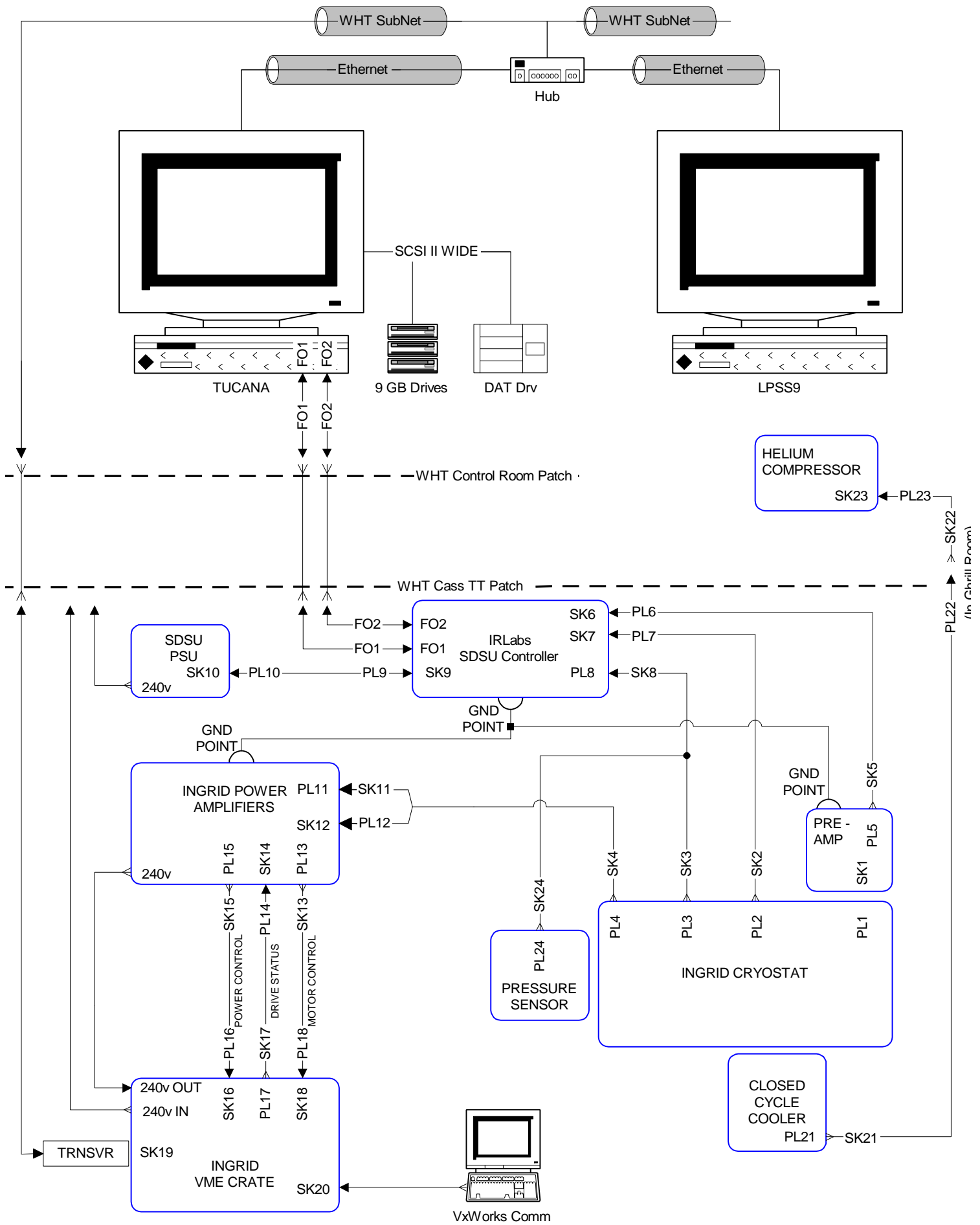


**I** saac  
**N** ewton  
**G** roup  
**R** ed  
**I** maging  
**D** etector

**Instrument Cable Schedules**  
**Version 4.0**  
Peter Moore 1st August 2000.

This schedule applies to the 2<sup>nd</sup> SDSU controller prepared for INGRID.  
The main difference between version 3.0 and 4.0 is in the SDSU wiring and analog bias configurations. This to allow independent control of the four quadrants of the HAWAII detector.





**INGRID SYSTEM CABLING**  
**CASS FOCUS**

**This page intentionally left blank .....**  
**Yeah we know you get a kick out of that !**

<b>INGRID DETECTOR SIGNALS</b>		
<b>PL1</b>	<b>CRYOSTAT – PREAMP</b>	<b>SK1</b>
<b>Amphenol 20-41 Male</b>	<b>SIGNAL NAME</b>	<b>Amphenol 20-41 Female</b>
A		A
B		B
C		C
D		D
E		E
F		F
G		G
H	DGND	H
J	DGND	J
K	VDD POWER	K
L	HIGH4	L
M	OUT4+	M
N	OUT3+	N
P	OUT2+	P
R	OUT1-	R
S	OUT1+	S
T	HIGH3	T
U	BIASGATE	U
V		V
W		W
X		X
Y		Y
Z		Z
a		a
b		b
c		c
d	AGND	d
e	OUT4-	e
f	OUT3-	f
g	OUT2-	g
h	HIGH2	h
i		i
j	BIASPOWER	j
k		k
m		m
n		n
p		p
q	VRESET	q
r	HIGH1	r
s		s
t		t

NOTES:-

1. CONNECTIONS BETWEEN CRYOSTAT CONNECTOR AND PREAMP MODULE. FOR REFERENCE ONLY.

<b>INGRID DETECTOR CLOCK CABLE</b>			
<b>PL7</b>	<b>CABLE LENGTH 60 CENTIMETERS</b>		<b>SK2</b>
<b>Amphenol 16-26 Male</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Amphenol 16-26 Female</b>
A	VDD	18 AWG PTFE	A
b	DGND	18AWG PTFE	b
b	VDD SHIELD		n/c
R	PIXEL1	26 AWG PTFE	R
M	LSYNC1	26 AWG PTFE	M
E	FSYNC1	26 AWG PTFE	E
G	READ1	26 AWG PTFE	G
K	RESET1	26 AWG PTFE	K
C	LINE1	26 AWG PTFE	C
b	CLOCK SHIELD1		n/c
P	PIXEL2	26 AWG PTFE	P
L	LSYNC2	26 AWG PTFE	L
D	FSYNC2	26 AWG PTFE	D
F	READ2	26 AWG PTFE	F
J	RESET2	26 AWG PTFE	J
B	LINE2	26 AWG PTFE	B
b	CLOCK SHIELD2		n/c
S	PIXEL3	26 AWG PTFE	S
N	LSYNC3	26 AWG PTFE	N
V	FSYNC3	26 AWG PTFE	V
H	READ3	26 AWG PTFE	H
X	RESET3	26 AWG PTFE	X
T	LINE3	26 AWG PTFE	T
b	CLOCK SHIELD3		n/c
a	PIXEL4	26 AWG PTFE	a
Z	LSYNC4	26 AWG PTFE	Z
c	FSYNC4	26 AWG PTFE	c
W	READ4	26 AWG PTFE	W
Y	RESET4	26 AWG PTFE	Y
U	LINE4	26 AWG PTFE	U
b	CLOCK SHIELD4		n/c

NOTES:-

- SHIELD EACH GRAY SHADED SET AND CONNECT SHIELDS TO PL7 END ONLY.
- SLEEVE COMPLETE CABLE ASSY AND STRAIN RELIEVE AT EACH END.
- TOTAL CABLE LENGTH IS 60 CENTIMETERS.
- MARK PLUGS AND SOCKETS AS AS INDICATED IN LIST.
- MARK CABLE AS "INGRID DETECTOR CLOCK CABLE".

<b>INGRID TEMPERATURE CABLE</b>			
<b>SK8</b>	<b>LENGTH 60 CENTIMETERS</b>		<b>SK3</b>
<b>Amphenol 16-26 Female</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Amphenol 16-26 Female</b>
A	DETECTOR TEMP +	22 AWG PTFE	A
B	DETECTOR TEMP -	22 AWG PTFE	B
C	CAMERA TEMP +	22 AWG PTFE	C
D	CAMERA TEMP -	22 AWG PTFE	D
E	COLD SHIELD TEMP +	22 AWG PTFE	E
F	COLD SHIELD TEMP -	22 AWG PTFE	F
G	FANOUT TEMP +	22 AWG PTFE	G
H	FANOUT TEMP -	22 AWG PTFE	H
b	TEMPERATURE SHIELD		b
J			J
K			K
L			L
M			M
N	DETECTOR HEATER +	22 AWG PTFE	N
P	DETECTOR HEATER -	22 AWG PTFE	P
R	COLD CYCLE COOLER TEMP +	22 AWG PTFE	R
S	COLD CYCLE COOLER TEMP -	22 AWG PTFE	S
T	GETTER HEATER +	22 AWG PTFE	T
U	GETTER HEATER -	22 AWG PTFE	U
V	PREFLASH LED +	22 AWG PTFE	V
W	PREFLASH LED -	22 AWG PTFE	W
N/C	LIGHT BULB +		X
N/C	LIGHT BULB -		Y
			Z
a	SPARE	22 AWG PTFE	a
c	CRYOSTAT GROUND	18 AWG PTFE	c
			<b>SK24</b>
			<b>Herschman GO.6.WF</b>
X	PRESSURE SENSE +	22 AWG PTFE	2
Y	PRESSURE SENSE -	22 AWG PTFE	3
Z	PRESSURE POWER +	22 AWG PTFE	4
Y	PRESSURE POWER -	22 AWG PTFE	5
b	PRESSURE SHIELD		6

NOTES:-

7. SHIELD EACH GRAY SHADED SET.
8. SLEEVE COMPLETE CABLE ASSY AND STRAIN RELIEVE AT EACH END.
9. PL8 – SK3 CABLE LENGTH IS 60 CENTIMETERS.
10. PL8 -> SK24 CABLE LENGTH IS 60 CENTIMETERS. SPLIT CABLES AT PL8
11. MARK PLUGS AND SOCKETS AS AS INDICATED IN LIST.
12. MARK CABLE AS “INGRID TEMPERATURE CABLE”.

<b>INGRID MOTOR DRIVE CABLE</b>			
<b>PL12</b>	<b>LENGTH 3 METERS</b>		<b>SK4</b>
<b>Amphenol 16-26 Male</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Amphenol 20-41Female</b>
A	PUPIL STOP A+	18 AWG PTFE	A
B	PUPIL STOP A-	18 AWG PTFE	B
C	PUPIL STOP B+	18 AWG PTFE	C
D	PUPIL STOP B-	18 AWG PTFE	D
b	MOTOR DRIVE SHIELD		N/C
E	PUPIL IMAGER A+	18 AWG PTFE	E
F	PUPIL IMAGER A-	18 AWG PTFE	F
G	PUPIL IMAGER B+	18 AWG PTFE	G
H	PUPIL IMAGER B-	18 AWG PTFE	H
b	MOTOR DRIVE SHIELD		N/C
J	FOCUS DRIVE A+	18 AWG PTFE	J
K	FOCUS DRIVE A-	18 AWG PTFE	K
L	FOCUS DRIVE B+	18 AWG PTFE	L
M	FOCUS DRIVE B-	18 AWG PTFE	M
b	MOTOR DRIVE SHIELD		N/C
N	FILTER WHEEL 1 A+	18 AWG PTFE	N
P	FILTER WHEEL 1 A-	18 AWG PTFE	P
R	FILTER WHEEL 1 B+	18 AWG PTFE	R
S	FILTER WHEEL 1 B-	18 AWG PTFE	S
b	MOTOR DRIVE SHIELD		N/C
T	FILTER WHEEL 2 A+	18 AWG PTFE	T
U	FILTER WHEEL 2 A-	18 AWG PTFE	U
V	FILTER WHEEL 2 B+	18 AWG PTFE	V
W	FILTER WHEEL 2 B-	18 AWG PTFE	W
b	MOTOR DRIVE SHIELD		N/C
X			
Y			
Z			
a			
c			
<b>SK11</b>			
<b>Amphenol 16-26 Female</b>			
A	PUPIL STOP LIMIT+	22 AWG PTFE	X
B	PUPIL STOP LIMIT -	22 AWG PTFE	Y
C	PUPIL STOP DATUM	22 AWG PTFE	Z
D	PUPIL STOP RETURN	22 AWG PTFE	a
b	SENSOR SHIELD WIRES		N/C
E	PUPIL IMAGER LIMIT+	22 AWG PTFE	b
F	PUPIL IMAGER LIMIT -	22 AWG PTFE	c
G	PUPIL IMAGER DATUM	22 AWG PTFE	d
H	PUPIL IMAGER RETURN	22 AWG PTFE	e
b	SENSOR SHIELD WIRES		N/C
J	FOCUS DRIVE LIMIT+	22 AWG PTFE	f



<b>K</b>	<b>FOCUS DRIVE LIMIT -</b>	<b>22 AWG PTFE</b>	<b>g</b>
<b>L</b>	<b>FOCUS DRIVE DATUM</b>	<b>22 AWG PTFE</b>	<b>h</b>
<b>M</b>	<b>FOCUS DRIVE RETURN</b>	<b>22 AWG PTFE</b>	<b>i</b>
<b>b</b>	<b>SENSOR SHIELD WIRES</b>		<b>N/C</b>
<b>N</b>	<b>FILTER WHEEL LIMIT+</b>	<b>22 AWG PTFE</b>	<b>j</b>
<b>P</b>	<b>FILTER WHEEL LIMIT -</b>	<b>22 AWG PTFE</b>	<b>k</b>
<b>R</b>	<b>FILTER WHEEL DATUM</b>	<b>22 AWG PTFE</b>	<b>m</b>
<b>S</b>	<b>FILTER WHEEL RETURN</b>	<b>22 AWG PTFE</b>	<b>n</b>
<b>b</b>	<b>SENSOR SHIELD WIRES</b>		<b>N/C</b>
<b>T</b>	<b>FILTER WHEEL LIMIT+</b>	<b>22 AWG PTFE</b>	<b>p</b>
<b>U</b>	<b>FILTER WHEEL LIMIT -</b>	<b>22 AWG PTFE</b>	<b>q</b>
<b>V</b>	<b>FILTER WHEEL DATUM</b>	<b>22 AWG PTFE</b>	<b>r</b>
<b>W</b>	<b>FILTER WHEEL RETURN</b>	<b>22 AWG PTFE</b>	<b>s</b>
<b>b</b>	<b>SENSOR SHIELD WIRES</b>		<b>N/C</b>
			<b>t</b>
<b>X</b>			
<b>Y</b>			
<b>Z</b>			
<b>a</b>			
<b>c</b>			

NOTES:-

13. SHIELD EACH GRAY SHADED SET AND CONNECT SHIELDS TO SK11 & PL12 ONLY.
14. SLEEVE COMPLETE CABLE ASSY AND STRAIN RELIEVE AT EACH END.
15. TOTAL CABLE LENGTH IS 3 METERS.
16. JUNCTION OF SK11 AND PL12 CABLE SEGMENTS SHOULD BE AT 30 CENTIMETERS. RE-ENFORCE JUNCTION WITH STRONG HEAT SHRINK 'Y' JOINT.
17. MARK PLUG AND SOCKETS AS AS INDICATED IN LIST.
18. MARK CABLE AS "INGRID MOTOR DRIVE CABLE".

<b>INGRID PREAMP CABLE</b>			
<b>PL6</b>	<b>CABLE LENGTH 60 CENTIMETERS</b>		<b>SK5</b>
<b>DB50M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>DB50F</b>
<b>1</b>	<b>+ 15 VOLT SUPPLY</b>	<b>18 AWG PTFE</b>	<b>1</b>
<b>34</b>	<b>- 15 VOLT SUPPLY</b>	<b>18 AWG PTFE</b>	<b>34</b>
<b>25</b>	<b>15 VOLT SUPPLY SHIELD</b>		<b>N/C</b>
<b>35</b>	<b>ANALOG GROUND</b>	<b>18 AWG PTFE</b>	<b>35</b>
<b>41</b>	<b>VRESET</b>	<b>22 AWG PTFE</b>	<b>41</b>
<b>39</b>	<b>HIGH4</b>	<b>22 AWG PTFE</b>	<b>39</b>
<b>23</b>	<b>HIGH3</b>	<b>22 AWG PTFE</b>	<b>23</b>
<b>7</b>	<b>HIGH2</b>	<b>22 AWG PTFE</b>	<b>7</b>
<b>24</b>	<b>HIGH1</b>	<b>22 AWG PTFE</b>	<b>24</b>
<b>18</b>	<b>OFFSET 1</b>	<b>22 AWG PTFE</b>	<b>18</b>
<b>36</b>	<b>OFFSET2</b>	<b>22 AWG PTFE</b>	<b>36</b>
<b>37</b>	<b>OFFSET3</b>	<b>22 AWG PTFE</b>	<b>37</b>
<b>38</b>	<b>OFFSET4</b>	<b>22 AWG PTFE</b>	<b>38</b>
<b>50</b>	<b>BIAS GATE</b>	<b>22 AWG PTFE</b>	<b>50</b>
<b>17</b>	<b>BIAS POWER</b>	<b>22 AWG PTFE</b>	<b>17</b>
<b>8</b>	<b>VDD POWER</b>	<b>22 AWG PTFE</b>	<b>8</b>
<b>25</b>	<b>BIAS SHIELD</b>		<b>N/C</b>
<b>2</b>	<b>OUT1</b>	<b>50 OHM MIN COAX</b>	<b>2</b>
<b>19</b>	<b>OUT1 SHIELD</b>	<b>COAX SHIELD</b>	<b>19</b>
<b>3</b>	<b>OUT2</b>	<b>50 OHM MIN COAX</b>	<b>3</b>
<b>20</b>	<b>OUT2 SHIELD</b>	<b>COAX SHIELD</b>	<b>20</b>
<b>4</b>	<b>OUT3</b>	<b>50 OHM MIN COAX</b>	<b>4</b>
<b>21</b>	<b>OUT3 SHIELD</b>	<b>COAX SHIELD</b>	<b>21</b>
<b>5</b>	<b>OUT4</b>	<b>50 OHM MIN COAX</b>	<b>5</b>
<b>22</b>	<b>OUT4 SHIELD</b>	<b>COAX SHIELD</b>	<b>22</b>
<b>N/C</b>	<b>OUTPUTS OVERALL SHIELD</b>		<b>25</b>

NOTES:-

19. SHIELD EACH GRAY SHADED SET AND CONNECT SHIELDS TO PL6 ONLY.
20. CONNECT TP39 TO TP40 IN PREAMP.
21. SLEEVE COMPLETE CABLE ASSY AND STRAIN RELIEVE AT EACH END.
22. TOTAL CABLE LENGTH IS 60 CENTIMETERS.
23. MARK PLUG AND SOCKETS AS AS INDICATED IN LIST.
24. MARK CABLE AS "INGRID PREAMP CABLE".

<b>INGRID DRIVE STATUS CABLE</b>			
<b>PL14</b>	<b>CABLE LENGTH 80 CENTIMETERS</b>		<b>SK17</b>
<b>DB50M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>DB50F</b>
1	PUPIL STOP AMP FAULT	6 CORE + SHIELD 24 AWG	1
2	FILTER 1 AMP FAULT	PVC CABLE	2
3			3
4			4
5			5
6			6
7			7
8			8
9			9
0			0
11			11
12			12
13			13
14			14
15			15
16			16
17	GROUND RETURN		17
18	FOCUS AMP DRIVE FAULT		18
19			19
20			20
21	GROUND RETURN		21
22			22
23			23
24			24
25	GROUND RETURN		25
26			26
27			27
28			28
29	GROUND RETURN		29
30			30
31			31
32			32
33	GROUND RETURN		33
34	PUPIL IMAGER AMP FAULT		34
35	FILTER 2 AMP FAULT		35
36			36
37	GROUND RETURN		37
38			38
39			39
40			40
41	GROUND RETURN		41
42			42
43			43
44			44
45	GROUND RETURN		45
46			46
47			47
48			48
49	GROUND RETURN		49
50	GROUND RETURN		50

NOTES:-

25. TOTAL CABLE LENGTH IS 80 CENTIMETERS.
  26. FIT LOCKABLE JACK SCREW CONNECTOR SHELLS EACH END.
  27. MARK PLUG AND SOCKETS AS AS INDICATED IN LIST.
- MARK CABLE AS "INGRID DRIVE STATUS CABLE".

<b>INGRID POWER CONTROL CABLE</b>			
<b>PL16</b>	<b>CABLE LENGTH 80 CENTIMETERS</b>		<b>SK15</b>
<b>DB50M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>DB50F</b>
1	DIGIAMP POWER CONTROL	6 CORE + SHIELD 24 AWG	1
2		PVC CABLE	2
3			3
4			4
5			5
6			6
7			7
8			8
9			9
0			0
11			11
12			12
13			13
14			14
15			15
16			16
17	GROUND RETURN		17
18			18
19			19
20			20
21	GROUND RETURN		21
22			22
23			23
24			24
25	GROUND RETURN		25
26			26
27			27
28			28
29	GROUND RETURN		29
30			30
31			31
32			32
33	GROUND RETURN		33
34			34
35			35
36			36
37	GROUND RETURN (POWER CONTROL RETURN)		37
38			38
39			39
40			40
41	GROUND RETURN		41
42			42
43			43
44			44
45	GROUND RETURN		45
46			46
47			47
48			48
49	GROUND RETURN		49
50	GROUND RETURN		50

NOTES:-

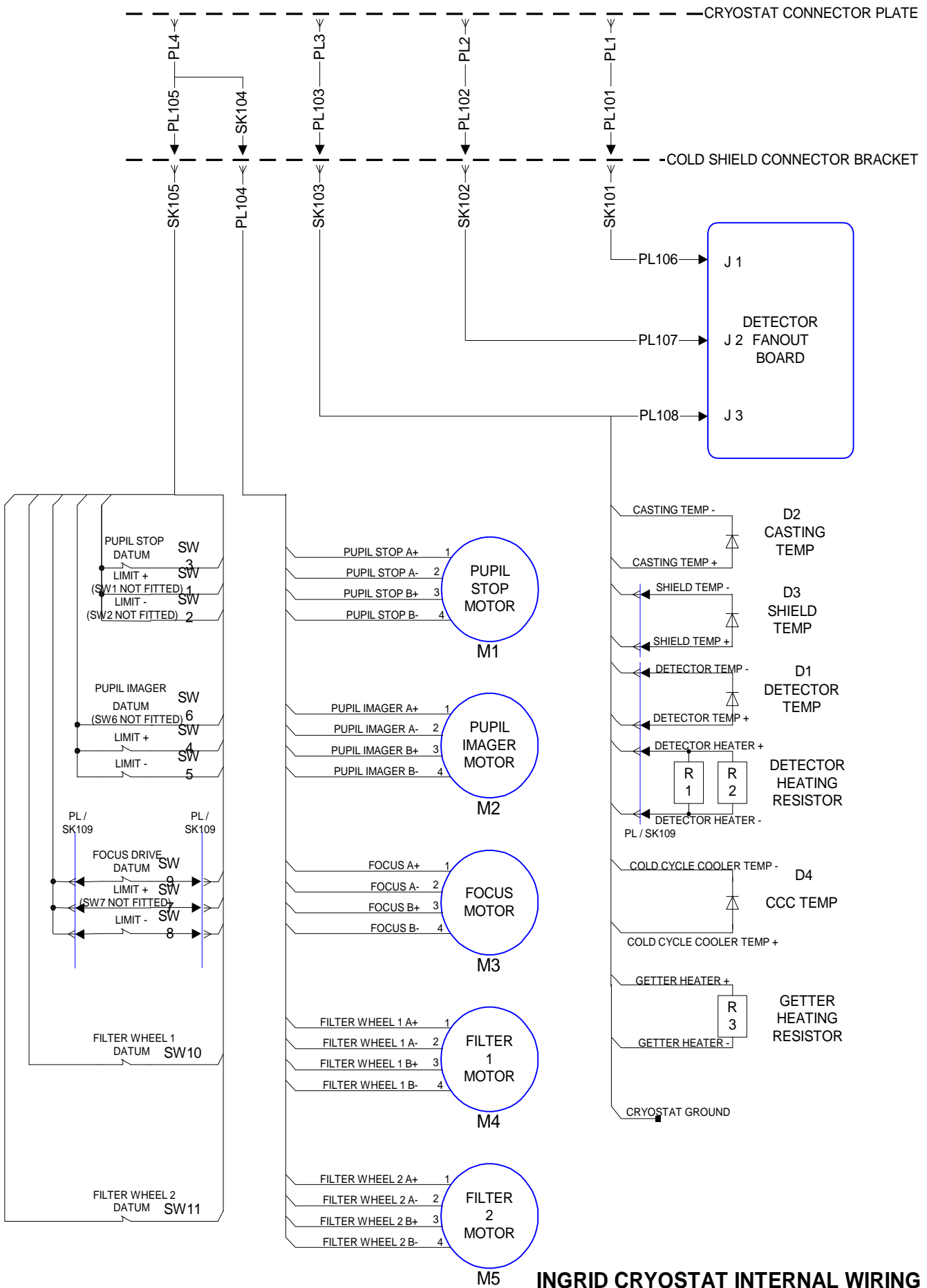
- 28. TOTAL CABLE LENGTH IS 80 CENTIMETERS.
  - 29. FIT LOCKABLE JACK SCREW CONNECTOR SHELLS EACH END.
  - 30. MARK PLUG AND SOCKETS AS AS INDICATED IN LIST.
- MARK CABLE AS "INGRID POWER CONTROL CABLE".

<b>INGRID MOTOR CONTROL CABLE</b>			
<b>PL18</b>	<b>CABLE LENGTH 80 CENTIMETERS</b>		<b>SK13</b>
<b>DB37M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>DB37F</b>
<b>1</b>	<b>PUPIL STOP STEP</b>	<b>37 WAY 7/0.2</b>	<b>1</b>
<b>2</b>	<b>PUPIL STOP DIRECTION</b>	<b>FLAT RIBBON</b>	<b>2</b>
<b>3</b>	<b>PUPIL STOP ENERGISE</b>	<b>CABLE</b>	<b>3</b>
<b>4</b>	<b>PUPIL STOP LIMIT +</b>		<b>4</b>
<b>5</b>	<b>PUPIL STOP LIMIT -</b>		<b>5</b>
<b>6</b>	<b>PUPIL STOP DATUM</b>		<b>6</b>
<b>7</b>	<b>PUPIL IMAGER STEP</b>		<b>7</b>
<b>8</b>	<b>PUPIL IMAGER DIRECTION</b>		<b>8</b>
<b>9</b>	<b>PUPIL IMAGER ENERGISE</b>		<b>9</b>
<b>0</b>	<b>PUPIL IMAGER LIMIT +</b>		<b>0</b>
<b>11</b>	<b>PUPIL IMAGER LIMIT -</b>		<b>11</b>
<b>12</b>	<b>PUPIL IMAGER DATUM</b>		<b>12</b>
<b>13</b>	<b>FOCUS STEP</b>		<b>13</b>
<b>14</b>	<b>FOCUS DIRECTION</b>		<b>14</b>
<b>15</b>	<b>FOCUS ENERGISE</b>		<b>15</b>
<b>16</b>	<b>FOCUS LIMIT +</b>		<b>16</b>
<b>17</b>	<b>FOCUS LIMIT -</b>		<b>17</b>
<b>18</b>	<b>FOCUS DATUM</b>		<b>18</b>
<b>19</b>	<b>FILTER WHEEL 1 STEP</b>		<b>19</b>
<b>20</b>	<b>FILTER WHEEL 1 DIRECTION</b>		<b>20</b>
<b>21</b>	<b>FILTER WHEEL 1 ENERGISE</b>		<b>21</b>
<b>22</b>	<b>FILTER WHEEL 1 LIMIT +</b>		<b>22</b>
<b>23</b>	<b>FILTER WHEEL 1 LIMIT -</b>		<b>23</b>
<b>24</b>	<b>FILTER WHEEL 1 DATUM</b>		<b>24</b>
<b>25</b>	<b>FILTER WHEEL 2 STEP</b>		<b>25</b>
<b>26</b>	<b>FILTER WHEEL 2 DIRECTION</b>		<b>26</b>
<b>27</b>	<b>FILTER WHEEL 2 ENERGISE</b>		<b>27</b>
<b>28</b>	<b>FILTER WHEEL 2 LIMIT +</b>		<b>28</b>
<b>29</b>	<b>FILTER WHEEL 2 LIMIT -</b>		<b>29</b>
<b>30</b>	<b>FILTER WHEEL 2 DATUM</b>		<b>30</b>
<b>31</b>	<b>GROUND</b>		<b>31</b>
<b>32</b>	<b>PUPIL STOP GND RETURN</b>		<b>32</b>
<b>33</b>	<b>PUPIL IMAGER GND RETURN</b>		<b>33</b>
<b>34</b>	<b>FOCUS GND RETURN</b>		<b>34</b>
<b>35</b>	<b>FILTER WHEEL 1 GND RTN</b>		<b>35</b>
<b>36</b>	<b>FILTER WHEEL 2 GND RTN</b>		<b>36</b>
<b>37</b>			<b>37</b>

NOTES:-

31. TOTAL CABLE LENGTH IS 80 CENTIMETERS.
  32. FIT LOCKABLE JACK SCREW CONNECTOR SHELLS EACH END.
  33. MARK PLUG AND SOCKETS AS AS INDICATED IN LIST.
- MARK CABLE AS "INGRID MOTOR CONTROL CABLE".

<b>INGRID SDSU POWER CABLE</b>			
<b>PL9</b>	<b>CABLE LENGTH 3 METERS</b>		<b>PL10</b>
	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Amphenol 109-13M</b>
<b>1</b>	<b>VCC</b>	<b>16 AWG TEFLON</b>	<b>A</b>
<b>2</b>	<b>+ VLIN</b>	<b>18 AWG TEFLON</b>	<b>B</b>
<b>3</b>	<b>+ VHIN</b>	<b>18 AWG TEFLON</b>	<b>C</b>
<b>4</b>	<b>-VLIN</b>	<b>18 AWG TEFLON</b>	<b>D</b>
<b>5</b>	<b>RESET</b>	<b>20 AWG TEFLON</b>	<b>E</b>
			<b>F</b>
<b>6</b>	<b>GROUND</b>	<b>16 AWG TEFLON</b>	<b>G</b>



**INGRID CRYOSTAT INTERNAL WIRING**

**This page intentionally left blank .....**  
**Yeah we know you get a kick out of that !**



<b>INGRID CRYOSTAT DETECTOR WIRING</b>			
<b>PL1</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>PL101</b>
<b>Amphenol 20-41 Male</b>			<b>Cinch Micro D25M</b>
<b>S</b>	<b>OUT1+</b>	<b>50 ohm Min Coax</b>	<b>1</b>
<b>R</b>	<b>OUT1-</b>	<b>50 ohm Min Coax</b>	<b>2</b>
<b>N/C</b>	<b>OUT1 SHIELD</b>	<b>Min Coax Shields</b>	<b>3</b>
<b>P</b>	<b>OUT2+</b>	<b>50 ohm Min Coax</b>	<b>4</b>
<b>g</b>	<b>OUT2-</b>	<b>50 ohm Min Coax</b>	<b>5</b>
<b>N/C</b>	<b>OUT2 SHIELD</b>	<b>Min Coax Shields</b>	<b>6</b>
<b>N</b>	<b>OUT3+</b>	<b>50 ohm Min Coax</b>	<b>7</b>
<b>f</b>	<b>OUT3-</b>	<b>50 ohm Min Coax</b>	<b>8</b>
<b>N/C</b>	<b>OUT3 SHIELD</b>	<b>Min Coax Shields</b>	<b>9</b>
<b>M</b>	<b>OUT4+</b>	<b>50 ohm Min Coax</b>	<b>10</b>
<b>e</b>	<b>OUT4-</b>	<b>50 ohm Min Coax</b>	<b>11</b>
<b>N/C</b>	<b>OUT 4 SHIELD</b>	<b>Min Coax Shields</b>	<b>12</b>
<b>d</b>	<b>AGND</b>	<b>22 AWG PTFE</b>	<b>13</b>
<b>N/C</b>	<b>BIAS SHIELD</b>		<b>14</b>
<b>K</b>	<b>VDD POWER</b>	<b>MANGANIN</b>	<b>15</b>
<b>r</b>	<b>HIGH1</b>	<b>MANGANIN</b>	<b>16</b>
<b>h</b>	<b>HIGH2</b>	<b>MANGANIN</b>	<b>17</b>
<b>T</b>	<b>HIGH3</b>	<b>MANGANIN</b>	<b>18</b>
<b>L</b>	<b>HIGH4</b>	<b>MANGANIN</b>	<b>19</b>
<b>q</b>	<b>VRESET</b>	<b>MANGANIN</b>	<b>22</b>
<b>U</b>	<b>BIASGATE</b>	<b>MANGANIN</b>	<b>24</b>
<b>j</b>	<b>BIASPOWER</b>	<b>26 AWG PTFE</b>	<b>25</b>

**INGRID CRYOSTAT DETECTOR WIRING**

<b>SK101</b>			<b>PL106</b>
<b>Cinch Micro D25F</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Cinch Micro D31M</b>
1	OUT1+	TYPE 24 TWISTED	13
2	OUT1-	PAIR SHIELDED	29
3	OUT1 SHIELD	PTFE	12
4	OUT2+	TYPE 24 TWISTED	11
5	OUT2-	PAIR SHIELDED	27
6	OUT2 SHIELD	PTFE	10
7	OUT3+	TYPE 24 TWISTED	9
8	OUT3-	PAIR SHIELDED	25
9	OUT3 SHIELD	PTFE	8
10	OUT4+	TYPE 24 TWISTED	7
11	OUT4-	PAIR SHIELDED	23
12	OUT4 SHIELD	PTFE	6
13	AGND	22 AWG PTFE	30
14	BIAS SHIELD		31
15	VDD POWER		N/C
16	HIGH1	26 AWG PTFE	16
17	HIGH2	26 AWG PTFE	15
18	HIGH3	26 AWG PTFE	18
19	HIGH4	26 AWG PTFE	17
22	VRESET	26 AWG PTFE	2
24	BIASGATE	26 AWG PTFE	4
25	BIASPOWER	22 AWG PTFE	3

**INGRID CRYOSTAT CLOCK WIRING**

<b>PL2</b>			<b>PL102</b>
<b>Amphenol 20-26 Male</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Cinch Micro D37F</b>
A	VDD	26 AWG PTFE	21
b	DGND	26 AWG PTFE	19
b	DGND	26 AWG PTFE	20
N/C	VDD SHIELD		22
R	PIXEL1	SPECIAL HARNESS	18
M	LSYNC1	FROM IRLABS	13
E	FSYNC1	ORIGINAL HARNESS	36
G	READ1		31
K	RESET1		26
C	LINE1		8
P	PIXEL2		17
L	LSYNC2		12
D	FSYNC2		35
F	READ2		30
J	RESET2		25
B	LINE2		7
S	PIXEL3		16
N	LSYNC3		11
V	FSYNC3		34
H	READ3		29
X	RESET3		24
T	LINE3		6
a	PIXEL4		15
Z	LSYNC4		10
c	FSYNC4		33
W	READ4		28
Y	RESET4		23
U	LINE4		5
N/C	CLOCK SHIELD 4		32

**INGRID CRYOSTAT CLOCK WIRING**

<b>SK102</b>			<b>PL107</b>
<b>Cinch Micro D37M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Cinch Micro D37M</b>
21	VDD	22 AWG PTFE	21
19	DGND	22 AWG PTFE	19
20	DGND	22 AWG PTFE	20
N/C	VDD SHIELD		22
18	PIXEL1	28 AWG PTFE	18
13	LSYNC1	28 AWG PTFE	13
36	FSYNC1	28 AWG PTFE	36
31	READ1	28 AWG PTFE	31
26	RESET1	28 AWG PTFE	26
8	LINE1	28 AWG PTFE	8
N/C	CLOCK SHIELD 1		14
17	PIXEL2	28 AWG PTFE	17
12	LSYNC2	28 AWG PTFE	12
35	FSYNC2	28 AWG PTFE	35
30	READ2	28 AWG PTFE	30
25	RESET2	28 AWG PTFE	25
7	LINE2	28 AWG PTFE	7
N/C	CLOCK SHIELD 2		9
16	PIXEL3	28 AWG PTFE	16
11	LSYNC3	28 AWG PTFE	11
34	FSYNC3	28 AWG PTFE	34
29	READ3	28 AWG PTFE	29
24	RESET3	28 AWG PTFE	24
6	LINE3	28 AWG PTFE	6
N/C	CLOCK SHIELD 3		4
15	PIXEL4	28 AWG PTFE	15
10	LSYNC4	28 AWG PTFE	10
33	FSYNC4	28 AWG PTFE	33
28	READ4	28 AWG PTFE	28
23	RESET4	28 AWG PTFE	23
5	LINE4	28 AWG PTFE	5
32	CLOCK SHIELD 4		32

<b>INGRID CRYOSTAT TEMPERATURE WIRING</b>			
<b>PL3</b>			<b>PL103</b>
<b>Amphenol 20-26 Male</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>Cinch Micro D37M</b>
<b>A</b>	<b>DETECTOR TEMP +</b>	<b>MANGANIN</b>	<b>1</b>
<b>B</b>	<b>DETECTOR TEMP -</b>	<b>MANGANIN</b>	<b>19</b>
<b>C</b>	<b>CAMERA TEMP +</b>	<b>MANGANIN</b>	<b>3</b>
<b>D</b>	<b>CAMERA TEMP -</b>	<b>MANGANIN</b>	<b>21</b>
<b>E</b>	<b>COLD SHIELD TEMP +</b>	<b>MANGANIN</b>	<b>5</b>
<b>F</b>	<b>COLD SHIELD TEMP -</b>	<b>MANGANIN</b>	<b>23</b>
<b>G</b>	<b>FANOUT TEMP +</b>	<b>MANGANIN</b>	<b>7</b>
<b>H</b>	<b>FANOUT TEMP -</b>	<b>MANGANIN</b>	<b>25</b>
<b>J</b>			
<b>K</b>			
<b>L</b>			
<b>M</b>			
<b>N</b>	<b>DETECTOR HEATER +</b>	<b>MANGANIN x 2</b>	<b>30</b>
<b>P</b>	<b>DETECTOR HEATER -</b>	<b>MANGANIN x 2</b>	<b>31</b>
<b>R</b>	<b>COLD CYCLE COOLER TEMP +</b>	<b>MANGANIN x 2</b>	<b>33</b>
<b>S</b>	<b>COLD CYCLE COOLER TEMP -</b>	<b>MANGANIN x 2</b>	<b>34</b>
<b>T</b>	<b>GETTER HEATER +</b>	<b>MANGANIN x 2</b>	<b>36</b>
<b>U</b>	<b>GETTER HEATER -</b>	<b>MANGANIN x 2</b>	<b>37</b>
<b>V</b>	<b>PREFLASH LED +</b>	<b>MANGANIN</b>	<b>9</b>
<b>W</b>	<b>PREFLASH LED -</b>	<b>MANGANIN</b>	<b>10</b>
<b>X</b>	<b>LIGHT BULB +</b>	<b>MANGANIN</b>	<b>28</b>
<b>Y</b>	<b>LIGHT BULB -</b>	<b>MANGANIN</b>	<b>29</b>
<b>Z</b>			
<b>a</b>	<b>SPARE</b>	<b>MANGANIN</b>	<b>12</b>
<b>b</b>	<b>TEMPERATURE SHIELD</b>		<b>N/C</b>
<b>c</b>	<b>CRYOSTAT GROUND</b>	<b>26 AWG PTFE</b>	<b>13</b>

<b>INGRID CRYOSTAT TEMPERATURE WIRING</b>			
<b>SK103</b>			
<b>Cinch Micro D37F</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
3	CAMERA TEMP +	26 AWG PTFE	D2 ANODE
21	CAMERA TEMP -	26 AWG PTFE	D2 CATHODE
5	COLD SHIELD TEMP +	26 AWG PTFE	D3 ANODE
23	COLD SHIELD TEMP -	26 AWG PTFE	D3 CATHODE
33	COLD CYCLE COOLER TEMP +	22 AWG PTFE	R2
34	COLD CYCLE COOLER TEMP -	22 AWG PTFE	R2
36	GETTER HEATER +	22 AWG PTFE	R3
37	GETTER HEATER -	22 AWG PTFE	R3
28	LIGHT BULB +		N/C
29	LIGHT BULB -		N/C
12	SPARE		N/C
13	CRYOSTAT GROUND	18 AWG PTFE	To focus mount earth lug.
			<b>PL108</b>
			<b>Cinch Micro DB9M</b>
9	PREFLASH LED +	26 AWG PTFE	6
10	PREFLASH LED -	26 AWG PTFE	7
7	FANOUT TEMP +	26 AWG PTFE	8
25	FANOUT TEMP -	26 AWG PTFE	9
			<b>SK109</b>
			<b>Cinch Micro DB9F</b>
1	DETECTOR TEMP +	26 AWG PTFE	1
19	DETECTOR TEMP -	26 AWG PTFE	2
30	DETECTOR HEATER +	22 AWG PTFE	4
31	DETECTOR HEATER -	22 AWG PTFE	5

<b>INGRID CRYOSTAT MOTOR WIRING</b>			
<b>PL4</b>			<b>SK104</b>
<b>Amphenol 20-41 Male</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>ITT DB25F</b>
<b>A</b>	<b>PUPIL STOP A+</b>	<b>22 AWG PTFE</b>	<b>1</b>
<b>B</b>	<b>PUPIL STOP A-</b>	<b>22 AWG PTFE</b>	<b>2</b>
<b>C</b>	<b>PUPIL STOP B+</b>	<b>22 AWG PTFE</b>	<b>3</b>
<b>D</b>	<b>PUPIL STOP B-</b>	<b>22 AWG PTFE</b>	<b>4</b>
<b>N/C</b>	<b>PUPIL STOP SHIELD</b>		<b>14</b>
<b>E</b>	<b>PUPIL IMAGER A+</b>	<b>22 AWG PTFE</b>	<b>5</b>
<b>F</b>	<b>PUPIL IMAGER A-</b>	<b>22 AWG PTFE</b>	<b>6</b>
<b>G</b>	<b>PUPIL IMAGER B+</b>	<b>22 AWG PTFE</b>	<b>7</b>
<b>H</b>	<b>PUPIL IMAGER B-</b>	<b>22 AWG PTFE</b>	<b>8</b>
<b>N/C</b>	<b>PUPIL IMAGER SHIELD</b>		<b>9</b>
<b>J</b>	<b>FOCUS DRIVE A+</b>	<b>22 AWG PTFE</b>	<b>10</b>
<b>K</b>	<b>FOCUS DRIVE A-</b>	<b>22 AWG PTFE</b>	<b>11</b>
<b>L</b>	<b>FOCUS DRIVE B+</b>	<b>22 AWG PTFE</b>	<b>12</b>
<b>M</b>	<b>FOCUS DRIVE B-</b>	<b>22 AWG PTFE</b>	<b>13</b>
<b>N/C</b>	<b>FOCUS SHIELD</b>		<b>25</b>
<b>N</b>	<b>FILTER WHEEL 1 A+</b>	<b>22 AWG PTFE</b>	<b>15</b>
<b>P</b>	<b>FILTER WHEEL 1 A-</b>	<b>22 AWG PTFE</b>	<b>16</b>
<b>R</b>	<b>FILTER WHEEL 1 B+</b>	<b>22 AWG PTFE</b>	<b>17</b>
<b>S</b>	<b>FILTER WHEEL 1 B-</b>	<b>22 AWG PTFE</b>	<b>18</b>
<b>N/C</b>	<b>FILTER WHEEL 1 SHIELD</b>		<b>19</b>
<b>T</b>	<b>FILTER WHEEL 2 A+</b>	<b>22 AWG PTFE</b>	<b>21</b>
<b>U</b>	<b>FILTER WHEEL 2 A-</b>	<b>22 AWG PTFE</b>	<b>22</b>
<b>V</b>	<b>FILTER WHEEL 2 B+</b>	<b>22 AWG PTFE</b>	<b>23</b>
<b>W</b>	<b>FILTER WHEEL 2 B-</b>	<b>22 AWG PTFE</b>	<b>24</b>
<b>N/C</b>	<b>FILTER WHEEL 2 SHIELD</b>		<b>20</b>
			<b>PL105</b>
			<b>Cinch Micro D25M</b>
<b>X</b>	<b>PUPIL STOP LIMIT+</b>	<b>MANGANIN</b>	<b>1</b>
<b>Y</b>	<b>PUPIL STOP LIMIT -</b>	<b>MANGANIN</b>	<b>2</b>
<b>Z</b>	<b>PUPIL STOP DATUM</b>	<b>MANGANIN</b>	<b>3</b>
<b>a</b>	<b>PUPIL STOP RETURN</b>	<b>MANGANIN</b>	<b>4</b>
<b>N/C</b>	<b>PUPIL STOP SHIELD</b>		<b>14</b>
<b>b</b>	<b>PUPIL IMAGER LIMIT+</b>	<b>MANGANIN</b>	<b>5</b>
<b>c</b>	<b>PUPIL IMAGER LIMIT -</b>	<b>MANGANIN</b>	<b>6</b>
<b>d</b>	<b>PUPIL IMAGER DATUM</b>	<b>MANGANIN</b>	<b>7</b>
<b>e</b>	<b>PUPIL IMAGER RETURN</b>	<b>MANGANIN</b>	<b>8</b>
<b>N/C</b>	<b>PUPIL IMAGER SHIELD</b>		<b>9</b>
<b>f</b>	<b>FOCUS DRIVE LIMIT+</b>	<b>MANGANIN</b>	<b>10</b>
<b>g</b>	<b>FOCUS DRIVE LIMIT -</b>	<b>MANGANIN</b>	<b>11</b>
<b>h</b>	<b>FOCUS DRIVE DATUM</b>	<b>MANGANIN</b>	<b>12</b>
<b>i</b>	<b>FOCUS DRIVE RETURN</b>	<b>MANGANIN</b>	<b>13</b>
<b>N/C</b>	<b>FOCUS SHIELD</b>		<b>25</b>
<b>j</b>	<b>FILTER WHEEL 1 LIMIT+</b>	<b>MANGANIN</b>	<b>15</b>

<b>k</b>	<b>FILTER WHEEL 1 LIMIT -</b>	<b>MANGANIN</b>	<b>16</b>
<b>m</b>	<b>FILTER WHEEL 1 DATUM</b>	<b>MANGANIN</b>	<b>17</b>
<b>n</b>	<b>FILTER WHEEL 1 RETURN</b>	<b>MANGANIN</b>	<b>18</b>
<b>N/C</b>	<b>FILTER WHEEL 1 SHIELD</b>		<b>19</b>
<b>p</b>	<b>FILTER WHEEL 2 LIMIT+</b>	<b>MANGANIN</b>	<b>21</b>
<b>q</b>	<b>FILTER WHEEL 2 LIMIT -</b>	<b>MANGANIN</b>	<b>22</b>
<b>r</b>	<b>FILTER WHEEL 2 DATUM</b>	<b>MANGANIN</b>	<b>23</b>
<b>s</b>	<b>FILTER WHEEL 2 RETURN</b>	<b>MANGANIN</b>	<b>24</b>
<b>N/C</b>	<b>FILTER WHEEL 2 SHIELD</b>		<b>20</b>
<b>t</b>			



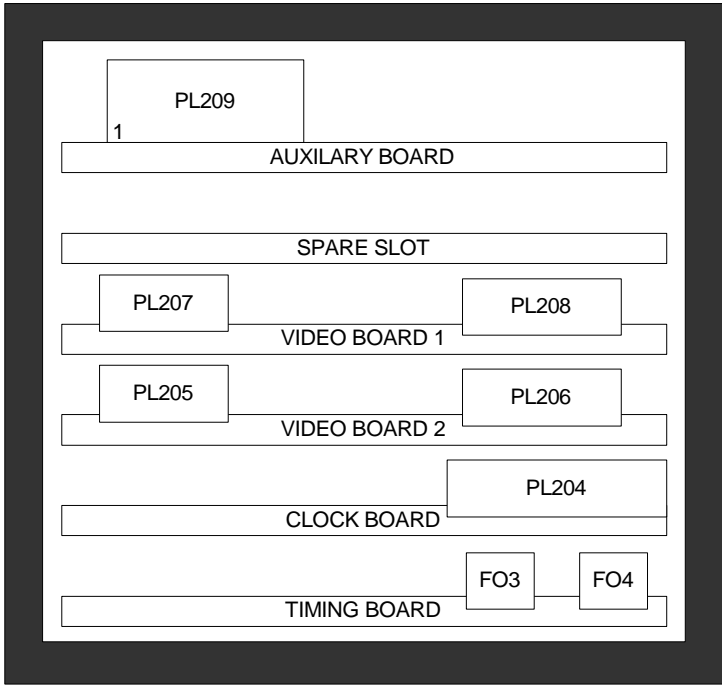
<b>INGRID CRYOSTAT MOTOR WIRING</b>			
<b>PL104</b>			
<b>ITT DB25M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
<b>1</b>	<b>PUPIL STOP A+</b>	<b>18 AWG PTFE</b>	<b>M1 – 1</b>
<b>2</b>	<b>PUPIL STOP A-</b>	<b>18 AWG PTFE</b>	<b>M1 – 2</b>
<b>3</b>	<b>PUPIL STOP B+</b>	<b>18 AWG PTFE</b>	<b>M1 – 3</b>
<b>4</b>	<b>PUPIL STOP B-</b>	<b>18 AWG PTFE</b>	<b>M1 – 4</b>
<b>14</b>	<b>PUPIL STOP SHIELD</b>		<b>M1 – GND</b>
<b>5</b>	<b>PUPIL IMAGER A+</b>	<b>18 AWG PTFE</b>	<b>M2 – 1</b>
<b>6</b>	<b>PUPIL IMAGER A-</b>	<b>18 AWG PTFE</b>	<b>M2 – 2</b>
<b>7</b>	<b>PUPIL IMAGER B+</b>	<b>18 AWG PTFE</b>	<b>M2 – 3</b>
<b>8</b>	<b>PUPIL IMAGER B-</b>	<b>18 AWG PTFE</b>	<b>M2 – 4</b>
<b>9</b>	<b>PUPIL IMAGER SHIELD</b>		<b>M2 – GND</b>
<b>10</b>	<b>FOCUS DRIVE A+</b>	<b>18 AWG PTFE</b>	<b>M3 – 1</b>
<b>11</b>	<b>FOCUS DRIVE A-</b>	<b>18 AWG PTFE</b>	<b>M3 – 2</b>
<b>12</b>	<b>FOCUS DRIVE B+</b>	<b>18 AWG PTFE</b>	<b>M3 – 3</b>
<b>13</b>	<b>FOCUS DRIVE B-</b>	<b>18 AWG PTFE</b>	<b>M3 – 4</b>
<b>25</b>	<b>FOCUS SHIELD</b>		<b>M3 – GND</b>
<b>15</b>	<b>FILTER WHEEL 1 A+</b>	<b>18 AWG PTFE</b>	<b>M4 – 1</b>
<b>16</b>	<b>FILTER WHEEL 1 A-</b>	<b>18 AWG PTFE</b>	<b>M4 – 2</b>
<b>17</b>	<b>FILTER WHEEL 1 B+</b>	<b>18 AWG PTFE</b>	<b>M4 – 3</b>
<b>18</b>	<b>FILTER WHEEL 1 B-</b>	<b>18 AWG PTFE</b>	<b>M4 – 4</b>
<b>19</b>	<b>FILTER WHEEL 1 SHIELD</b>		<b>M4 – GND</b>
<b>21</b>	<b>FILTER WHEEL 2 A+</b>	<b>18 AWG PTFE</b>	<b>M5 – 1</b>
<b>22</b>	<b>FILTER WHEEL 2 A-</b>	<b>18 AWG PTFE</b>	<b>M5 – 2</b>
<b>23</b>	<b>FILTER WHEEL 2 B+</b>	<b>18 AWG PTFE</b>	<b>M5 – 3</b>
<b>24</b>	<b>FILTER WHEEL 2 B-</b>	<b>18 AWG PTFE</b>	<b>M5 – 4</b>
<b>20</b>	<b>FILTER WHEEL 2 SHIELD</b>		<b>M5 – GND</b>

<b>INGRID CRYOSTAT MOTOR WIRING</b>			
<b>SK105</b>			
<b>Cinch Micro D25F</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
1	PUPIL STOP LIMIT+	26 AWG PTFE	SW1 N.C
2	PUPIL STOP LIMIT -	26 AWG PTFE	SW2 N.C
3	PUPIL STOP DATUM	26 AWG PTFE	SW3 N.C
4	PUPIL STOP RETURN	26 AWG PTFE	SW1, SW2, SW3, COMM
14	PUPIL STOP SHIELD		M1 GND
5	PUPIL IMAGER LIMIT+	26 AWG PTFE	SW4 N.C
6	PUPIL IMAGER LIMIT -	26 AWG PTFE	SW5 N.C
7	PUPIL IMAGER DATUM	26 AWG PTFE	SW6 N.C
8	PUPIL IMAGER RETURN	26 AWG PTFE	SW4, SW5, SW6, COMM
9	PUPIL IMAGER SHIELD		M2 GND
15	FILTER WHEEL 1 LIMIT+		N/C
16	FILTER WHEEL 1 LIMIT -		N/C
17	FILTER WHEEL 1 DATUM	26 AWG PTFE	SW10 N.C
18	FILTER WHEEL 1 RETURN	26 AWG PTFE	SW10 COMM
19	FILTER WHEEL 1 SHIELD		M4 GND
21	FILTER WHEEL 2 LIMIT+		N/C
22	FILTER WHEEL 2 LIMIT -		N/C
23	FILTER WHEEL 2 DATUM	26 AWG PTFE	SW11 N.C
24	FILTER WHEEL 2 RETURN	26 AWG PTFE	SW11 COMM
20	FILTER WHEEL 2 SHIELD		M5 GND
25	FOCUS SHIELD		M3 GND
			<b>SK109</b>
			<b>Cinch Micro DB9F</b>
10	FOCUS DRIVE LIMIT+	26 AWG PTFE	7
11	FOCUS DRIVE LIMIT -	26 AWG PTFE	9
12	FOCUS DRIVE DATUM	26 AWG PTFE	3
13	FOCUS DRIVE RETURN	26 AWG PTFE	6,8

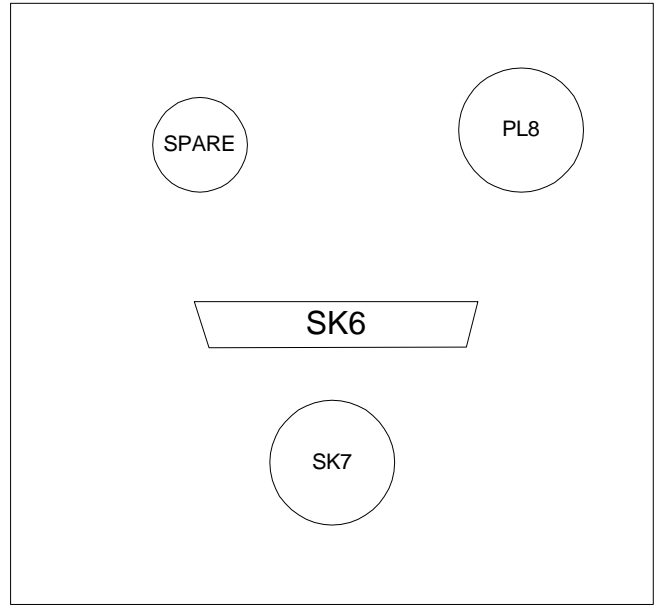
<b>FOCUS DRIVE MOUNTCABLING</b>			
<b>PL109</b>			
<b>Cinch Micro DB9M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
1	DETECTOR TEMP +	26 AWG PTFE	D1 ANODE
2	DETECTOR TEMP -	26 AWG PTFE	D1 CATHODE
3	FOCUS DRIVE DATUM	26 AWG PTFE	SW7 COM
4	DETECTOR HEATER +	26 AWG PTFE	R1 +
5	DETECTOR HEATER -	26 AWG PTFE	R1 -
6	FOCUS DRIVE RETURN	26 AWG PTFE	SW7 COM
7	FOCUS DRIVE LIMIT+	26 AWG PTFE	SW7 N.C
8	FOCUS DRIVE RETURN	26 AWG PTFE	SW8 COM
9	FOCUS DRIVE LIMIT -	26 AWG PTFE	SW8 N.C

INGRID ARRAY PINOUTS (HAWAII 1024 x 1024 SWIR)											
PIN	HAWAII	INGRID	PIN	HAWAII	INGRID	PIN	HAWAII	INGRID	PIN	HAWAII	INGRID
1	VSS3	DGND	22	VRST2	VRESET	43	DRAIN1		64	VSS4	DGND
2	VDD3	VDD	23	CELDNR2		44	VSS1	DGND	65	DRAIN4	
3	HIGH3	HIGH3	24	LSYNC2	LSYNC2	45	VDD1	VDD	66	SOURCE4	
4	LOW3	AGND	25	LINECHK2		46	LINE1	LINE1	67	BUS4	
5	FRMCHK 3		26	PIXEL2	PIXEL2	47	FSYNC1	FSYNC1	68	BIASGATE4	BIASGATE
6	RESETB3	RESET3	27	BIASPWR2	BIASPWR	48	MUXSUB		69	BIASPWR4	BIASPWR
7	READ3	READ3	28	BIASGATE2	BIASGATE	49	READ1	READ1	70	PIXEL4	PIXEL4
8	LINE3	LINE3	29	BUS2		50	RESETB1	RESET1	71	LINECHK4	
9	FSYNC3	FSYNC3	30	SOURCE2		51	FRMCHK1		72	LSYNC4	LSYNC4
10	N/C		31	DRAIN2		52	LOW1	AGND	73	CELDNR4	
11	HIGH2	HIGH2	32	VRST1	VRESET	53	HIGH1	HIGH1	74	VRST4	VRESET
12	LOW2	AGND	33	CELDNR1		54	N/C		75	DRAIN3	
13	FRMCHK 2		34	DSUB		55	N/C		76	SOURCE3	
14	RESETB2	RESET2	35	CELLWELL		56	FSYNC4	FSYNC4	77	BUS3	
15	READ2	READ2	36	LSYNC1	LSYNC1	57	LINE4	LINE4	78	BIASGATE3	BIASGATE
16	N/C		37	LINECHK1		58	READ4	READ4	79	BIASPWR3	BIASPWR
17	N/C		38	PIXEL1	PIXEL1	59	RESETB4	RESET4	80	PIXEL3	PIXEL3
18	FSYNC2	FSYNC2	39	BIASPWR1	BIASPWR	60	FRMCHK4		81	LINECHK3	
19	LINE2	LINE2	40	BIASGATE1	BIASGATE	61	LOW4	AGND	82	LSYNC3	LSYNC3
20	VDD2	VDD	41	BUS1		62	HIGH4	HIGH4	83	CELDNR3	
21	VSS2	DGND	42	SOURCE1		63	VDD4	VDD	84	VRST3	VRESET

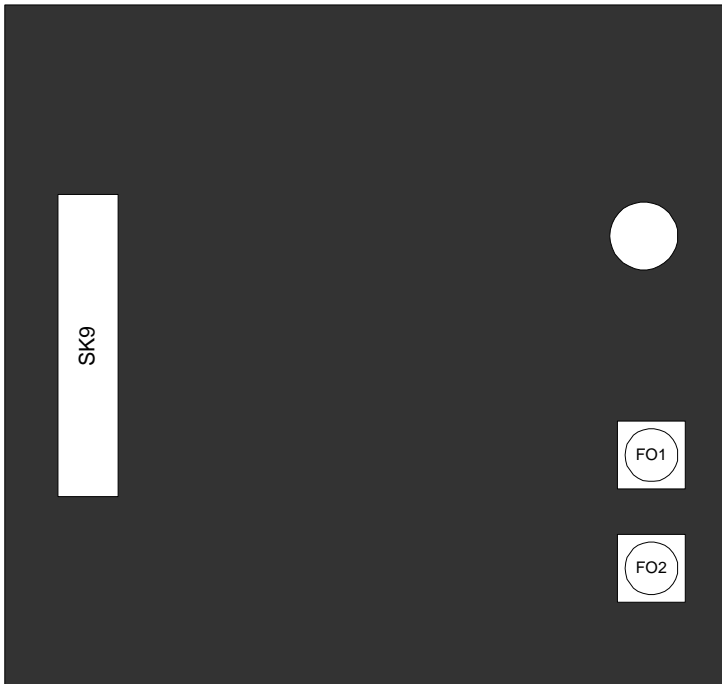
**This page intentionally left blank .....**



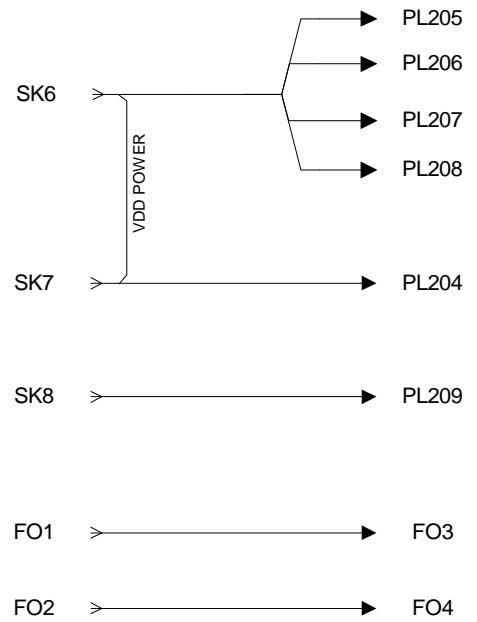
SDSU CHASSIS FRONT VIEW



SDSU FRONT PLATE VIEW



SDSU CHASSIS BACK VIEW



**This page intentionally left blank .....**  
**Yeah we know you get a kick out of that !**

<b>INGRID SDSU VIDEO &amp; BIAS CABLE</b>			
<b>PL205</b>			<b>SK5</b>
<b>DB9F</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>DB50F</b>
4	OUT1	50 OHM MIN COAX	2
N/C	OUT1 SHIELD	COAX SHIELD	19
2	OUT2	50 OHM MIN COAX	3
N/C	OUT2 SHIELD	COAX SHIELD	20
<b>PL206</b>			
<b>DB15F</b>			
1	HIGH1	26 AWG PTFE	24
2	OFFSET1	26 AWG PTFE	18
3	HIGH2	26 AWG PTFE	7
4	OFFSET2	26 AWG PTFE	36
5	BIASPWR	26 AWG PTFE	17
6	BIASGATE	26 AWG PTFE	50
9	+ 15 VOLT SUPPLY	22 AWG PTFE	1
10	- 15 VOLT SUPPLY	22 AWG PTFE	34
13	ANALOG GROUND		GND STAR
<b>PL207</b>			
<b>DB9F</b>			
4	OUT3	50 OHM MIN COAX	4
N/C	OUT3 SHIELD	COAX SHIELD	21
2	OUT4	50 OHM MIN COAX	5
N/C	OUT4 SHIELD	COAX SHIELD	22
<b>PL208</b>			
<b>DB15F</b>			
1	HIGH3	26 AWG PTFE	23
2	OFFSET3	26AWG PTFE	37
3	HIGH4	26 AWG PTFE	39
4	OFFSET4	26 AWG PTFE	38
5	VDD POWER	26 AWG PTFE	8
6	VRESET	26 AWG PTFE	41

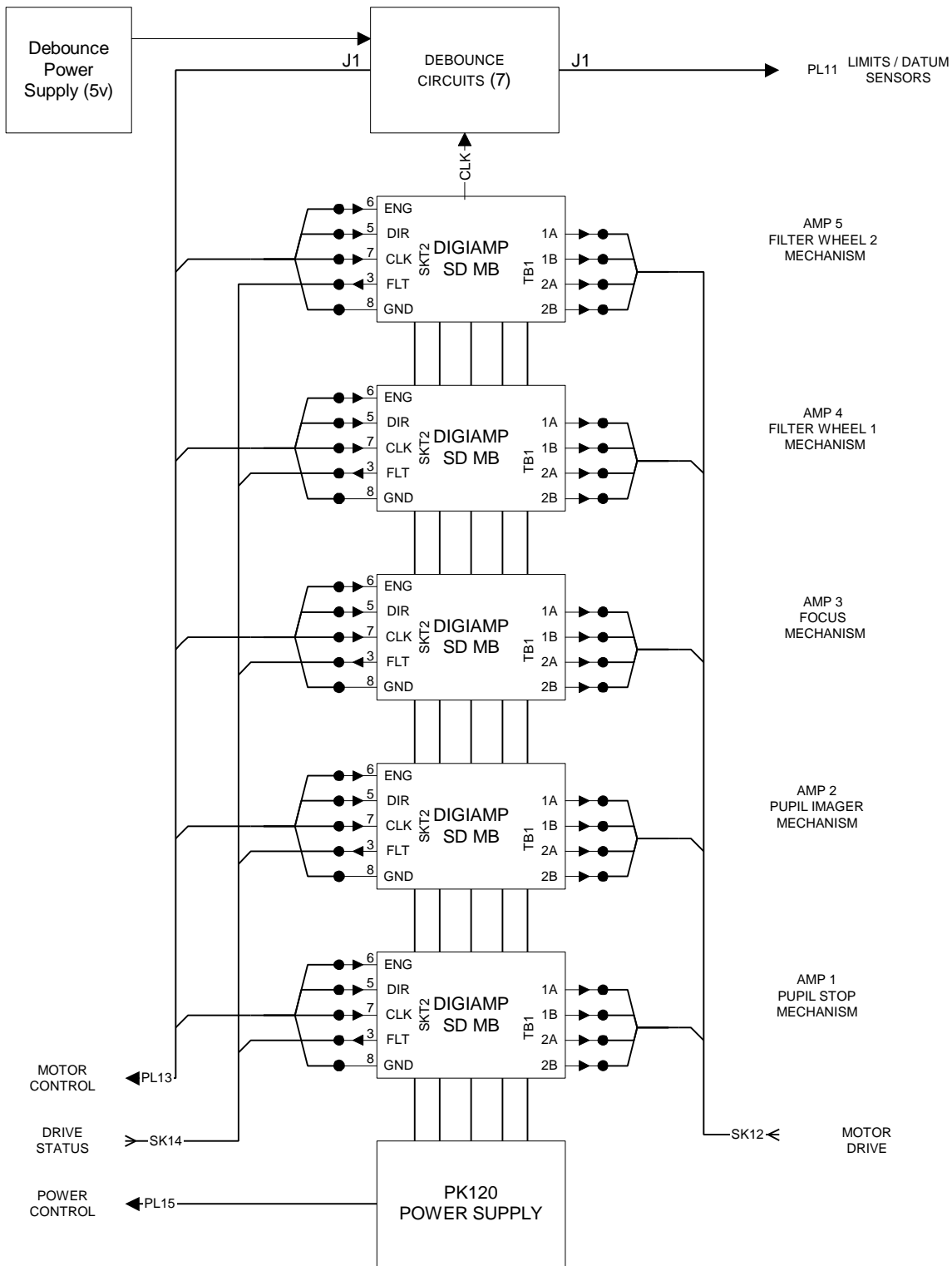
<b>INGRID SDSU CLOCK CABLE</b>			
<b>SK7</b>			<b>PL208</b>
<b>Amphenol 16-26 Female</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>DB15F</b>
<b>A</b>	<b>VDD</b>	<b>26 AWG PTFE</b>	<b>5</b>
			<b>SK204</b>
			<b>DB37F</b>
<b>B</b>	<b>LINE2</b>	<b>26 AWG PTFE</b>	<b>14</b>
<b>C</b>	<b>LINE1</b>	<b>26 AWG PTFE</b>	<b>13</b>
<b>D</b>	<b>FSYNC2</b>	<b>26 AWG PTFE</b>	<b>35</b>
<b>E</b>	<b>FSYNC1</b>	<b>26 AWG PTFE</b>	<b>34</b>
<b>F</b>	<b>READ2</b>	<b>26 AWG PTFE</b>	<b>6</b>
<b>G</b>	<b>READ1</b>	<b>26 AWG PTFE</b>	<b>5</b>
<b>H</b>	<b>READ3</b>	<b>26 AWG PTFE</b>	<b>7</b>
<b>J</b>	<b>RESET2</b>	<b>26 AWG PTFE</b>	<b>18</b>
<b>K</b>	<b>RESET1</b>	<b>26 AWG PTFE</b>	<b>17</b>
<b>L</b>	<b>LSYNC2</b>	<b>26 AWG PTFE</b>	<b>10</b>
<b>M</b>	<b>LSYNC1</b>	<b>26 AWG PTFE</b>	<b>9</b>
<b>N</b>	<b>LSYNC3</b>	<b>26 AWG PTFE</b>	<b>11</b>
<b>P</b>	<b>PIXEL2</b>	<b>26 AWG PTFE</b>	<b>2</b>
<b>R</b>	<b>PIXEL1</b>	<b>26 AWG PTFE</b>	<b>1</b>
<b>S</b>	<b>PIXEL3</b>	<b>26 AWG PTFE</b>	<b>3</b>
<b>T</b>	<b>LINE3</b>	<b>26 AWG PTFE</b>	<b>15</b>
<b>U</b>	<b>LINE4</b>	<b>26 AWG PTFE</b>	<b>16</b>
<b>V</b>	<b>FSYNC3</b>	<b>26 AWG PTFE</b>	<b>36</b>
<b>W</b>	<b>READ4</b>	<b>26 AWG PTFE</b>	<b>8</b>
<b>X</b>	<b>RESET3</b>	<b>26 AWG PTFE</b>	<b>19</b>
<b>Y</b>	<b>RESET4</b>	<b>26 AWG PTFE</b>	<b>33</b>
<b>Z</b>	<b>LSYNC4</b>	<b>26 AWG PTFE</b>	<b>12</b>
<b>a</b>	<b>PIXEL4</b>	<b>26 AWG PTFE</b>	<b>4</b>
<b>c</b>	<b>FSYNC4</b>	<b>26 AWG PTFE</b>	<b>37</b>
<b>GND STAR</b>	<b>DGND</b>	<b>18 AWG PTFE</b>	<b>21</b>
<b>b</b>	<b>DGND</b>	<b>18 AWG PTFE</b>	<b>GND STAR</b>



<b>INGRID UTILITY CABLE</b>			
<b>PL8</b>			<b>PL209</b>
<b>Amphenol 16-26 Male</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>10 Pin Header</b>
<b>A</b>	<b>DETECTOR TEMP +</b>	<b>26 AWG PTFE</b>	<b>3</b>
<b>B</b>	<b>DETECTOR TEMP -</b>	<b>26 AWG PTFE</b>	<b>6</b>
<b>C</b>	<b>CAMERA TEMP +</b>	<b>26 AWG PTFE</b>	<b>4</b>
<b>D</b>	<b>CAMERA TEMP -</b>	<b>26 AWG PTFE</b>	<b>6</b>
<b>E</b>	<b>COLD SHIELD TEMP +</b>	<b>26 AWG PTFE</b>	<b>5</b>
<b>F</b>	<b>COLD SHIELD TEMP -</b>	<b>26 AWG PTFE</b>	<b>6</b>
<b>G</b>	<b>FANOUT TEMP +</b>		<b>N/C</b>
<b>H</b>	<b>FANOUT TEMP -</b>		<b>N/C</b>
<b>b</b>	<b>TEMPERATURE SHIELD</b>		<b>N/C</b>
<b>J</b>			
<b>K</b>			
<b>L</b>			
<b>M</b>			
<b>N</b>	<b>DETECTOR HEATER +</b>	<b>22 AWG PTFE</b>	<b>7</b>
<b>P</b>	<b>DETECTOR HEATER -</b>	<b>22 AWG PTFE</b>	<b>8</b>
<b>R</b>	<b>COLD CYCLE COOLER TEMP +</b>		<b>N/C</b>
<b>S</b>	<b>COLD CYCLE COOLER TEMP -</b>		<b>N/C</b>
<b>T</b>	<b>GETTER HEATER +</b>		<b>N/C</b>
<b>U</b>	<b>GETTER HEATER -</b>		<b>N/C</b>
<b>V</b>	<b>PREFLASH LED +</b>	<b>26 AWG PTFE</b>	<b>9</b>
<b>W</b>	<b>PREFLASH LED -</b>	<b>26 AWG PTFE</b>	<b>6</b>
<b>X</b>	<b>PRESSURE SENSE +</b>		<b>N/C</b>
<b>Y</b>	<b>PRESSURE SENSE / POWER -</b>		<b>N/C</b>
<b>Z</b>	<b>PRESSURE POWER +</b>		<b>N/C</b>
<b>a</b>	<b>SPARE</b>		<b>N/C</b>
<b>b</b>	<b>PRESSURE SHIELD</b>		<b>N/C</b>
<b>c</b>	<b>CRYOSTAT GROUND</b>	<b>18 AWG PTFE</b>	<b>Ground lug on Front Panel</b>

SDSU CLOCK BOARD PINOUT		
PL204		
DB37M	INGRID SIG	SDSU SIG
1	RESET1	CLK0
2	LINE1	CLK1
3	LSYNC1	CLK2
4	FSYNC1	CLK3
5	PIXEL1	CLK4
6	READ1	CLK5
7	RESET2	CLK6
8	LINE2	CLK7
9	LSYNC2	CLK8
10	FSYNC2	CLK9
11	PIXEL2	CLK10
12	READ2	CLK11
13	RESET3	CLK12
14	LINE3	CLK13
15	LSYNC3	CLK14
16	FSYNC3	CLK15
17	PIXEL3	CLK16
18	READ3	CLK17
19	RESET4	CLK18
20		+12v
21		-12v
22	DGND	CLK GND
23		CLK GND
24		CLK GND
25		CLK GND
26		CLK GND
27		CLK GND
28		CLK GND
29		CLK GND
30		CLK GND
31		CLK GND
32		CLK GND
33	LINE4	CLK19
34	LSYNC4	CLK20
35	FSYNC4	CLK21
36	PIXEL4	CLK22
37	READ4	CLK23

SDSU VIDEO BOARD PINOUTS		
PL205		
DB9M	INGRID SIG	SDSU SIG
1	N/C	INPUT 2 -
2	OUT2+	INPUT 2 +
3	N/C	INPUT 1 -
4	OUT1+	INPUT 1 +
5	N/C	AGND
6	N/C	AGND
7	N/C	AGND
8	AGND	AGND
9	N/C	AGND
PL206		
DB15M	INGRID SIG	SDSU SIG
1	HIGH2	DAC-0
2	HIGH1	DAC-1
3	OFFSET2	DAC-2
4	OFFSET3	DAC-3
5	OFFSET4	DAC-4
6	BIASPWR	DAC-5
7	N/C	AGND
8	N/C	AGND
9	+15v	+15v
10	-15v	-15v
11	N/C	AGND
12	N/C	AGND
13	N/C	AGND
14	N/C	AGND
15	N/C	AGND
PL207		
DB9M	INGRID SIG	SDSU SIG
1	N/C	INPUT 2 -
2	OUT4+	INPUT 2 +
3	N/C	INPUT 1 -
4	OUT3+	INPUT 1 +
5	N/C	AGND
6	N/C	AGND
7	N/C	AGND
8	AGND	AGND
9	N/C	AGND
PL208		
DB15M	INGRID SIG	SDSU SIG
1	OFFSET1	DAC-0
2	VRESET	DAC-1
3	HIGH4	DAC-2
4	BIASGATE	DAC-3
5	VDD POWER	DAC-4
6	HIGH3	DAC-5
7	N/C	AGND
8	N/C	AGND
9	N/C	+15v
10	N/C	-15v
11	N/C	AGND
12	N/C	AGND
13	N/C	AGND
14	N/C	AGND
15	N/C	AGND



## INGRID MECHANISM AMPLIFIER CHASSIS



**This page intentionally left blank .....**

<b>INGRID DIGIPLAN AMPLIFIER CHASSIS</b>			
<b>SK12</b>			
<b>Amphenol 16-26 Female</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
<b>A</b>	<b>PUPIL STOP A+</b>		<b>AMP1 TB1 1A</b>
<b>B</b>	<b>PUPIL STOP A-</b>		<b>AMP1 TB1 1B</b>
<b>C</b>	<b>PUPIL STOP B+</b>		<b>AMP1 TB1 2A</b>
<b>D</b>	<b>PUPIL STOP B-</b>		<b>AMP1 TB1 2B</b>
<b>Chassis GND</b>	<b>MOTOR DRIVE SHIELD</b>		<b>N/C</b>
<b>E</b>	<b>PUPIL IMAGER A+</b>		<b>AMP2 TB1 1A</b>
<b>F</b>	<b>PUPIL IMAGER A-</b>		<b>AMP2 TB1 1B</b>
<b>G</b>	<b>PUPIL IMAGER B+</b>		<b>AMP2 TB1 2A</b>
<b>H</b>	<b>PUPIL IMAGER B-</b>		<b>AMP2 TB1 2B</b>
<b>Chassis GND</b>	<b>MOTOR DRIVE SHIELD</b>		<b>N/C</b>
<b>J</b>	<b>FOCUS DRIVE A+</b>		<b>AMP3 TB1 1A</b>
<b>K</b>	<b>FOCUS DRIVE A-</b>		<b>AMP3 TB1 1B</b>
<b>L</b>	<b>FOCUS DRIVE B+</b>		<b>AMP3 TB1 2A</b>
<b>M</b>	<b>FOCUS DRIVE B-</b>		<b>AMP3 TB1 2B</b>
<b>Chassis GND</b>	<b>MOTOR DRIVE SHIELD</b>		<b>N/C</b>
<b>N</b>	<b>FILTER WHEEL 1 A+</b>		<b>AMP4 TB1 1A</b>
<b>P</b>	<b>FILTER WHEEL 1 A-</b>		<b>AMP4 TB1 1B</b>
<b>R</b>	<b>FILTER WHEEL 1 B+</b>		<b>AMP4 TB1 2A</b>
<b>S</b>	<b>FILTER WHEEL 1 B-</b>		<b>AMP4 TB1 2B</b>
<b>Chassis GND</b>	<b>MOTOR DRIVE SHIELD</b>		<b>N/C</b>
<b>T</b>	<b>FILTER WHEEL 2 A+</b>		<b>AMP5 TB1 1A</b>
<b>U</b>	<b>FILTER WHEEL 2 A-</b>		<b>AMP5 TB1 1B</b>
<b>V</b>	<b>FILTER WHEEL 2 B+</b>		<b>AMP5 TB1 2A</b>
<b>W</b>	<b>FILTER WHEEL 2 B-</b>		<b>AMP5 TB1 2B</b>
<b>Chassis GND</b>	<b>MOTOR DRIVE SHIELD</b>		<b>N/C</b>
<b>X</b>			
<b>Y</b>			
<b>Z</b>			
<b>a</b>			
<b>b</b>	<b>MOTOR DRIVE SHIELD</b>		<b>Chassis GND</b>
<b>c</b>			

**INGRID DIGIPLAN AMPLIFIER CHASSIS – MOTOR CONTROL**

<b>PL13</b>			
<b>DB37M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
1	PUPIL STOP STEP		AMP1 SKT2-7
2	PUPIL STOP DIRECTION		AMP1 SKT2-5
3	PUPIL STOP ENERGISE		AMP1 SKT2-6
32	PUPIL STOP RETURN		AMP1 SKT2-8
7	PUPIL IMAGER STEP		AMP2 SKT2-7
8	PUPIL IMAGER DIRECTION		AMP2 SKT2-5
9	PUPIL IMAGER ENERGISE		AMP2 SKT2-6
33	PUPIL IMAGER RETURN		AMP2 SKT2-8
13	FOCUS STEP		AMP3 SKT2-7
14	FOCUS DIRECTION		AMP3 SKT2-5
15	FOCUS ENERGISE		AMP3 SKT2-6
34	FOCUS RETURN		AMP3 SKT2-8
19	FILTER WHEEL 1 STEP		AMP4 SKT2-7
20	FILTER WHEEL 1 DIRECTION		AMP4 SKT2-5
21	FILTER WHEEL 1 ENERGISE		AMP4 SKT2-6
35	FILTER WHEEL 1 RETURN		AMP4 SKT2-8
25	FILTER WHEEL 2 STEP		AMP5 SKT2-7
26	FILTER WHEEL 2 DIRECTION		AMP5 SKT2-5
27	FILTER WHEEL 2 ENERGISE		AMP5 SKT2-6
36	FILTER WHEEL 2 RETURN		AMP5 SKT2-8
37			

<b>INGRID DIGIPLAN AMPLIFIER CHASSIS – MECHANISM STATUS</b>				
<b>J1</b>	<b>PL13</b>			<b>PL11</b>
	<b>DB37M</b>			<b>Amphenol 16-26 Male</b>
	<b>4</b>	<b>PUPIL STOP LIMIT+</b>	*	<b>A</b>
	<b>5</b>	<b>PUPIL STOP LIMIT -</b>	*	<b>B</b>
<b>a</b>		<b>PUPIL STOP DATUM IN</b>		<b>C</b>
<b>c</b>	<b>6</b>	<b>PUPIL STOP DATUM OUT</b>		
<b>a</b>		<b>PUPIL IMAGER LIMIT+ IN</b>		<b>E</b>
<b>c</b>	<b>10</b>	<b>PUPIL IMAGER LIMIT+ OUT</b>		
<b>a</b>		<b>PUPIL IMAGER LIMIT - IN</b>		<b>F</b>
<b>c</b>	<b>11</b>	<b>PUPIL IMAGER LIMIT - OUT</b>		
	<b>12</b>	<b>PUPIL IMAGER DATUM</b>	*	<b>G</b>
	<b>16</b>	<b>FOCUS DRIVE LIMIT+</b>	*	<b>J</b>
<b>a</b>		<b>FOCUS DRIVE LIMIT – IN</b>		<b>K</b>
<b>c</b>	<b>17</b>	<b>FOCUS DRIVE LIMIT - OUT</b>		
<b>a</b>		<b>FOCUS DRIVE DATUM IN</b>		<b>L</b>
<b>c</b>	<b>18</b>	<b>FOCUS DRIVE DATUM OUT</b>		
	<b>22</b>	<b>FILTER WHEEL 1 LIMIT+</b>	*	<b>N</b>
	<b>23</b>	<b>FILTER WHEEL 1 LIMIT -</b>	*	<b>P</b>
<b>a</b>		<b>FILTER WHEEL 1 DATUM IN</b>		<b>R</b>
<b>c</b>	<b>24</b>	<b>FILTER WHEEL 1 DATUM OUT</b>		
	<b>28</b>	<b>FILTER WHEEL 2 LIMIT+</b>	*	<b>T</b>
	<b>29</b>	<b>FILTER WHEEL 2 LIMIT -</b>	*	<b>U</b>
<b>a</b>		<b>FILTER WHEEL 2 DATUM IN</b>		<b>V</b>
<b>c</b>	<b>30</b>	<b>FILTER WHEEL 2 DATUM OUT</b>		
				<b>X</b>
				<b>Y</b>
				<b>Z</b>
				<b>a</b>
<b>1a,c</b>		<b>DEBOUNCE VCC (+5v) SUPPLY</b>		
<b>32a,c</b>		<b>DEBOUNCE VDD (gnd) SUPPLY</b>		
	<b>AMP5 SKT2- Chassis GND</b>	<b>DEBOUNCE CLOCK</b>		
	<b>AMP1 SKT2-8</b>	<b>SENSOR SHIELD WIRES</b>		<b>b</b>
	<b>AMP2 SKT2-8</b>	<b>PUPIL STOP RETURN</b>		<b>D</b>
	<b>AMP3 SKT2-8</b>	<b>PUPIL IMAGER RETURN</b>		<b>H</b>
	<b>AMP4 SKT2-8</b>	<b>FOCUS DRIVE RETURN</b>		<b>M</b>
	<b>AMP5 SKT2-8</b>	<b>FILTER WHEEL 1 RETURN</b>		<b>S</b>
	<b>AMP5 SKT2-8</b>	<b>FILTER WHEEL 2 RETURN</b>		<b>W</b>

NOTES:-

34. CONNECTIONS MARKED WITH AN \* ARE NOT USED AND MUST BE TIED TO THERE RESPECTIVE RETURNS IN THE CRYOSTAT.



INGRID DIGIPLAN AMPLIFIER CHASSIS – DRIVE STATUS			
SK14			
DB50F	SIGNAL NAME	CABLE TYPE	
1	PUPIL STOP AMP FAULT (PORT0 BIT0)		AMP1 SKT2-3
2	FILTER 1 AMP FAULT (PORT0 BIT3)		AMP4 SKT2-3
3	(PORT0 BIT6)		
4	(FLAGS BIT0)		
5	(PORT1 BIT0)		
6	(PORT1 BIT3)		
7	(PORT1 BIT6)		
8	(FLAGS BIT1)		
9	(PORT2 BIT0)		
0	(PORT2 BIT3)		
11	(PORT2 BIT6)		
12	FLAGS BIT2)		
13	(PORT3 BIT0)		
14	(PORT3 BIT3)		
15	(PORT3 BIT6)		
16	(FLAGS BIT3)		
17	GROUND RETURN		
18	FOCUS AMP DRIVE FAULT (PORT0 BIT2)		AMP3 SKT2-3
19	(PORT0 BIT5)		
20	(INTERUPT REG BIT0)		
21	GROUND RETURN		
22	(PORT1 BIT2)		
23	(PORT1 BIT5)		
24	(INTERUPT REG BIT1)		
25	GROUND RETURN		
26	(PORT2 BIT2)		
27	(PORT2 BIT5)		
28	(INTERUPT REG BIT2)		
29	GROUND RETURN		
30	(PORT3 BIT2)		
31	(PORT3 BIT5)		
32	(INTERUPT REG BIT3)		
33	GROUND RETURN		
34	PUPIL IMAGER AMP FAULT (PORT0 BIT1)		AMP2 SKT-3
35	FILTER 2 AMP FAULT (PORT0 BIT4)		AMP5 SKT2-3
36	(PORT0 BIT7)		
37	GROUND RETURN		
38	(PORT1 BIT1)		
39	(PORT1 BIT4)		
40	(PORT1 BIT7)		
41	GROUND RETURN		
42	(PORT2 BIT1)		
43	(PORT2 BIT4)		
44	(PORT2 BIT7)		
45	GROUND RETURN		
46	(PORT3 BIT1)		
47	(PORT3 BIT4)		
48	(PORT3 BIT7)		
49	GROUND RETURN		
50	FAULT RETURNS		CHASSIS GND

**INGRID DIGIPLAN AMPLIFIER CHASSIS – POWER CONTROL**

<b>PL15</b>			
<b>DB50M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	
1	PSU CONTROL (PORT4 BIT0)		PSU - 24
2	(PORT4 BIT3)		
3	(PORT4 BIT6)		
4	(FLAGS BIT4)		
5	(PORT5 BIT0)		
6	(PORT5 BIT3)		
7	(PORT5 BIT6)		
8	(FLAGS BIT5)		
9	(PORT6 BIT0)		
0	(PORT6 BIT3)		
11	(PORT6 BIT6)		
12	FLAGS BIT6)		
13	(PORT7 BIT0)		
14	(PORT7 BIT3)		
15	(PORT7 BIT6)		
16	(FLAGS BIT7)		
17	GROUND RETURN		
18	(PORT4 BIT2)		
19	(PORT4 BIT5)		
20	(INTERUPT REG BIT4)		
21	GROUND RETURN		
22	(PORT5 BIT2)		
23	(PORT5 BIT5)		
24	(INTERUPT REG BIT5)		
25	GROUND RETURN		
26	(PORT6 BIT2)		
27	(PORT6 BIT5)		
28	(INTERUPT REG BIT6)		
29	GROUND RETURN		
30	(PORT7 BIT2)		
31	(PORT7 BIT5)		
32	(INTERUPT REG BIT7)		
33	GROUND RETURN		
34	(PORT4 BIT1)		
35	(PORT4 BIT4)		
36	(PORT4 BIT7)		
37	GROUND RETURN		
38	(PORT5 BIT1)		
39	(PORT5 BIT4)		
40	(PORT5 BIT7)		
41	GROUND RETURN		
42	(PORT6 BIT1)		
43	(PORT6 BIT4)		
44	(PORT6 BIT7)		
45	GROUND RETURN		
46	(PORT7 BIT1)		
47	(PORT7 BIT4)		
48	(PORT7 BIT7)		
49	GROUND RETURN		
50	PSU CONTROL RETURN		CHASSIS GND

➤SK16——P2 VME8—⤵

◀PL17—JK1 XVME240—⤵

➤SK18—JK2 XVME 240—⤵

## VME WIRING

<b>INGRID VME CHASSIS – MOTOR CONTROL</b>			
<b>SK18</b>			<b>VME8 - P2</b>
<b>DB37F</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>64 WAY DIN 41612</b>
1	PUPIL STOP STEP		C9
2	PUPIL STOP DIRECTION		A10
3	PUPIL STOP ENERGISE		C10
4	PUPIL STOP LIMIT+		A12
5	PUPIL STOP LIMIT -		C11
6	PUPIL STOP DATUM		C12
7	PUPIL IMAGER STEP		C13
8	PUPIL IMAGER DIRECTION		A14
9	PUPIL IMAGER ENERGISE		C14
10	PUPIL IMAGER LIMIT+		A16
11	PUPIL IMAGER LIMIT -		C15
12	PUPIL IMAGER DATUM		C16
13	FOCUS STEP		C17
14	FOCUS DIRECTION		A18
15	FOCUS ENERGISE		C18
16	FOCUS DRIVE LIMIT+		A20
17	FOCUS DRIVE LIMIT -		C19
18	FOCUS DRIVE DATUM		C20
19	FILTER WHEEL 1 STEP		C1
20	FILTER WHEEL 1 DIRECTION		A2
21	FILTER WHEEL 1 ENERGISE		C2
22	FILTER WHEEL 1 LIMIT+		A4
23	FILTER WHEEL 1 LIMIT -		C3
24	FILTER WHEEL 1 DATUM		C4
25	FILTER WHEEL 2 STEP		C5
26	FILTER WHEEL 2 DIRECTION		A6
27	FILTER WHEEL 2 ENERGISE		C6
28	FILTER WHEEL 2 LIMIT+		A8
29	FILTER WHEEL 2 LIMIT -		C7
30	FILTER WHEEL 2 DATUM		C8
31	GND		A3
32	PUPIL STOP RETURN		A7
33	PUPIL IMAGER RETURN		A11
34	FOCUS RETURN		A15
35	FILTER WHEEL 1 RETURN		23A
36	FILTER WHEEL 2 RETURN		19A
37	CHASSIS GND		CHASSIS

**INGRID VME CHASSIS – DRIVE STATUS**

<b>PL17</b>			<b>XVME-240 JK1</b>
<b>DB50M</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>50 WAY HEADER</b>
1	PUPIL STOP AMP FAULT (PORT0 BIT0)	50 WAY FLAT RIBBON	
2	FILTER 1 AMP FAULT (PORT0 BIT3)		
3	(PORT0 BIT6)		
4	(FLAGS BIT0)		
5	(PORT1 BIT0)		
6	(PORT1 BIT3)		
7	(PORT1 BIT6)		
8	(FLAGS BIT1)		
9	(PORT2 BIT0)		
0	(PORT2 BIT3)		
11	(PORT2 BIT6)		
12	FLAGS BIT2)		
13	(PORT3 BIT0)		
14	(PORT3 BIT3)		
15	(PORT3 BIT6)		
16	(FLAGS BIT3)		
17	GROUND RETURN		
18	FOCUS AMP DRIVE FAULT (PORT0 BIT2)		
19	(PORT0 BIT5)		
20	(INTERUPT REG BIT0)		
21	GROUND RETURN		
22	(PORT1 BIT2)		
23	(PORT1 BIT5)		
24	(INTERUPT REG BIT1)		
25	GROUND RETURN		
26	(PORT2 BIT2)		
27	(PORT2 BIT5)		
28	(INTERUPT REG BIT2)		
29	GROUND RETURN		
30	(PORT3 BIT2)		
31	(PORT3 BIT5)		
32	(INTERUPT REG BIT3)		
33	GROUND RETURN		
34	PUPIL IMAGER AMP FAULT (PORT0 BIT1)		
35	FILTER 2 AMP FAULT (PORT0 BIT4)		
36	(PORT0 BIT7)		
37	GROUND RETURN		
38	(PORT1 BIT1)		
39	(PORT1 BIT4)		
40	(PORT1 BIT7)		
41	GROUND RETURN		
42	(PORT2 BIT1)		
43	(PORT2 BIT4)		
44	(PORT2 BIT7)		
45	GROUND RETURN		
46	(PORT3 BIT1)		
47	(PORT3 BIT4)		
48	(PORT3 BIT7)		
49	GROUND RETURN		
50	FAULT RETURNS		

<b>INGRID VME CHASSIS – POWER CONTROL</b>			
<b>SK16</b>			<b>XVME240 – JK2</b>
<b>DB50F</b>	<b>SIGNAL NAME</b>	<b>CABLE TYPE</b>	<b>50 WAY HEADER</b>
1	PSU CONTROL (PORT4 BIT0)	50 WAY FLAT RIBBON	
2	(PORT4 BIT3)		
3	(PORT4 BIT6)		
4	(FLAGS BIT4)		
5	(PORT5 BIT0)		
6	(PORT5 BIT3)		
7	(PORT5 BIT6)		
8	(FLAGS BIT5)		
9	(PORT6 BIT0)		
0	(PORT6 BIT3)		
11	(PORT6 BIT6)		
12	FLAGS BIT6)		
13	(PORT7 BIT0)		
14	(PORT7 BIT3)		
15	(PORT7 BIT6)		
16	(FLAGS BIT7)		
17	GROUND RETURN		
18	(PORT4 BIT2)		
19	(PORT4 BIT5)		
20	(INTERUPT REG BIT4)		
21	GROUND RETURN		
22	(PORT5 BIT2)		
23	(PORT5 BIT5)		
24	(INTERUPT REG BIT5)		
25	GROUND RETURN		
26	(PORT6 BIT2)		
27	(PORT6 BIT5)		
28	(INTERUPT REG BIT6)		
29	GROUND RETURN		
30	(PORT7 BIT2)		
31	(PORT7 BIT5)		
32	(INTERUPT REG BIT7)		
33	GROUND RETURN		
34	(PORT4 BIT1)		
35	(PORT4 BIT4)		
36	(PORT4 BIT7)		
37	GROUND RETURN		
38	(PORT5 BIT1)		
39	(PORT5 BIT4)		
40	(PORT5 BIT7)		
41	GROUND RETURN		
42	(PORT6 BIT1)		
43	(PORT6 BIT4)		
44	(PORT6 BIT7)		
45	GROUND RETURN		
46	(PORT7 BIT1)		
47	(PORT7 BIT4)		
48	(PORT7 BIT7)		
49	GROUND RETURN		
50	PSU CONTROL RETURN		CHASSIS GND