

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
HAYSTACK OBSERVATORY
WESTFORD, MASSACHUSETTS 01886

December 24, 2002

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To: Mark 5 Development Group

From: Dan L. Smythe

Subject: The Mark 5A I/O Panel

The Mark 5A VLBI recording system is a direct hardware replacement for a Mark 4 or VLBA tape transport at either a field station or at a correlator. This compatibility is provided by a universal I/O panel with connectors for connecting cables from a Mark 4 Formatter, from a VLBA Formatter, to a VLBA Data Quality Analyzer (DQA), and to a VLBA or Mark 4 Station Unit. A block diagram of the I/O panel is shown in Dwg. No. 1 on the next page.

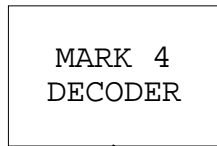
The I/O panel has two 50-pin and two 40-pin input connectors for connecting the output of a Mark 4 formatter at a data rate of 1 Gb/s. Signals from two selected tracks are routed to the Mark 4 decoder via the formatter, as shown in the block diagram.

The I/O panel also has four 40-pin input connectors for connecting the outputs of two VLBA Formatters at a combined data rate of 512 Mb/s. (Most sites outside the VLBA have only one set of formatter cards, with a maximum data rate of 256 Mb/s.) There is also a 20-pin connector compatible with the VLBA DQA input cable.

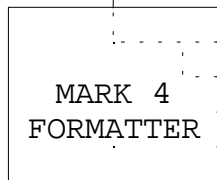
If a station has both a VLBA formatter and a Mark 4 formatter, only one set of cables can be connected at any given time, because the connectors for the VLBA formatter and for the Mark 4 formatter and decoder are connected in parallel.

The panel also has four 40-pin output connectors compatible with the data input connectors of the station unit at a Mark 4 correlator. The VLBA correlator requires an adapter module between the Mark 5 I/O panel and the station unit

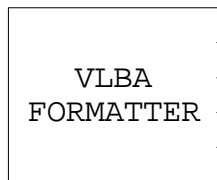
A sketch of the I/O panel is shown on pages 3 and 4, and schematic diagrams of the I/O panel are on pages 5-7.



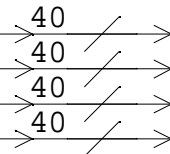
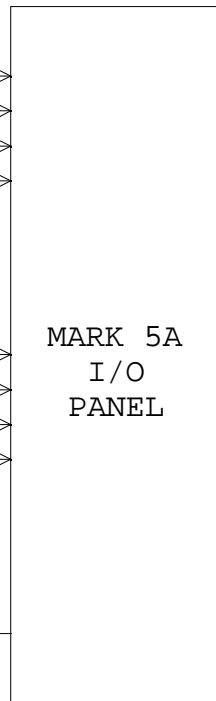
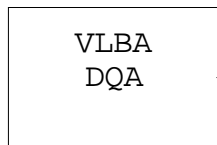
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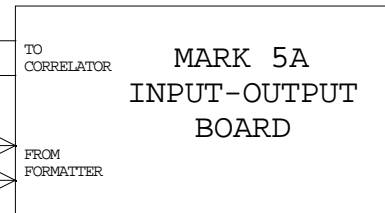
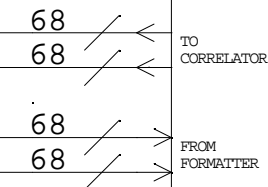
1 Gb/s



512 Mb/s



OUTPUT TO
CORRELATOR OR
SECOND MARK 5 UNIT



FPDP BUS

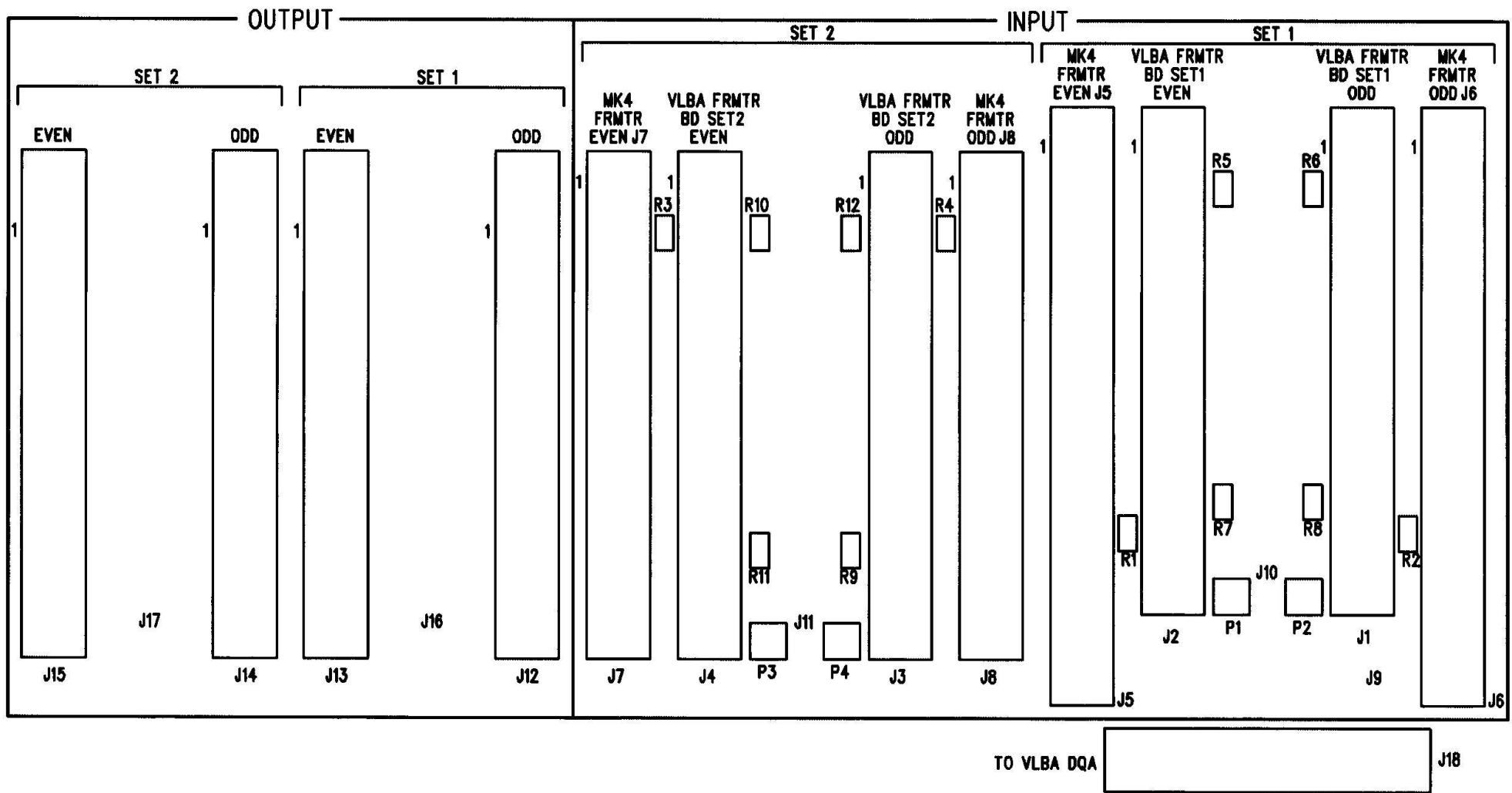


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MARK 5A I/O PANEL
BLOCK DIAGRAM

ENGR:	DAN SMYTHE	DATE:	12-24-2002_10:15
DESIGNER:		PROJECT:	
PROGRAMMER:		DATE:	12-24-2002_10:15

TASK:	SIZE:	DWG. NO.:	REV.:
	A	1	
SHEET 1		OF 1	



MARK 5 I/O PANEL

MK5A
INPUT BD
J10



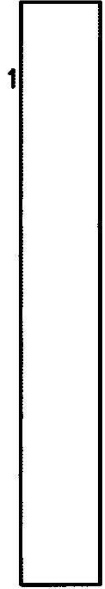
MK5A
INPUT BD
J11



MK5A
OUTPUT BD
J16



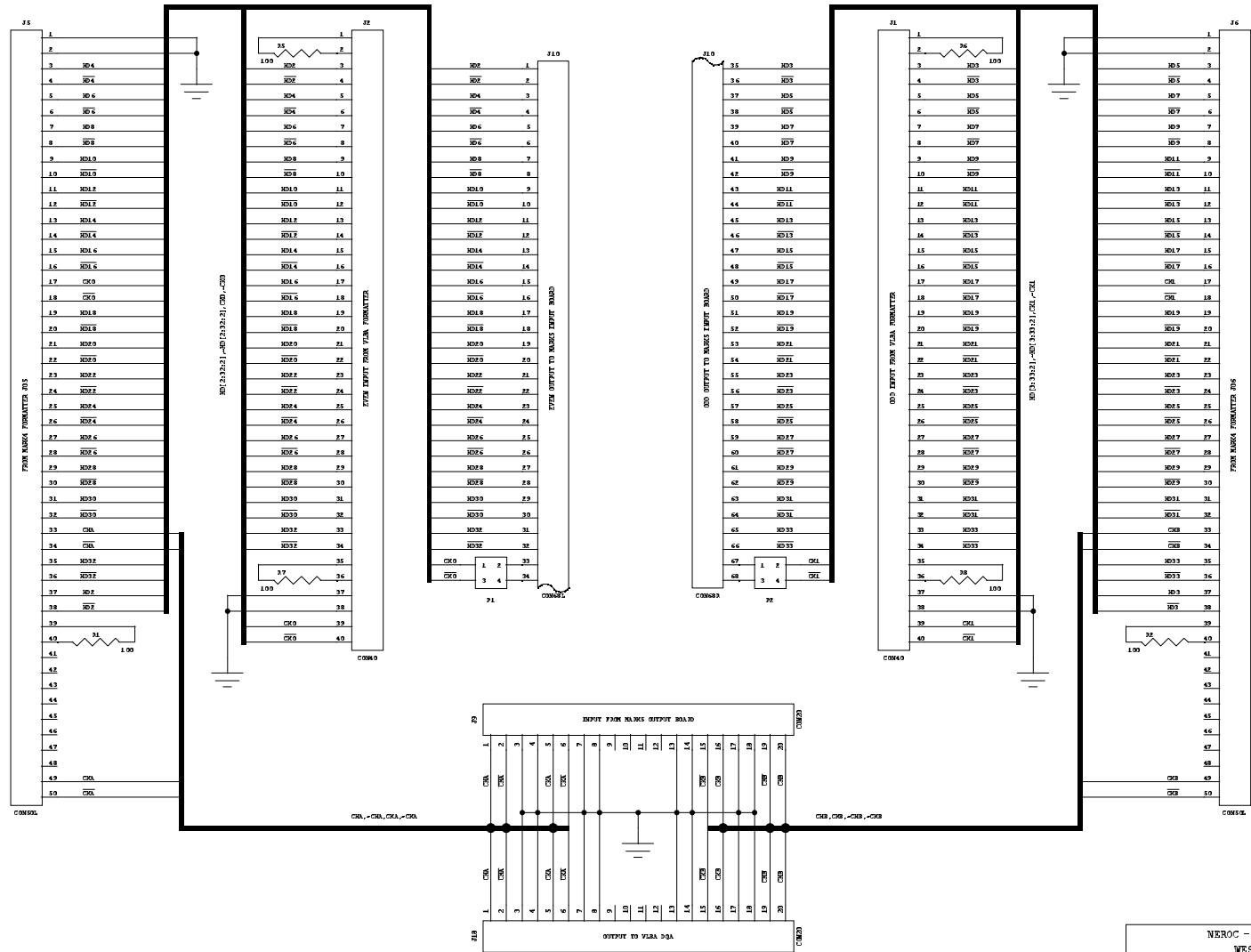
MK5A
OUTPUT BD
J17



MK5A
OUTPUT
BD J9



MARK 5 I/O PANEL
BOTTOM SILKSCREEN



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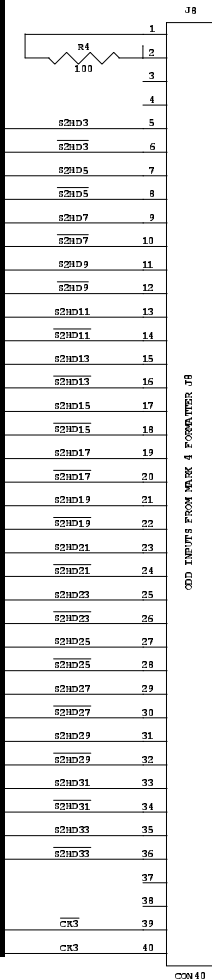
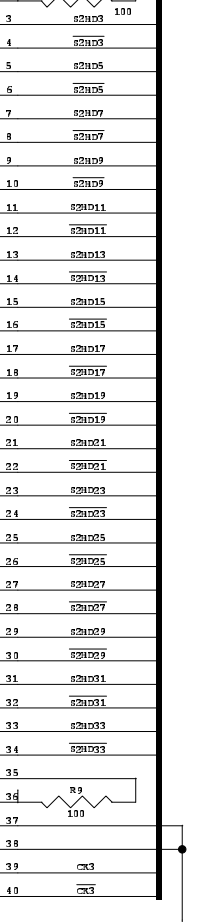
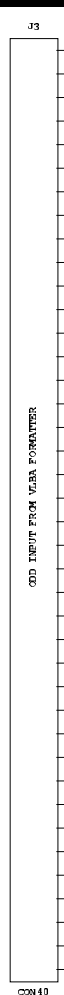
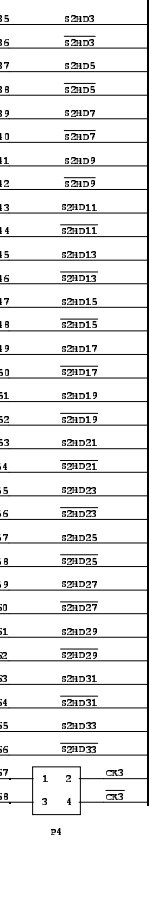
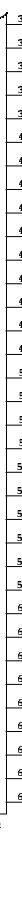
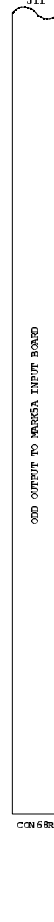
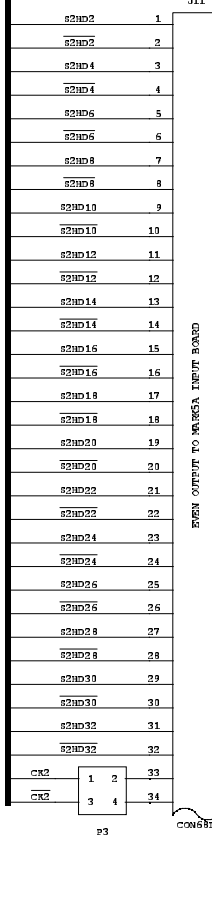
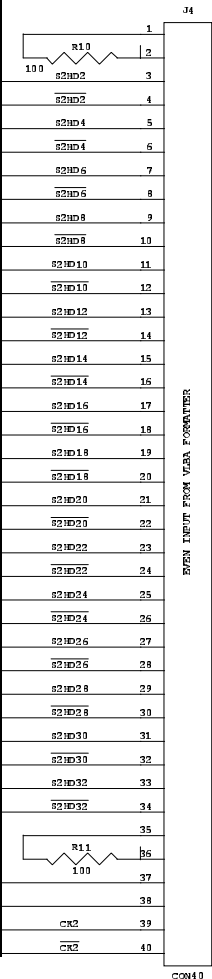
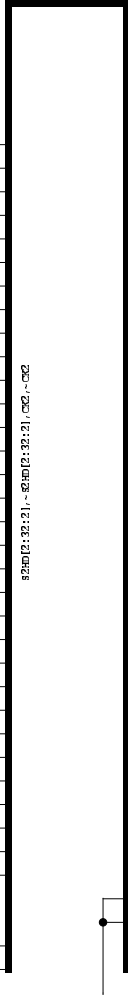
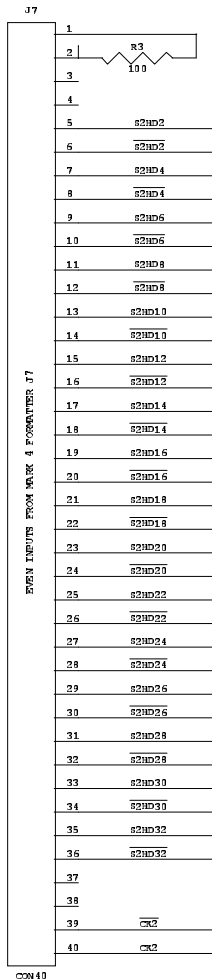
MARK 5A I/O PANEL
SET 1 FORMATTER INPUTS

DESIGNER: DAN SWITZER	DATE: 12-26-84 DWG_11-01	REV. C	SHEET 1 OF 3
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FILE: IOPANELL

DWG:

REV.	APPROVED	DATE



NSROC - HAYSTACK OBSERVATORY			
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MARK 5A I/O PANEL			
SET 2 FORMATTER INPUTS			
DATE	DESIGNER	DWG. NO.	REV.
12-26-2002_11:11	DAN SMYTHS	B	2 OF 3

APP'D	ENGR.	DAN SMYTHS
PROJ.		
PRG.		

A

B

C

FILE: IOPANEL

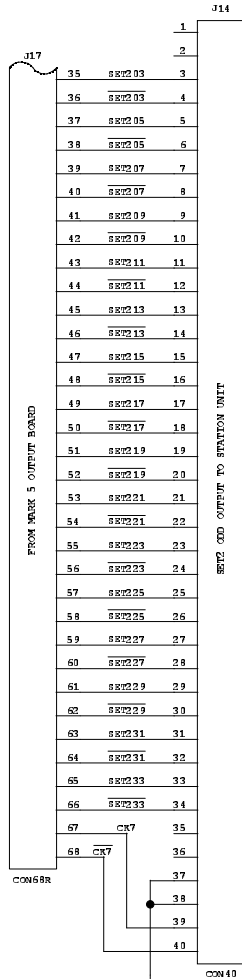
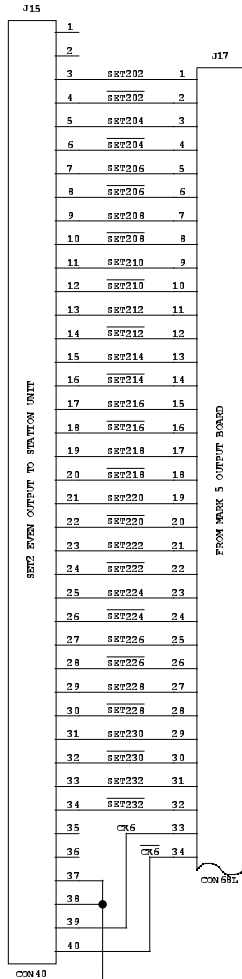
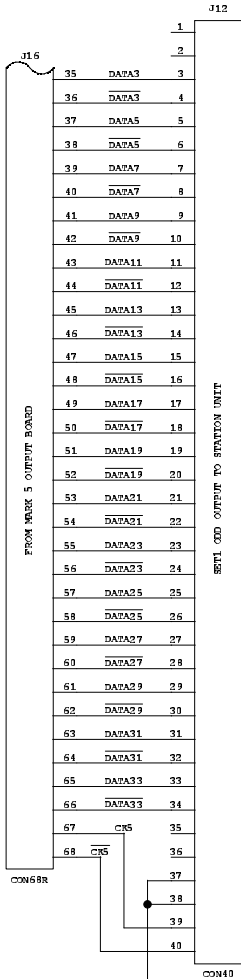
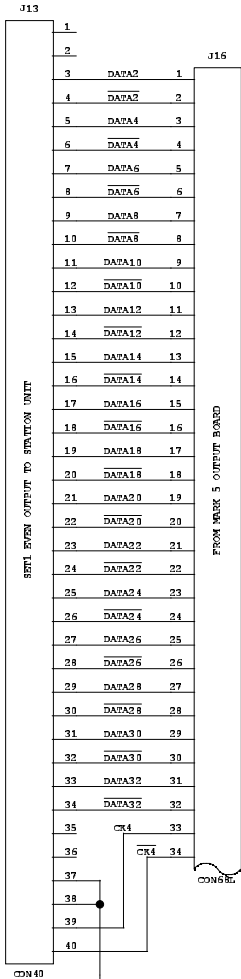
A

B

C

DWG:

REV.	APPROVED	DATE



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MARK 5A I/O PANEL			
OUTPUTS TO STATION UNIT			
PASK	SIZE	PAG. NO.	REV.
	B		
DATE 12-26-2002_11:12		SHEET 3 OF 3	

A	ENGR.	DAN SWYTHE
B	PROJ.	
D	PRG.	

A

B

C