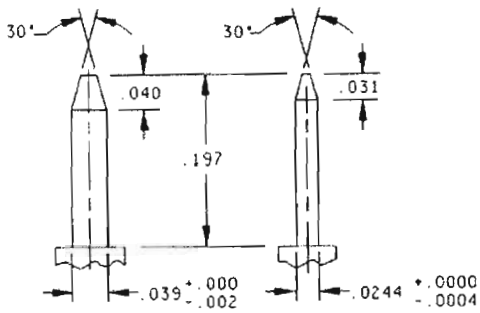
DIN96 Pin Retention Test Report

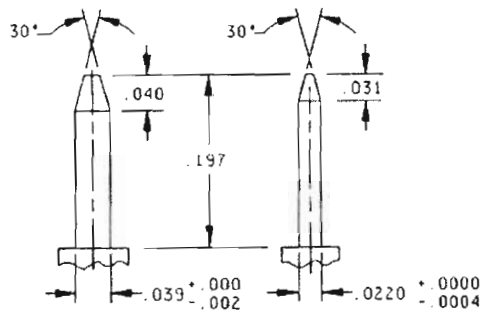
Introduction

Pin retention force of 12 M55302/132-01 Connectors was tested. The date code for the parts tested is 0424.
Two test pins were constructed for this test as per MIL-C-55302/132B shown below:



TEST PIN A

Inches	mm
.0004	0.010
.002	0.05
.008	0.20
.0220	0.559
.0244	0.620
.031	0.79
.039	0.99
.040	1.02
.197	5.00

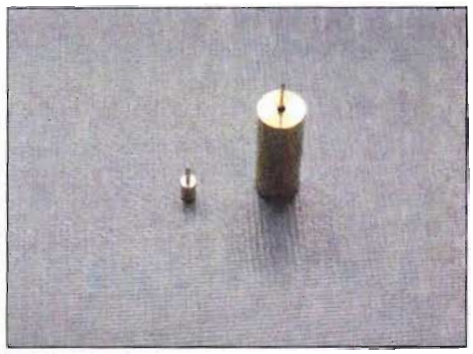


TEST PIN B

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.006 (0.20 mm) on decimals and 2° on angles.

FIGURE 2. Test pins.

Test Pin A was made from brass. Test Pin B was a modified pin from a test M55302/131-01 connector so that it met both the dimensional of the test specification and the surface properties of a flight pin. A mass of 0.54oz was attached to the Test Pin B. Both pins are shown in the photo on the left below, and the mass of Pin B assembly on the right hand photo:



Test Pin A and Test Pin B

Test Pin B Assembly Mass

Procedure

The procedure followed is listed below.

1. Gloves should be worn for all handling of connectors.
2. Clean test pins with IPA
3. Record the serial number and date code of the connector in the pin log sheet.
4. Carefully insert Pin A in to each socket of the connector and then remove.
5. Mount the connector in the test fixture so the sockets point down.
6. Carefully insert Pin B into each socket of the connector and let the weight hang from the test pin.
7. Record if pin falls out in the pin log sheet.
8. Repeat steps 2 to 7 for each connector.
9. Inspect connectors under x20 magnification.

Results

All pins passed the pin retention test. A log of the test is attached.

Visual Inspection

All connectors were visually inspected at x20 magnification. All connectors passed except:

SN6: Plastic from housing covered socket hole. An attempt was made to remove the excess housing, however it was decided to use a new connector (SN14). This connector was pin tested (passing), and then visually inspected at x20 magnification (passing). See photo attached.

SN9: Plastic from housing covered socket hole. The excess plastic was attached to the outer edge of the connector body and fell over the connector socket. The excess was folded back and trimmed off and the connector re-inspected (passed). See photos attached.

Summary

In all 12 connectors are pin tested and visually inspected for flight.

DIN96 Pin Retention Test Procedure

Approval

Michael Ludlam, U.C. Berkeley IDPU 2/18/09

David Curtis, U.C. Berkeley RBSP EFW Systems Engineer 2/19/09

Ron Jackson, U.C. Berkeley, RBSP EFW Quality Assurance 2/19/09

Procedure

1. Gloves should be worn for all handling of connectors.
2. Clean test pins with IPA
3. Record the serial number and date code of the connector in the pin log sheet.
4. Carefully insert Pin A in to each socket of the connector and then remove.
5. Mount the connector in the test fixture so the sockets point down.
6. Carefully insert Pin B into each socket of the connector and let the weight hang from the test pin.
7. Record if pin falls out in the pin log sheet.
8. Repeat steps 2 to 7 for each connector.
9. Inspect connectors under x20 magnification.

Pin Retention Test Log Sheet

Place x on any pin that does not meet retention requirements, if all pins in row meet test requirement then indicate this in the last column

Connector ID	1			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	2			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	3			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	4			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	5			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	6 ← S/N 14			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	7			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	8			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	9			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	10			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	11			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

Connector ID	12			Date Code		0424														
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21

										Row Passes	VISUAL INSPECTION
A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

Plastic inside pin window (socket) ← Replaced with S/N 14 [illegible]

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

Plastic inside pin window (socket) OK [illegible]

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

PLASTIC FROM EDGE OF CONNECTOR BODY FROM MANUFACTURE - IE NOT DAMAGE EXCESS TRIMMED FROM CONNECTOR AND REINSPECTED [illegible]

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

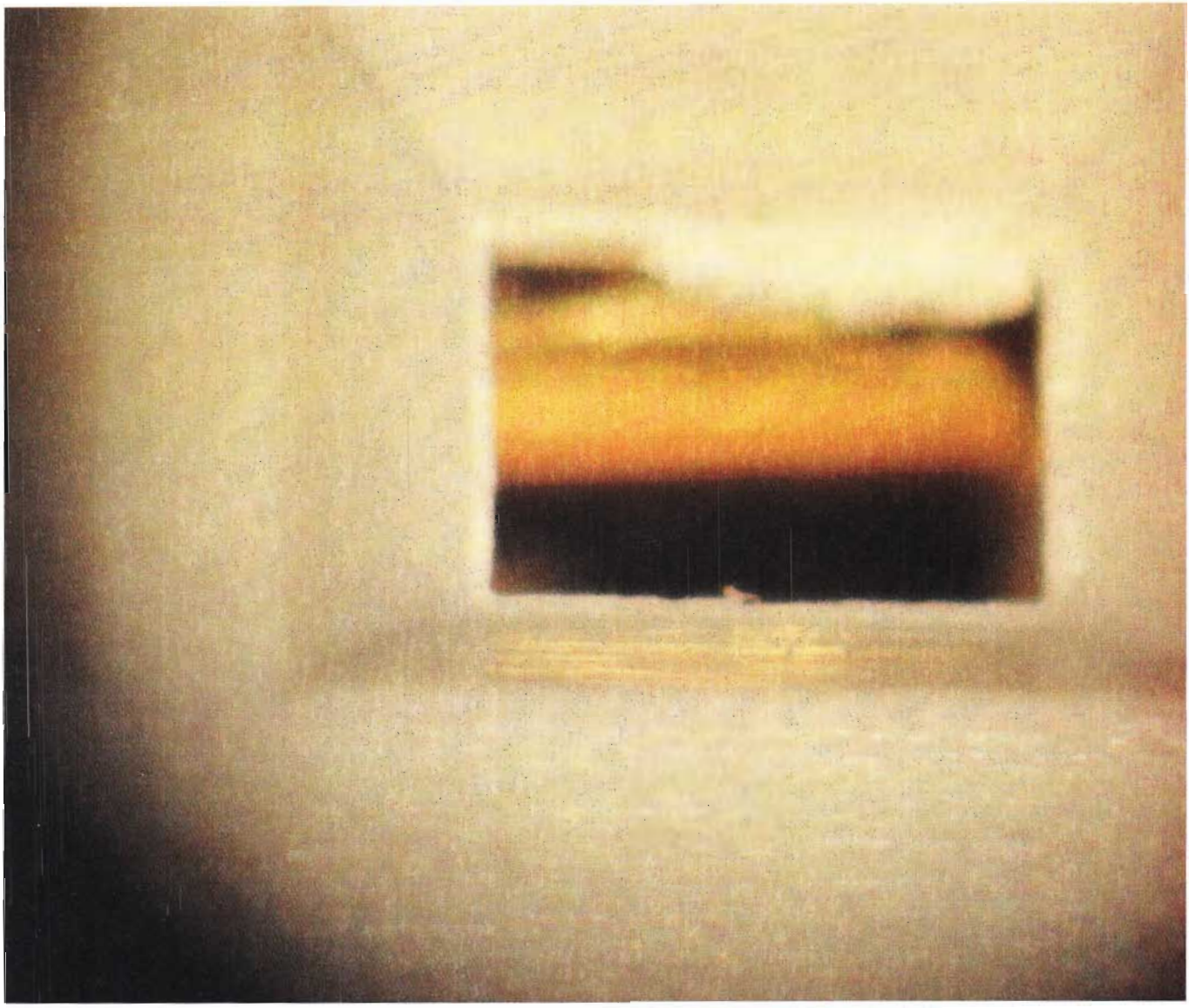
A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	✓	OK
B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	✓	OK
C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	✓	OK

All 12 connectors pass
No pin retention failures

Michael M [illegible] 2/20/09
Ron Jackson 2/23/09

Subject: DIN96_SN06-2.JPG
From: jorg <jorg@ssl.berkeley.edu>
Date: Mon, 23 Feb 2009 13:58:13 -0800
To: Jackson Ron <ronJ@ssl.berkeley.edu>



DIN96_SN06-2.JPG

Replaced with S/N 14

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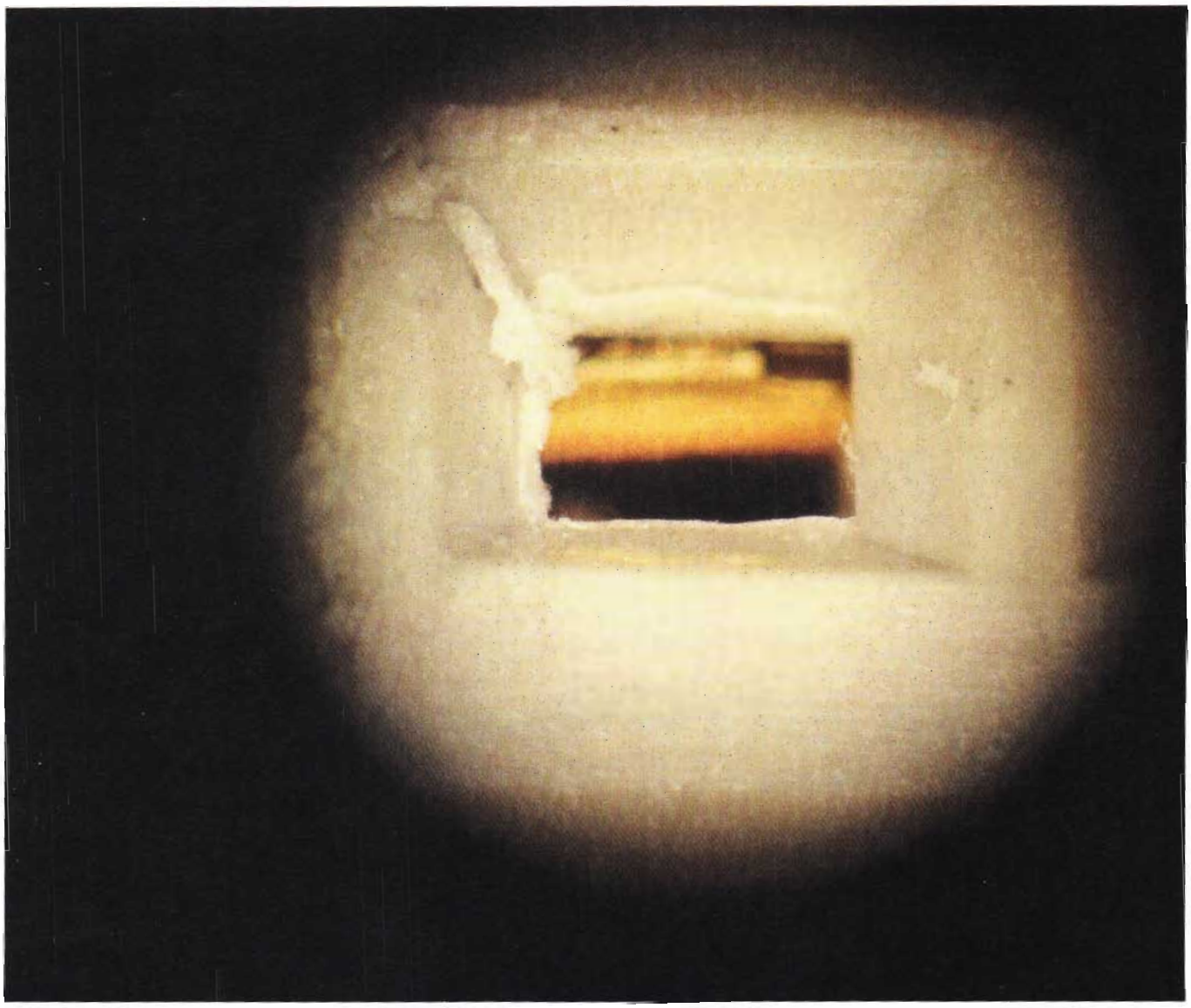
Date: Mon, 23 Feb 2009 13:57:53 -0800
To: Jackson Ron <ronJ@ssl.berkeley.edu>



DIN96_SN09.JPG

Reworked - See attached photo.

Subject: DIN96_SN09_cln.JPG
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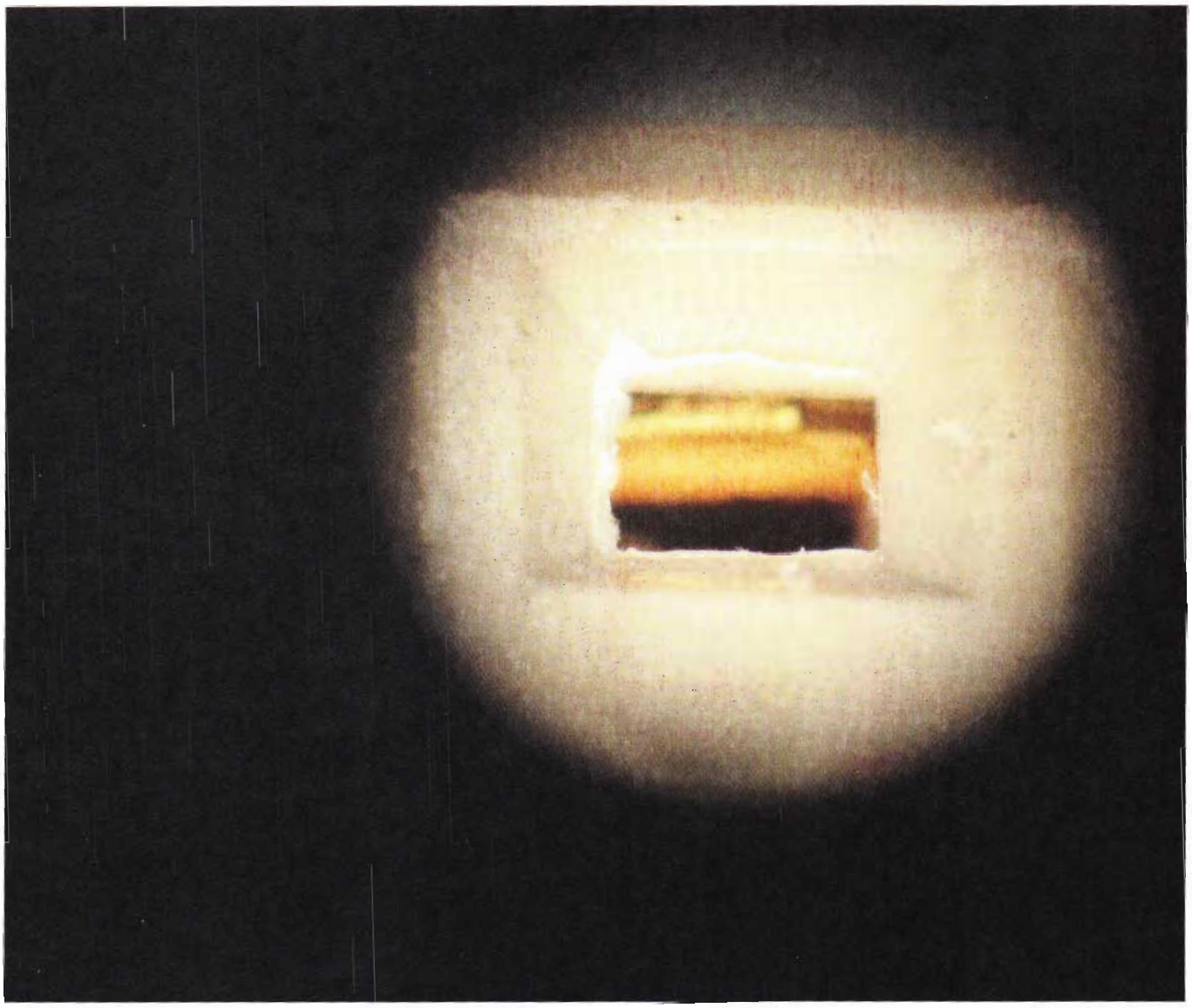
Date: Tue, 24 Feb 2009 11:02:21 -0800
To: Jackson Ron <ronJ@ssl.berkeley.edu>



DIN96_SN09_cln.JPG