Position and colours for these wires is included in Part E - Wiring Specifications			

