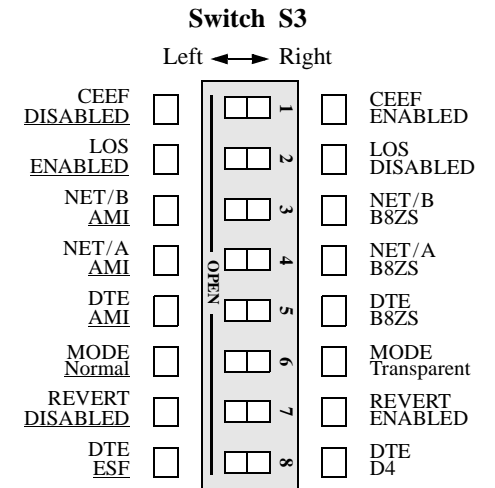


Power-up Mode

** A0, A1	S2-7	S2-8
SWITCHES	closed	closed
RAM	open	closed
MANAGER	closed	open
ROM	open	open

TAPS Configurations

Configurations	S2-5	S3-6
Transparent Slave	Closed	Closed
Normal Slave	Closed	Open
Transparent Master	Open	Closed
Normal Master	Open	Open



NOTE: TAPS units are always used in pairs. One unit in the pair should be set as 'Master' and the other set as 'Slave'. The two units should always be configured to the same mode, for example, both 'Normal' or both 'Transparent'.

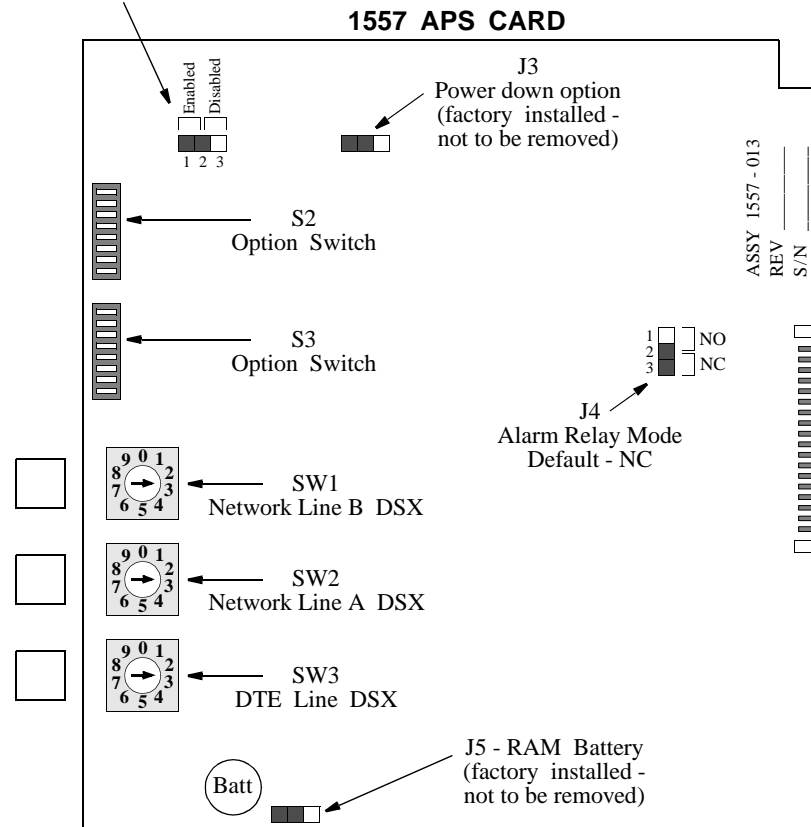
NOTE: For future reference, all DIP and rotary switches on this sheet are provided with boxes to check according to the particular user selection. Factory default settings are shown underlined.

DSX Rotary Switches

POS	NET B	NET A	DTE
	SW1	SW2	SW3
3	0 - 133' LIU*	0 - 133' LIU*	0 - 133'
4	134 - 266'	134 - 266'	134 - 266'
5	267 - 399'	267 - 399'	267 - 399'
6	400 - 533'	400 - 533'	400 - 533'
7	534 - 655'	534 - 655'	534 - 655'

* If an LIU card is equipped, SW1 and SW2 must be set to position 3.

J2
Service Select
BERG strap
(front panel switch)



Background

The 1557 Transparent Automatic Protection Switch (TAPS) is an enhanced version of TxPORT's previous automatic protection switch (APS) product. The TAPS product has an additional mode of operation that was not previously available. This mode is what makes this new automatic protection switch 'transparent'.

Earlier APS products were designed to protect T1 access lines from a central office to the customer. This was accomplished by providing automatic switching to a standby T1 circuit when the normal circuit was deemed failed.

The 1557 card was used in a rack mounted configuration in the central office. The same 1557 card was a component in a stand-alone unit for the customer end of the circuit. Because of this dual use, the 1557 card had to be configured for CO or CPE use. When configured for CPE, the 1557 card provided many of the features of an ESF CSU.

TAPS

The TAPS product is designed to provide the same type of circuit protection but its transparent mode allows the user to deploy it in configurations other than CO-to-CPE. Particularly, TAPS units are designed to protect a T1 circuit between two central offices.

When configured for transparent mode, the TAPS unit will not provide CSU type functions. In the transparent mode, the TAPS unit will not enforce ones density requirements, respond to inband loop codes, or respond to 54016 performance messages. These enhancements allow the TAPS unit to be deployed in situations where it is not required to serve as the network interface equipment.

TAPS units configured for use as CPE do not generate ANSI T1.403 performance report messages (PRM).

This is true whether the selected mode is 'transparent' or 'normal'.

Another feature of the TAPS product is a new switching criterion. This parameter was added to enhance the TAPS ability to efficiently detect incoming AIS and other severe framing impairments. The new parameter is a measure of Consecutive ESF Errored Frames (**CEEF**). A CEEF is defined as any frame with a CRC error or an OOF defect. This CEEF parameter has a fixed threshold value. Once this threshold is exceeded, the line is considered 'failed' as with any other APS switching parameter. The Line Availability Timer and all other aspects of APS switching apply to this parameter. The threshold value is set to 31. This means that 93 ms of AIS will typically cause a line to be failed (because of hardware limitations, in some cases 32 CEEFs are required to fail a circuit). This failed condition is cleared when a non-errored frame is received.

The standard TxPORT versions of the 1557 APS manual and 1559 APSM manual still apply to the TAPS products.

Configuration Details

Switch S3-6, previously defined as a spare, now has a particular function for TAPS units. Switch S3-6 is used to configure the TAPS card mode as 'normal' or 'transparent'. The drawings on the page below show how switch S3-6 should be set for the two different implementations of the TAPS unit. The settings apply to both the 1557 APS rack mount configuration and the 1558 APS stand-alone configuration.

Since the TAPS card may now be used in a mode other than CO-to-CPE, the meaning of switch S2-5 has changed somewhat from the original APS version. Before, this switch denoted which APS unit was CO and which was CPE. The CO unit was the master of the two. It controlled status polling and management features. The CPE

unit was therefore the slave. With TAPS, the CO/CPE relationship is not always valid but the Master/Slave concept remains. Therefore, switch S2-5 now denotes whether a unit is a master or slave, regardless of where the unit is physically located.

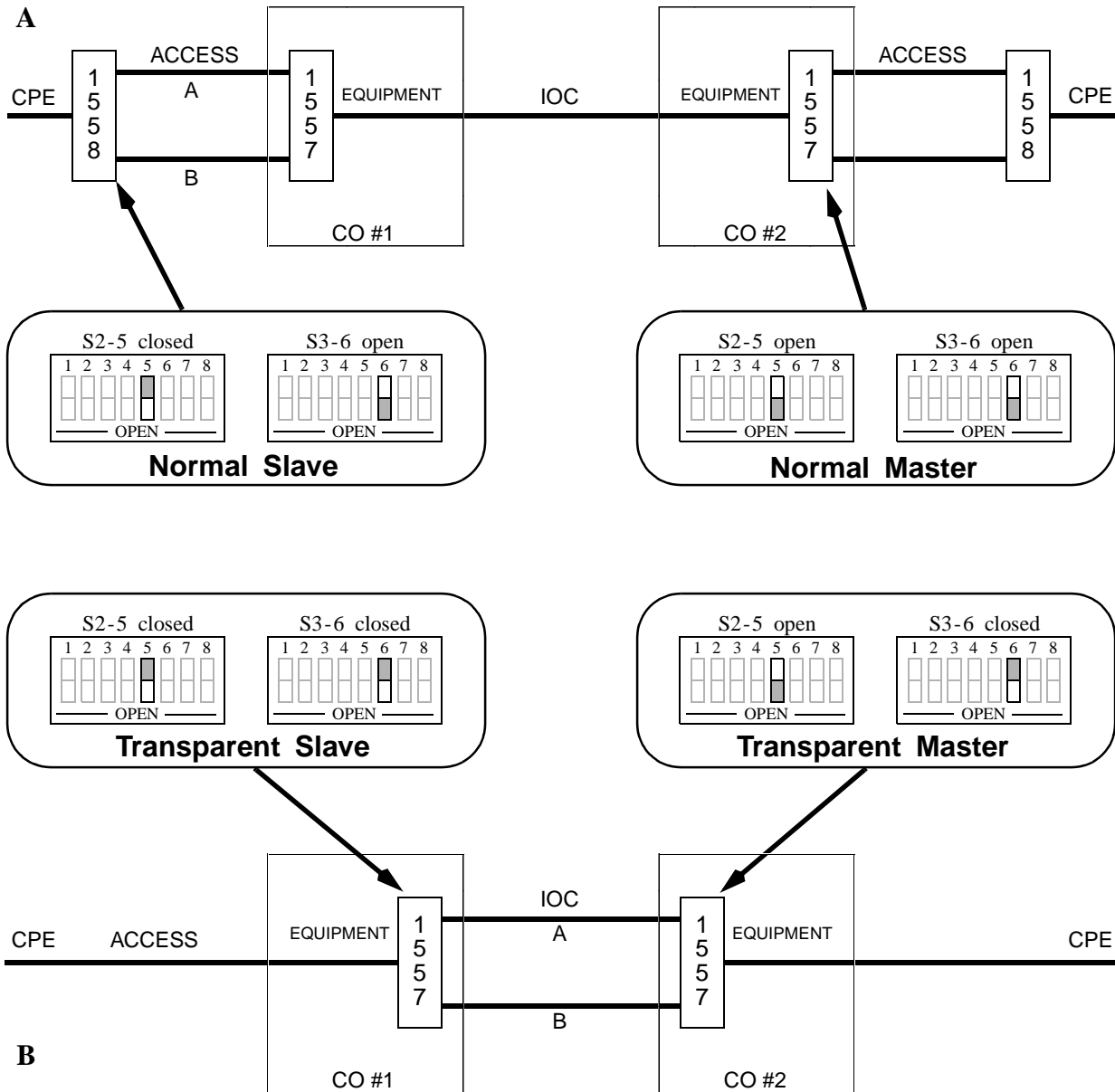
Note that in any pair of connected TAPS units, one unit should be the master and one the slave. Both units should be configured with the same mode selection, either 'Normal' or 'Transparent'.

Option switch S3-1, on the original APS units, was used to enable or disable switching based on a single out-of-frame (OOF) event. On TAPS units, switch S3-1 is used to enable and disable the new CEEF parameter described above. TAPS units no longer support the option to switch on a single OOF. (OOF is referred to as LOF in the APS Manager and its associated documentation.)

1559 APS Manager

The APS Manager may still show the LOF parameter. Configuration screens may still allow the LOF parameter to be enabled and disabled. In reality, this parameter (shown as LOF) will be the new CEEF parameter. Setting LOF [OFF] or LOF [ON] in the manager will be the equivalent of setting CEEF [OFF] or CEEF [ON] respectively. If this parameter is set to [ON], the CEEF parameter is enabled as a protection switching criterion.

When the 1559 APSM is used to control a TAPS unit, some operations will function differently depending on the mode of operation of the TAPS units. For instance, if a TAPS unit is configured for the Transparent mode, the 'CSU Loop' function of the APS Manager will not cause any action. This is because the slave TAPS will not respond to the inband loop codes. And, since the loop codes cannot be sent on the 'active' line, this function cannot be used to loop a far end CSU.

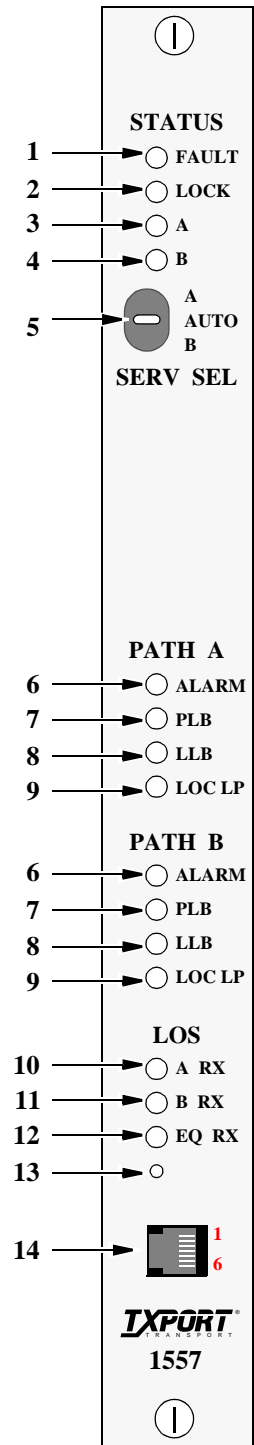


— CONFIGURATION NOTES —

- TAPS units must be configured in pairs. In each pair, one unit must be configured as a MASTER and one as a SLAVE.
- Each pair of TAPS units must be configured for the same mode, NORMAL or TRANSPARENT
- A pair of TAPS units configured as NORMAL may not be placed in the same circuit with a pair configured as TRANSPARENT.
- It is allowed (as the diagram shows) to have two pairs of TAPS units on the same circuit if they are configured for NORMAL mode.
- Take note of the setting for switches S2-7 and S2-8. These switches determine the CONFIGURATION SOURCE for the 1557 card. Switch options for Configuration Source are shown on the front page of this document. The four choices are explained in the 1557 Users Manual.
- A 1559 APS Manager connected to a 1557 configured as a MASTER unit can monitor and do maintenance functions on both the master unit and its corresponding slave unit.
- A 1559 APS Manager connected to a 1557 configured as a SLAVE unit can monitor only the performance data for the slave unit. No maintenance functions are available through the slave unit.

1557 Controls and Indicators

Index	Indicator	Description
STATUS		
1	FAULT	Indicates that the APS card has failed. Comes on briefly at power-up. (Yellow)
2	LOCK	Indicates that the current path is 'locked' by the select switch or software command. (Yellow)
3	A	Indicates that path A is carrying service. (Green)
4	B	Indicates that path B is carrying service. (Green)
5	SERV SEL AUTO/A/B	Moving this switch momentarily to A or B selects that line to carry service. Leaving the switch on A or B locks service to the chosen line. This switch overrides all other commands. In normal operation, this switch should be left in the AUTO position.
PATH A/B		
6	ALARM	Indicates that the path is in alarm OR that an alarm condition has been cleared but the Line Availability Timer is running. In either case, the path is NOT available for service. (Yellow)
7	PLB	Indicates that the Payload Loop for the path is active. (Yellow)
8	LLB	Indicates that the Line Loop for the path is active. (Yellow)
9	LOC LP	Indicates that the Local Facility Loop for the path is active. (Yellow)
LOS		
10	A RX	Indicates that no signal is being received from Path A. (Yellow)
11	B RX	Indicates that no signal is being received from Path B. (Yellow)
12	EQ RX	Indicates that no signal is being received from the DTE. (Yellow)
MISC.		
13	Bus Activity	When flashes occur 2-3 seconds apart, indicates that messages are being received on the internal data bus.
14	Control Port	This port jack currently has no function.



1557 Block Diagram

