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COLLECTOR SUBSYSTEM

HELIOSTAT TARGETING VERIFICATION

TEST PROCEDURE 116

10 AUGUST 1981

REVISION 0

UNITED STATES DEPARTMENT OF ENERGY/

SOUTHERN CALIFORNIA EDISON COMPANY


10 MWe SOLAR PILOT PLANT

DAGGETT, CALIFORNIA

MARTIN MARIETTA AEROSPACE

DENVER, COLORADO

Author

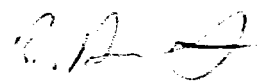


G.R. Rose

Reviewed by



Approved By



COLLECTOR SYSTEM
HELIOSTAT TARGETING VERIFICATION
TEST PROCEDURE 116 REV. 0

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1.0 OBJECTIVES

- 1.1 Demonstrate that the correct heliostat targeting data for the receiver has been incorporated into the Heliostat Array Controllers (HAC) software by visually observing heliostat beams on the receiver. During system initialization, targeting data for the first of 20 sets of aimpoint tracking arrays shall be used and these values shall be verified one at a time for one heliostat beam from each field segment on the receiver.
- 1.2 Demonstrate that the HAC Graphics CRT displays the correct aimpoint array and corresponding x, y and z target values selected.
- 1.3 Demonstrate the HAC capability to select, control and display up to 20 sets of aimpoint tracking arrays.

2.0 ACCEPTANCE CRITERIA

		<u>Verification</u>	
		<u>Paragraph</u>	<u>Objective</u>
2.1	Individual heliostat beams commanded to track the receiver attained their assigned aimpoint tracking position. The heliostat beam is within 1 meter of the assigned aimpoint, corresponding to acceptance criteria of bias measurement and bias verification systems utilized during installation activity prior to the availability of the BCS system. This activity was a visual measurement and verification prior to BCS activation.	8.1.2.6 8.1.2.8	1.1
2.2	The correct aimpoint tracking arrays for the individual heliostats were displayed on the HAC graphics CRT.	8.1.2.6 8.1.2.8	1.2
2.3	The HAC did select, control and display up to 20 sets of aimpoint tracking arrays.	8.2.1.2 8.1.2.6	1.3

3.0 REFERENCES

- 3.1 Software/Firmware Design Specification for 10 MWe Solar Thermal Central Receiver Pilot Plant, Martin Marietta, MCR-80-1377, October 1980.
- 3.2 Pilot Plant Startup and Acceptance Test Plan, McDonnell Douglas, MDCG9330, December 1980.
- 3.3 Operations Manual, MCR-81-1708, Martin Marietta, latest revision.
- 3.4 Maintenance Manual, MCR-81-1709, Martin Marietta, latest revision.

4.0 PREREQUISITES

- 4.1 Heliostat installation and checkout shall be complete in accordance with Master Control Procedure 40 0 500 29 0.
- 4.2 Collector Subsystem Functional tests shall be complete in accordance with Collector Subsystem Functional Test Procedure 111.
- 4.3 The Master Tracking System has been reviewed and outstanding items (if any) will not affect this test. A summary list of outstanding items is attached on appendix 10A.
- 4.4 The Abnormal Equipment and Circuitry Log has been reviewed, is current and is satisfactory for this test. A summary list is attached on Appendix 10B.
- 4.5 The system has been walked through and verified complete to the extent required to conduct this test. Selected heliostats shall be identified as in service in appendix 10D.
- 4.6 A pretest indoctrination meeting has been held to familiarize test and operations personnel with the requirements of this test.
- 4.7 Heliostat Readiness Test, procedure 101, has been performed and is complete.
- 4.8 Dual Heliostat Array Controller Test, procedure 106 has been performed and is complete.

5.0 LIMITS AND PRECAUTIONS

5.1 Prior to the start of this test, the Test Conductor shall ensure all personnel and equipment are out of the arc to be swung by the heliostats under test.

5.2 Prior to the start of this test, the operator must read and understand the complete procedure, noting those actions required to terminate any critical condition and the safety criteria to be exercised.

5.3 This procedure must be performed in sequence.

5.4 Definitions:

CB - Circuit Breaker	HST - Heliostat
CC - Control Console	FO - Field Observer
CW - Clockwise	AZ - Azimuth
CCW - Counter-Clockwise	EL - Elevation
HC - Heliostat Controller	TC - Test Conductor
HFC - Heliostat Field Controller	CLLP - Corridor Lower Limit Point
RTN - Return (HAC Console Keyboard)	CULP - Corridor Upper Limit Point

5.5 Only a single heliostat beam shall be on the receiver at any one time for this test.

5.6 All personnel shall be clear of the tower for this test.

5.7 Safety sunglasses, American Optical Calobar super armour plate lenses of 2.5 minimum shade or equivalent, as needed.

6.0 TEST EQUIPMENT

6.1 Communications Equipment

6.1.1 Radios (2 each) for field observers plus base station in control room.

6.2 Other

6.2.1 Camera with black & white film to record images on receiver. Resolution shall be sufficient to show seams on receiver.

6.2.2 Menu board hand held by observer on tower platform, with changeable numbers to show the number of the heliostat under test.

7.0 INITIAL CONDITIONS7.1 Environmental Conditions

7.1.1 This test shall be performed at ambient conditions with adequate sunlight available.

7.2 Temporary Installations

7.2.1 None required.

7.3 Support Systems/Plant Operating Status

7.3.1 Provide power to the applicable heliostats by turning on the appropriate circuit breakers in the field power centers.

7.4 Heliostat Array Controller (HAC) Start-up

7.4.1 Power up and initialize the HAC in accordance with the Operations Manual, MCR-81-1708.

7.5 Field Observer Position and Communications Check

7.5.1 Verify that the Field Observer is positioned to monitor heliostat(s) movements and establish radio communication.

7.5.2 Perform Heliostat Readiness Test, Procedure 101, prior to the start of this test.

7.5.3 Verify a person is located on the tower platform immediately below the receiver with a radio and menu board.

8.0 PROCEDURE AND DATA COLLECTION8.1 Individual Heliostat Aimpoint Targeting Verification

8.1.1 Verify that the initial conditions have been established.

Initial	Date
/	

8.1.2 At the HAC control console, the following operational commands shall be entered (defined by ENTER:) and the command responses verified as to proper heliostat (s) control: *

8.1.2.1 ENTER: LOAD ALL depress carriage return (RTN).

RESPONSE: No heliostat motion, HST (s) responding shall attain initialization mode.

8.1.2.2 ENTER: STOW ALL depress RTN.

RESPONSE: Responding HST (s) shall move to stow and indicate STOW made.

8.1.2.3 ENTER: MARK ALL depress RTN.

RESPONSE: Responding HST (s) shall move to the AZ and EL mark positions and indicate MARK MODE.

8.1.2.4 ENTER: STOW ALL depress RTN.

RESPONSE: Responding HST (s) shall move to the stow position and indicate STOW mode.

8.1.2.5 ENTER: UNSTOW H NNNN, NNNN, NNNN, NNNN,
NNNN, NNNN, NNNN, NNNN,
NNNN, NNNN depress RTN*

ENTER: UNSTOW H NNNN, NNNN, NNNN, NNNN,
NNNN, NNNN, NNNN, NNNN,
NNNN, NNNN depress RTN*

RESPONSE: The commanded HST beams shall track the CLLP, then move upward to track the CULP and display the STANDBY mode on the CRT.

8.1.2.6 ENTER: TRACK H NNNN depress RTN.

RESPONSE: The commanded HST beam shall track the receiver at the assigned aimpoint tracking array position and display the TRACK mode on the CRT.

* (Appendix 10D defines the heliostat numbers to be entered)

8.1.2.6 Continued

RESPONSE: Verify visually that the HST beam position is tracking the assigned aimpoint on the receiver. The beam shall be within 1 meter of the assigned aimpoint. Mark on the receiver tracking - HST Beam Position Data Sheet the following information:

- a. Heliostat number.
- b. Beam position of the assigned aimpoint (north, east, up).
- c. Actual beam position.
- d. Aimpoint Array Number.

Take photograph of beam on receiver. Ensure menu board with correct heliostat number is visible in camera viewfinder.

Verify that the HAC Graphics CRT displays the assigned aimpoint tracking array and the North, East and up coordinates of the heliostat tracking the receiver.

8.1.2.7 Enter: STANDBY H NNNN depress RTN

RESPONSE: The commanded HST beam will move from the TRACK position to track the CULP and display the STANDBY mode on the CRT.

8.1.2.8 Repeat paragraphs 8.1.2.6 and 8.1.2.7 until the selected individual heliostat (as defined in Appendix 10D) beam positions have been verified to track their assigned aimpoint.

8.1.2.9 Enter: STOW ALL depress RTN

RESPONSE: The commanded HST(s) shall track from the CULP to the CLLP and return to the stow position. The CRT shall display the STOW mode.

8.1.2.10 Proceed to step 8.2.

8.2 HAC Control, Display and Selection Demonstration of Aimpoint Tracking Arrays

Init./Date

8.2.1 At the HAC control console, the following operational commands shall be entered and the command responses verified as to proper heliostat control. Display segment 508 on the Chromatics Graphic Terminal.

8.2.1.1 ENTER: UNSTOW H 2945 depress RTN.

RESPONSE: The commanded heliostat beam shall track the CLLP, then move upward to track the CULP and display the standby mode on the CRT.

8.2.1.2 ENTER: TRACK H 2945 depress RTN.

RESPONSE: The commanded HST beam shall track the receiver at the assigned aimpoint tracking array position and display the TRACK mode on the CRT. Take photograph.

8.2.1.3 ENTER: UPAIM 20 depress RTN.

RESPONSE: This command will replace the array specified with a new array.

8.2.1.4 ENTER: AIMPOINT S 508 20 depress RTN.

RESPONSE: The Chromatics Graphics Terminal shall display the new aimpoint array and new targeting coordinates of the heliostats in that segment. The heliostat tracking the target shall be re-directed to the newly assigned aimpoint. Record on data sheet. Take photograph.

8.2.1.5 ENTER: STANDBY H 2945 depress RTN.

RESPONSE: The commanded heliostat beam shall move from the track position on the receiver to track the CULP and display the standby mode on the CRT.

8.2.1.6 ENTER: STOW H 2945 depress RTN

RESPONSE: The commanded heliostat beam shall track from the CULP to the CLLP and return to the stow position. The CRT shall display the STOW mode.

8.2.1.7 End of heliostat targeting verification test.

9.0 SYSTEM RESTORATION

9.1 Verify all heliostats are in the stow mode.

9.2 Power the HAC system down in accordance with the operations manual.

Note:

The heliostats must be in the stow position before beginning HAC power down.

Note:

When removing power from the disk drives, be sure that the "LOAD" light is illuminated before turning off power on the front panel switch. Remove power via the front panel switch before switching off the "Peri Device" and "Controller" switches.

9.3 Remove power from the heliostats used in this test by turning off the applicable circuit breakers in the field power centers.

10.0 ATTACHMENTS

Appendix 10A	Master Tracking System
Appendix 10B	Abnormal Equipment and Circuits
Appendix 10C	Receiver Tracking - HST Beam Position Data Sheet
Appendix 10D	Selected Heliostats for Target Verification

APPENDIX 10A
MASTER TRACKING SYSTEM

<u>Item No.</u>	<u>Description</u>	<u>Section Affected</u>	<u>Initial/Date</u>
N/A			

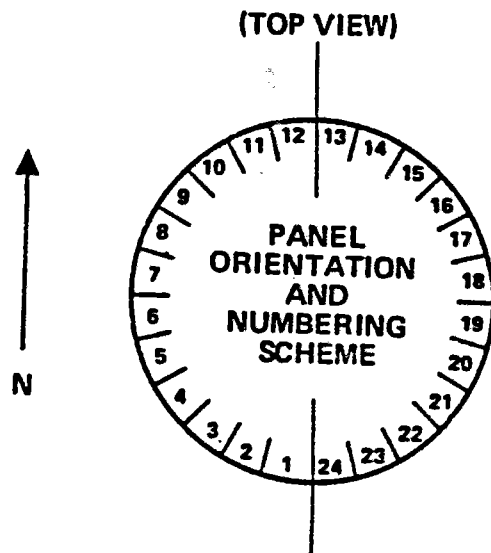
APPENDIX 10B

ABNORMAL EQUIPMENT AND CIRCUITS

<u>Item No.</u>	<u>Description</u>	<u>Sections Affected</u>	<u>Initial/Date</u>
N/A			

APPENDIX 10C - BEAM POSITION DATA SHEETS

The attached data sheets show the desired beam centroid locations on elevation views of the receiver. All sheets are for Aimpoint Array No. 1 except as noted. The seam between receiver panels 24 and 1 is on the north-south line on the south side of the receiver. Looking down on the receiver, starting with panel 1, the receiver panel numbers increase going in a clockwise direction.

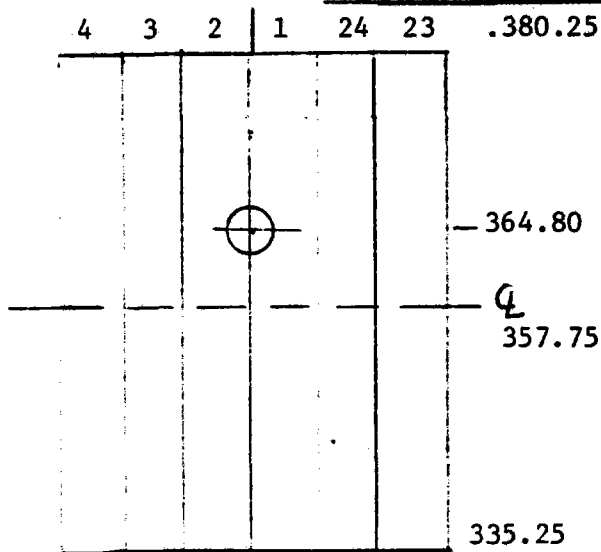


C_{LRCVR}

APP 10C-HST BEAM POSITION DATA SHEET

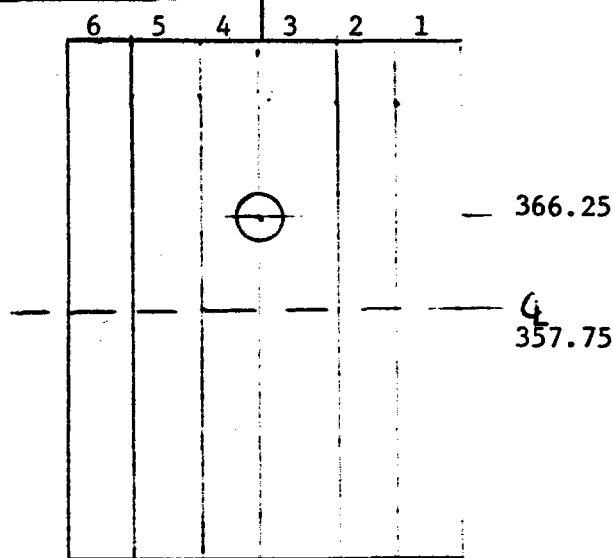
C_{LRCVR}

10C-2



Aimpoint Array No. 01
 HST No. 0438
 Date _____

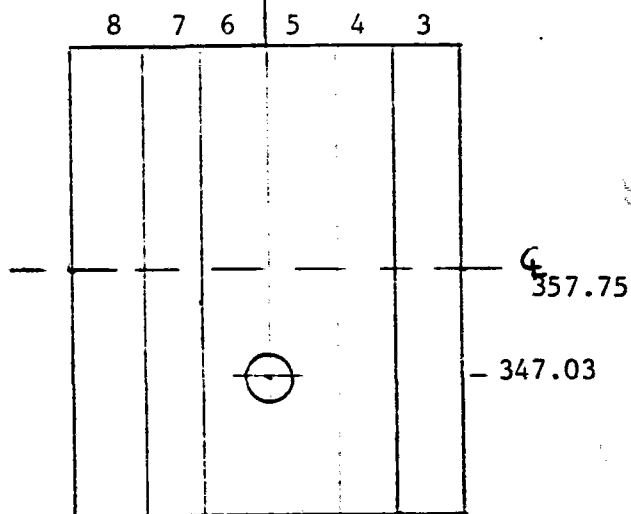
Aimpoint North East Up
 o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 0432
 Date _____

Aimpoint North East Up
 o = assigned aimpoint
 x = actual visual observation

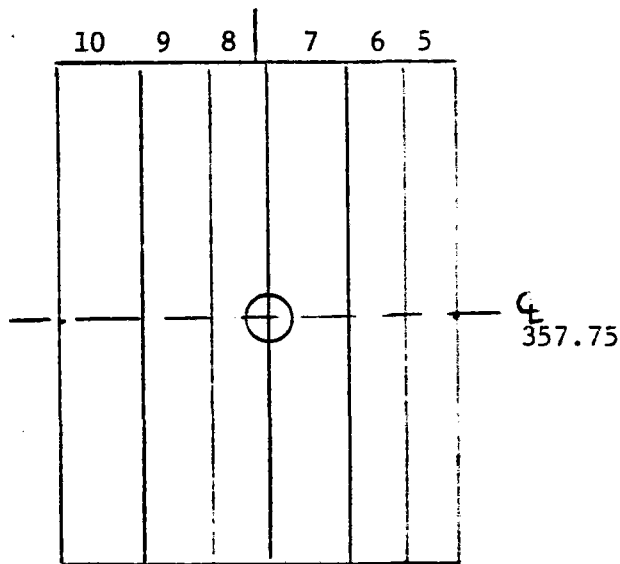
C_{LRCVR}



Aimpoint Array No. 01
 HST No. 0222
 Date _____

Aimpoint North East Up
 o = assigned aimpoint
 x = actual visual observation

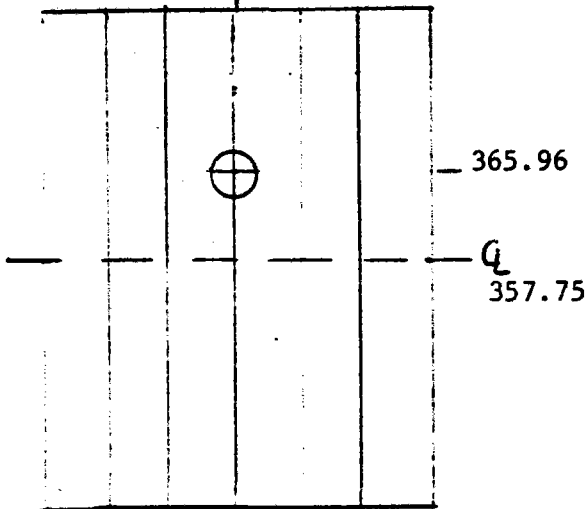
C_{LRCVR}



Aimpoint Array No. 01
 HST No. 0118
 Date _____

Aimpoint North East Up
 o = assigned aimpoint
 x = actual visual observation

12 11 10 | 9 8 7



Aimpoint Array No. 01

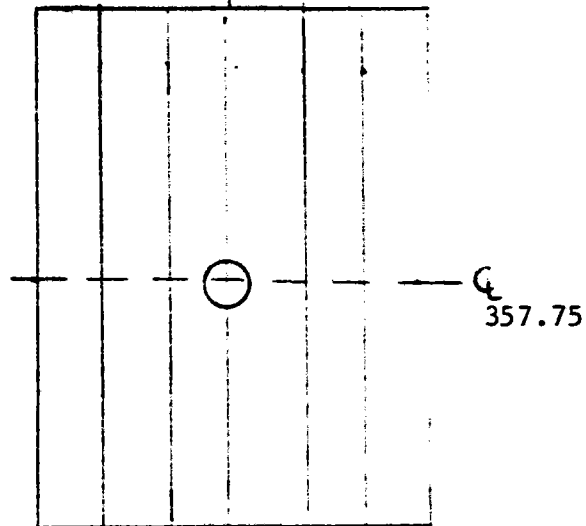
HST No. 0310

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation

14 13 12 | 11 10 9



Aimpoint Array No. 01

HST No. 0506

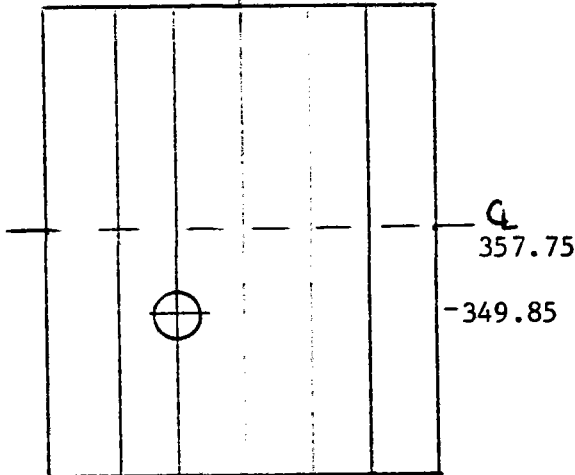
Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation

^CLRCVR

16 15 14 | 13 12 11



Aimpoint Array No. 01

HST No. 0603

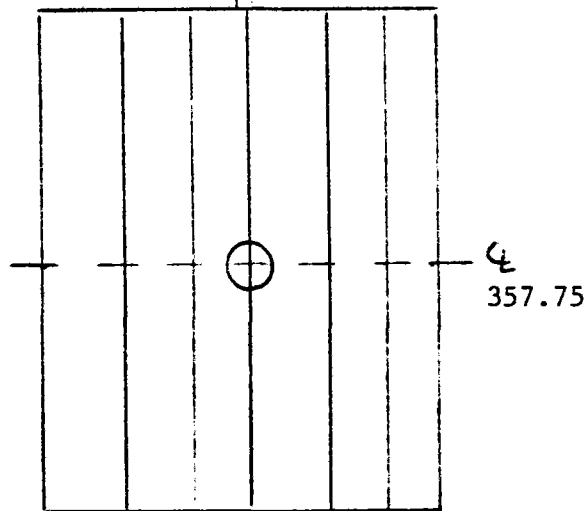
Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation

^CLRCVR

18 17 16 | 15 14 13



Aimpoint Array No. 01

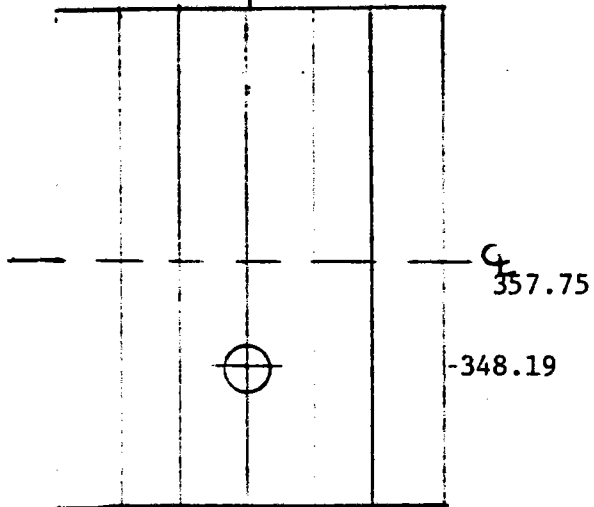
HST No. 0611

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation

20 19 18 | 17 16 15

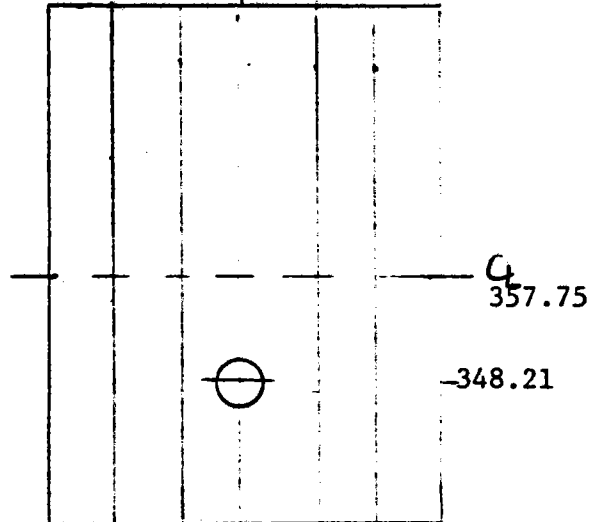


Aimpoint Array No. 01
 HST No. 1027
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

22 21 20 | 19 18 17



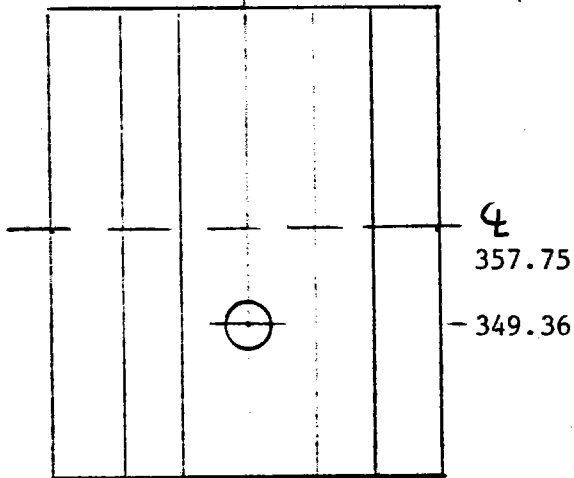
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 HST No. 0931
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C_{LRCVR}

24 23 22 | 21 20 19



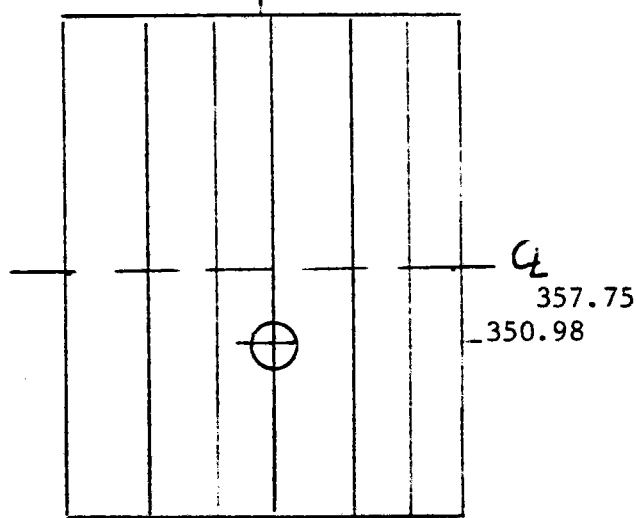
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 HST No. 0741
 Date _____

Aimpoint North East Up

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 x = actual visual observation

C_{LRCVR}

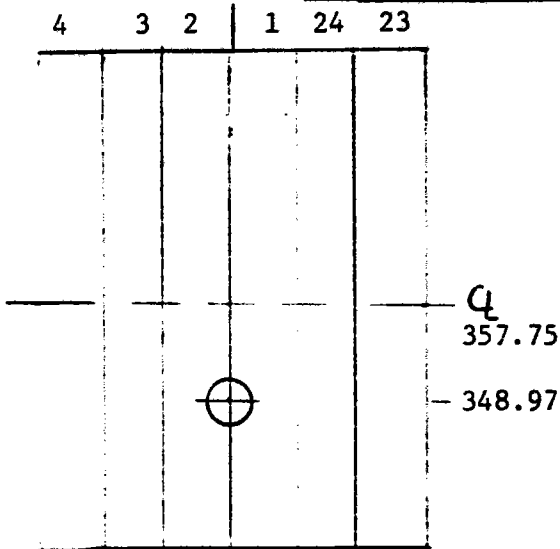
2 1 24 | 23 22 21



Aimpoint Array No. 01
 HST No. 0433
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation



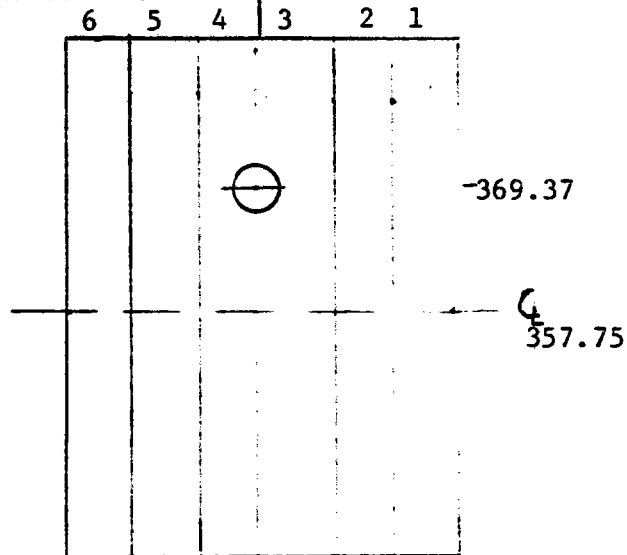
Aimpoint Array No. 01

HST No. 0748

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation



Aimpoint Array No. 01

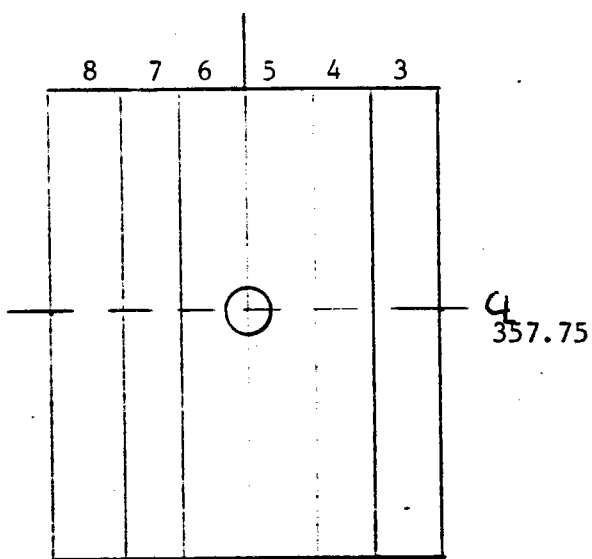
HST No. 0838

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation

C_{LRCVR}



Aimpoint Array No. 01

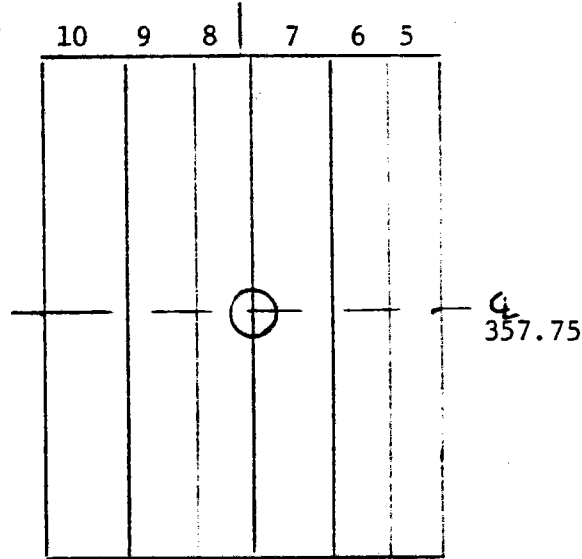
HST No. 1036

Date _____

Aimpoint North East Up

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x = actual visual observation

C_{LRCVR}



Aimpoint Array No. 01

HST No. 1030

Date _____

Aimpoint North East Up

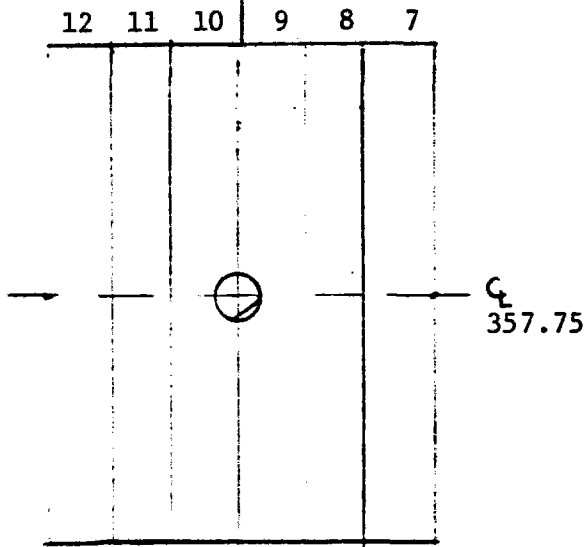
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x = actual visual observation

C LRCVR

APP 10C-HST BEAM POSITION DATA SHEET

C LRCVR

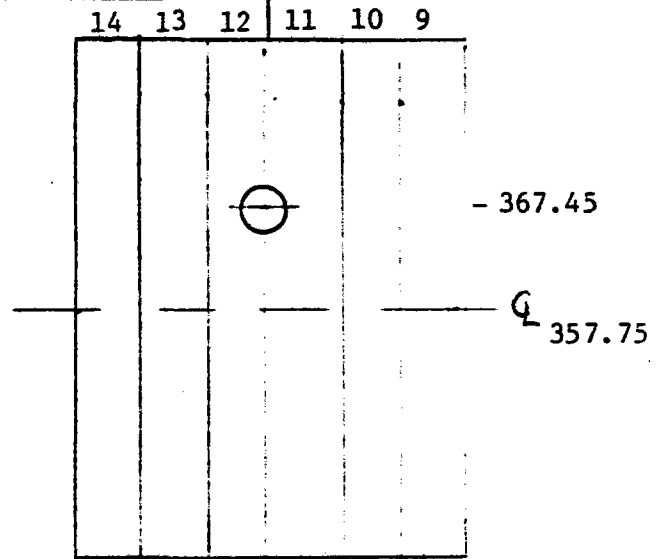
10C-6



Aimpoint Array No. 01
 HST No. 1118
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation



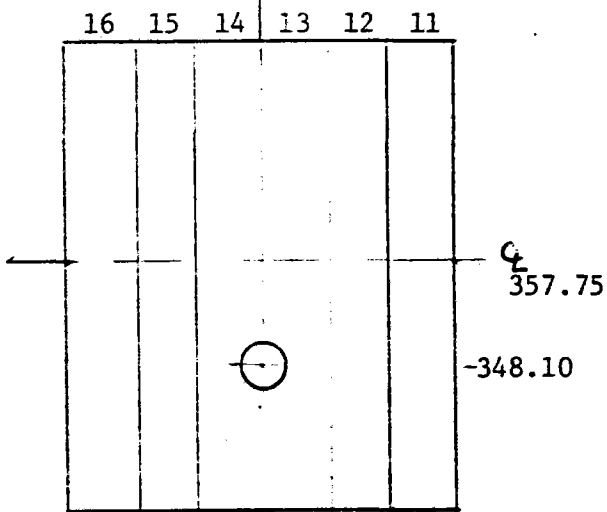
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 HST No. 1202
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation

C LRCVR

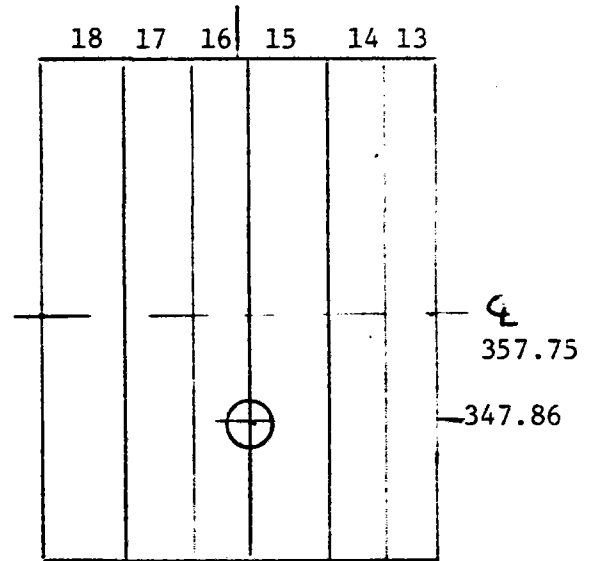
C LRCVR



Aimpoint Array No. 01
 HST No. 1307
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1415
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation

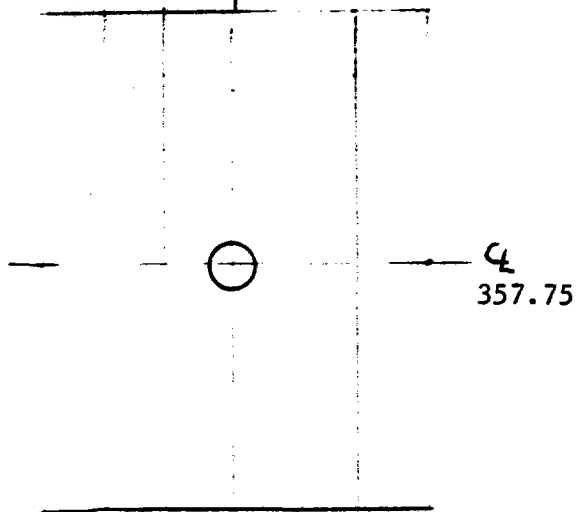
C LRCVR

APP 10C-HST BEAM POSITION DATA SHEET

C LRCVR

10C-7

20 19 18 | 17 16 15

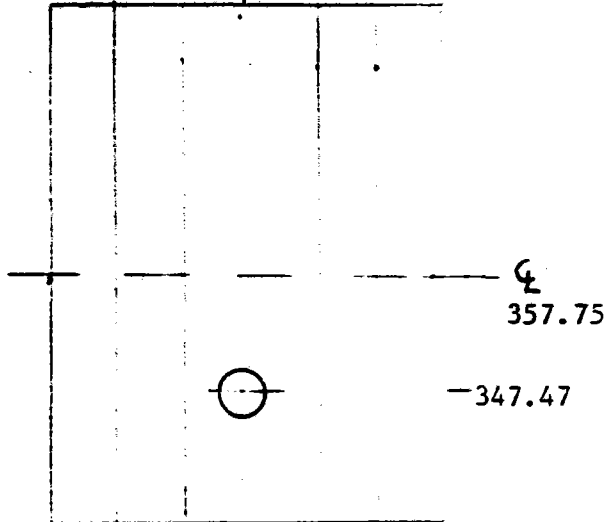


Aimpoint Array No. 01
 HST No. 1435
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

22 21 20 | 19 18 17



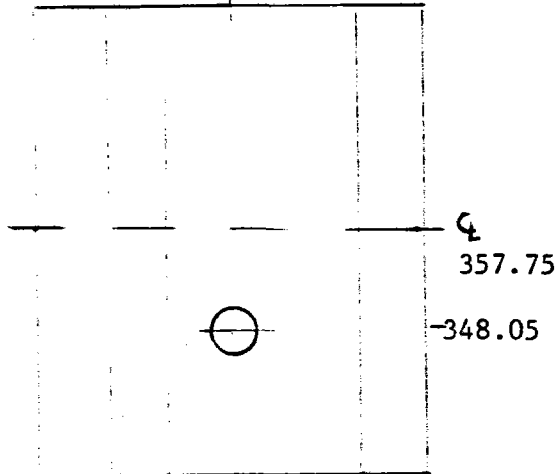
Aimpoint Array No. 01
 HST No. 1337
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C LRCVR

24 23 22 | 21 20 19



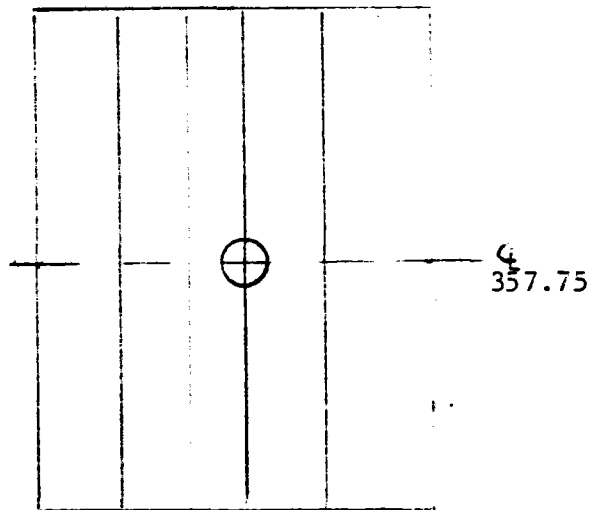
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 Date _____

Aimpoint North East Up

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 x = actual visual observation

C LRCVR

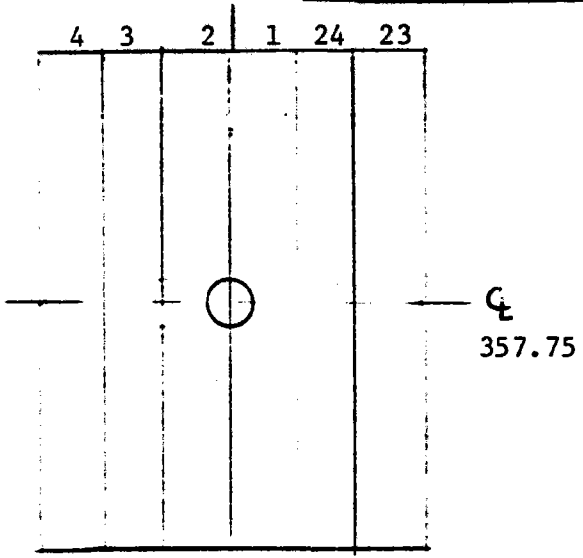
2 1 24 | 23 22 21



Aimpoint Array No. 01
 HST No. 0845
 Date _____

Aimpoint North East Up

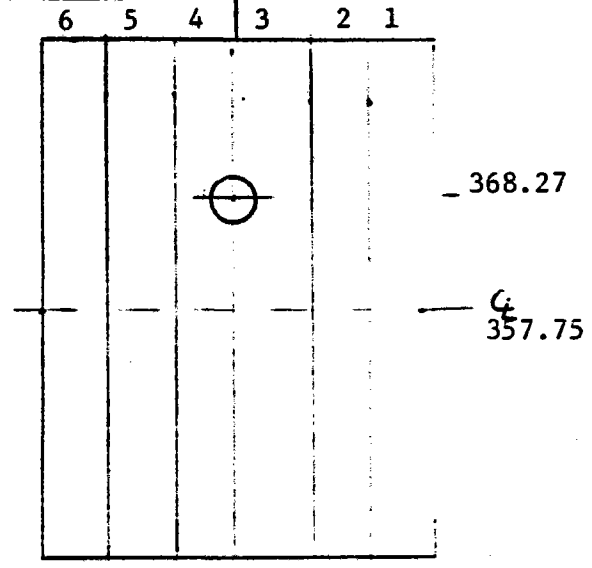
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 x = actual visual observation



Aimpoint Array No. 01
 HST No. 0952
 Date _____

Aimpoint North East Up

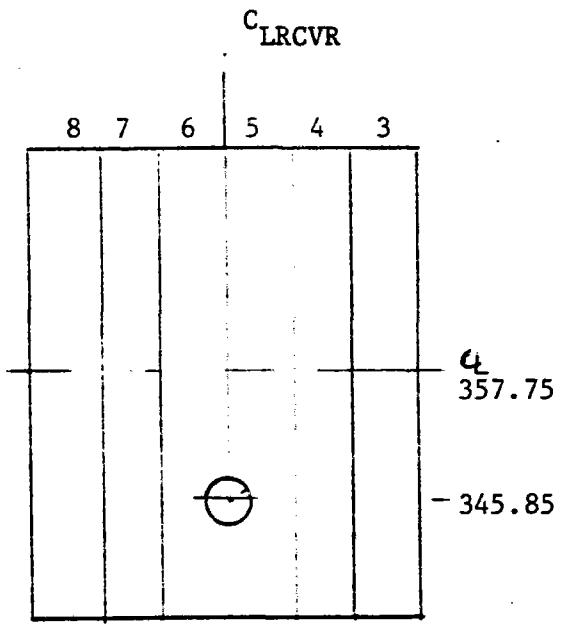
o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1460
 Date _____

Aimpoint North East Up

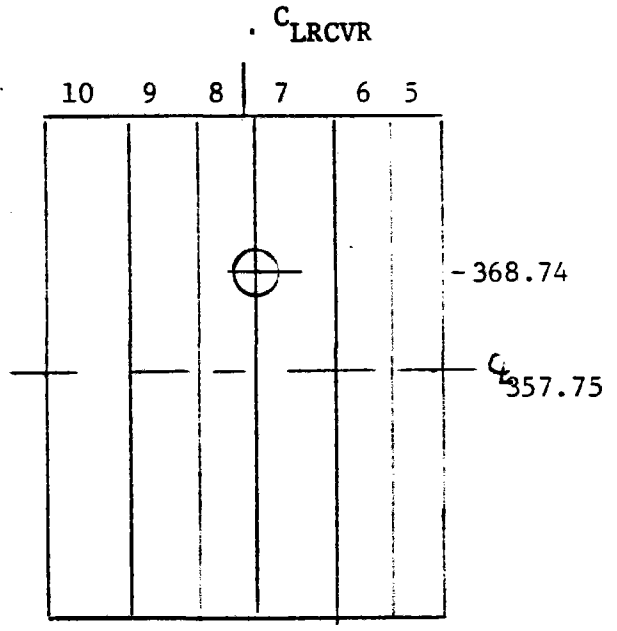
o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1856
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1734
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

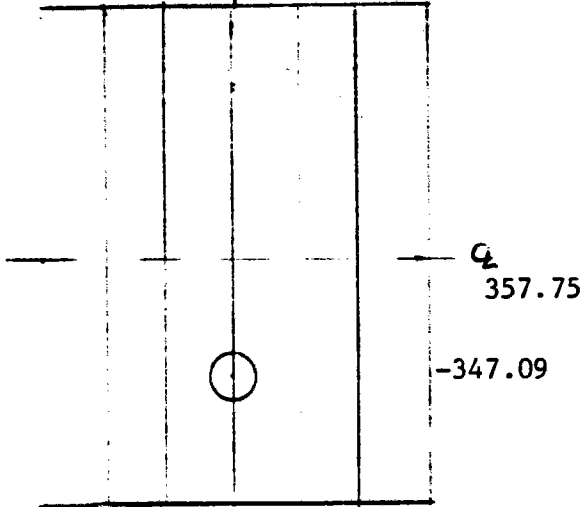
C LRCVR

APP 10C-HST BEAM POSITION DATA SHEET

C LRCVR

10C-9

12 11 10 | 9 8 7

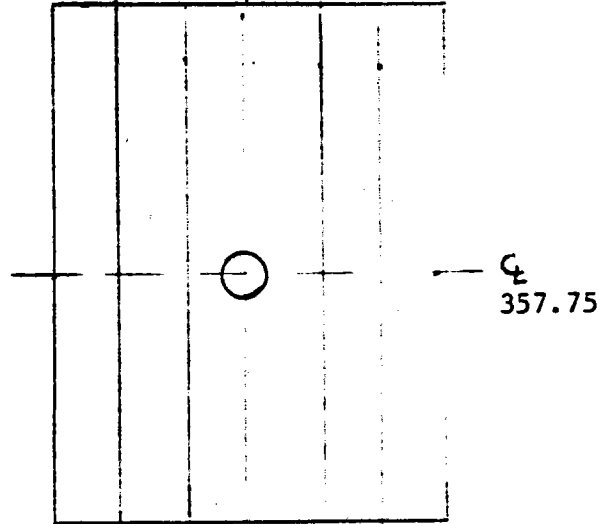


Aimpoint Array No. 01
 HST No. 1732
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

14 13 12 | 11 10 9



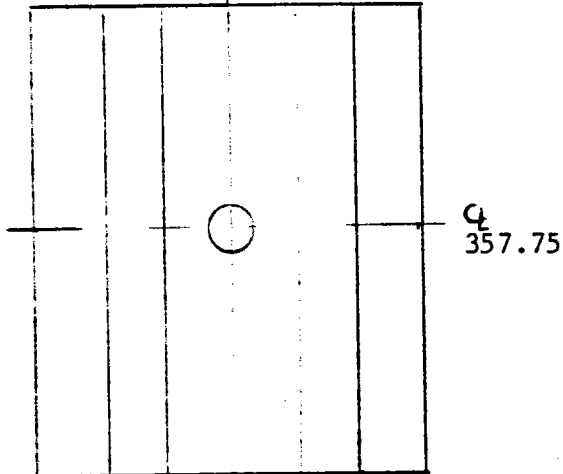
Aimpoint Array No. 01
 HST No. 1806
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C LRCVR

16 15 14 | 13 12 11



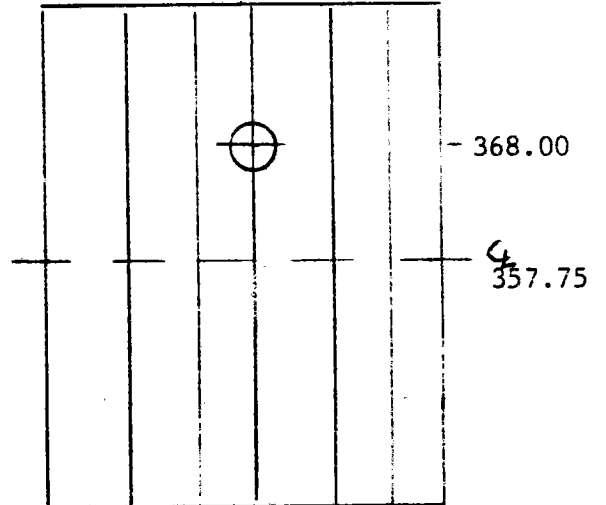
Aimpoint Array No. 01
 HST No. 1811
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C LRCVR

18 17 16 | 15 14 13



Aimpoint Array No. 01
 HST No. 1819
 Date _____

Aimpoint North East Up

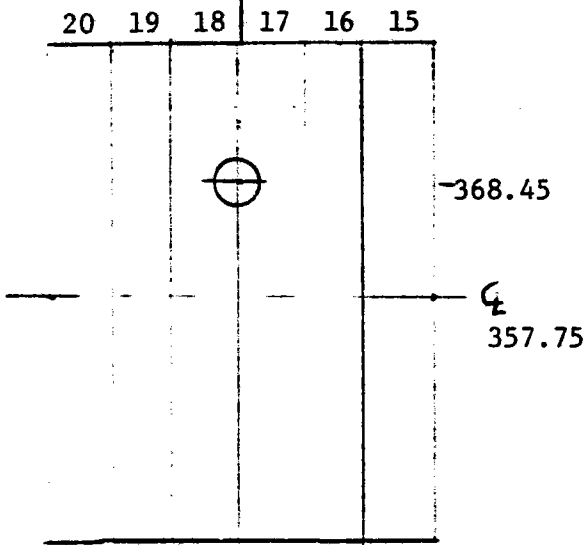
o = assigned aimpoint
 x = actual visual observation

C LRCVR

APP 10C-HST BEAM POSITION DATA SHEET

C LRCVR

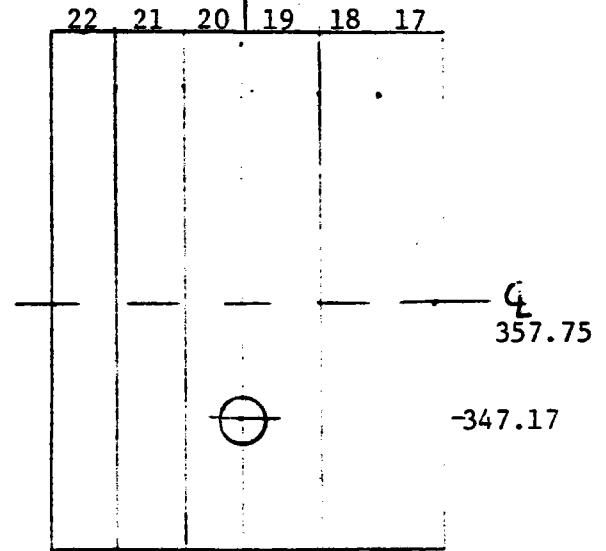
10C-10



Aimpoint Array No. 01
 HST No. 1939
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

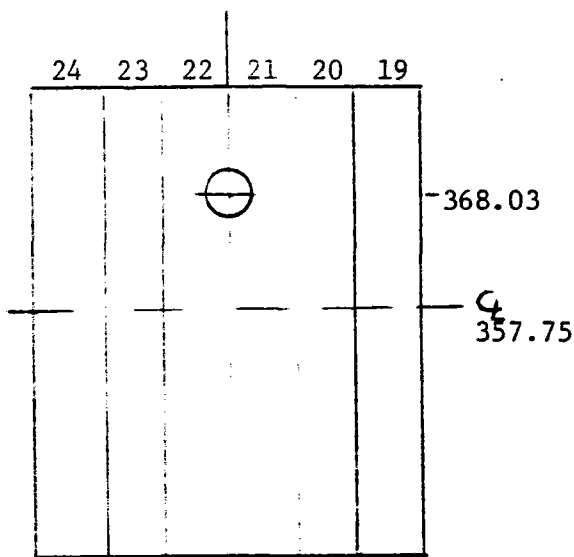


Aimpoint Array No. 01
 HST No. 1759
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C LRCVR

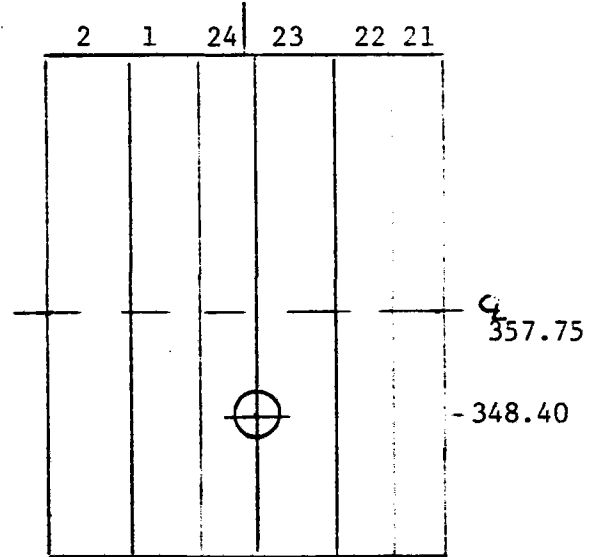


Aimpoint Array No. 01
 HST No. 1671
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

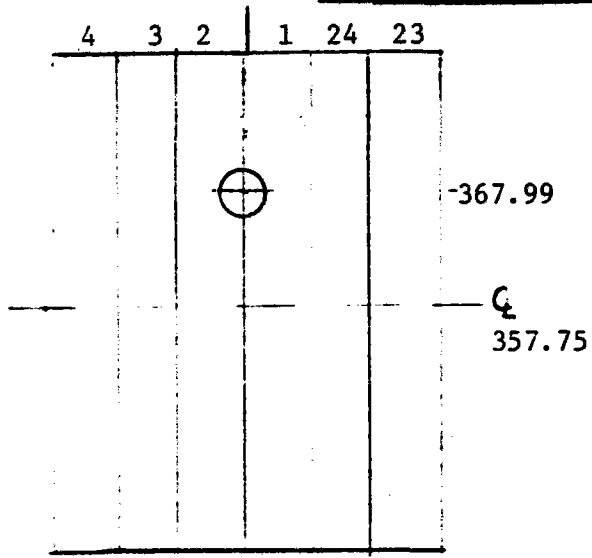
C LRCVR



Aimpoint Array No. 01
 HST No. 1165
 Date _____

Aimpoint North East Up

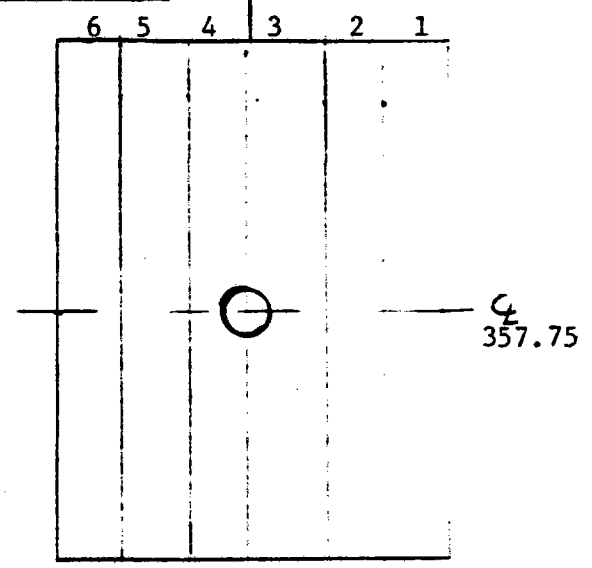
o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1260
 Date _____

Aimpoint North East Up

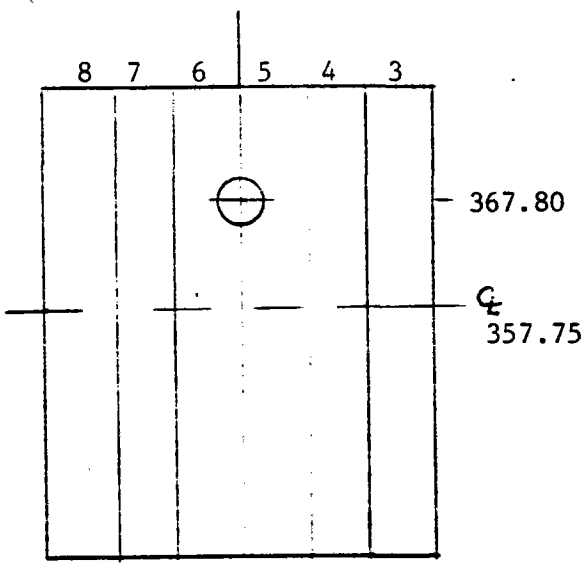
o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1764
 Date _____

Aimpoint North East Up

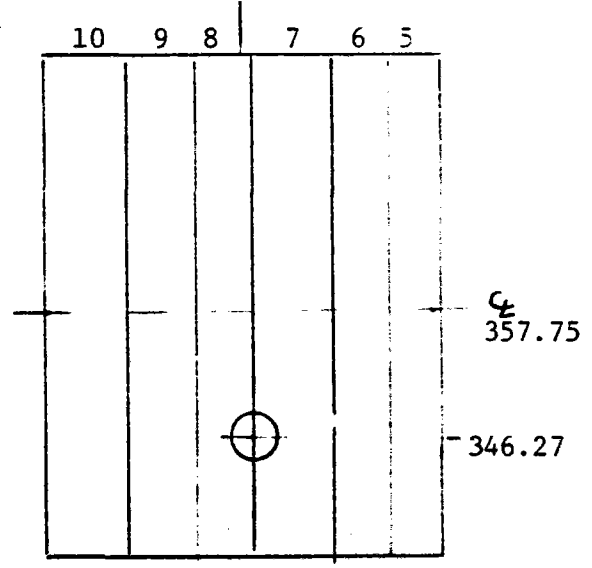
o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 1962
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation



Aimpoint Array No. 01
 HST No. 2062
 Date _____

Aimpoint North East Up

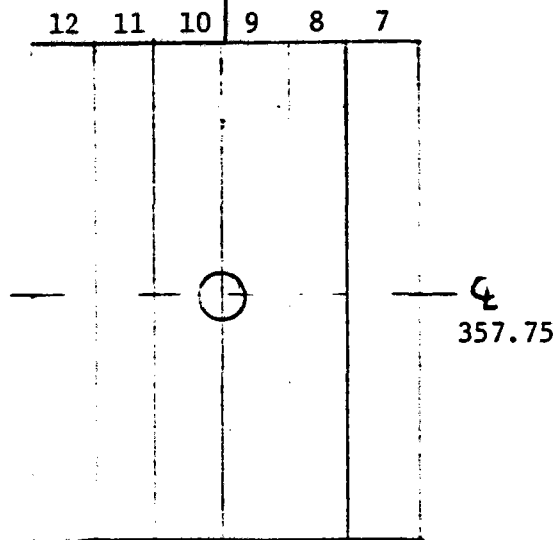
o = assigned aimpoint
 x = actual visual observation

C_LR_RC_VR

APP 10C-HST BEAM POSITION DATA SHEET

C_LR_RC_VR

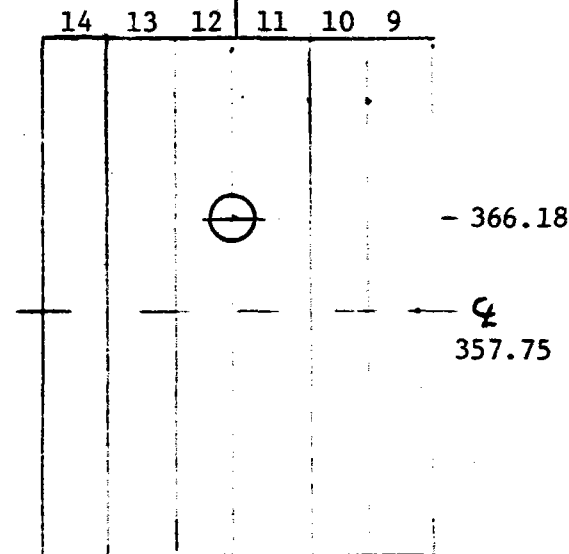
10C-12



Aimpoint Array No. 01
 HST No. 2236
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation

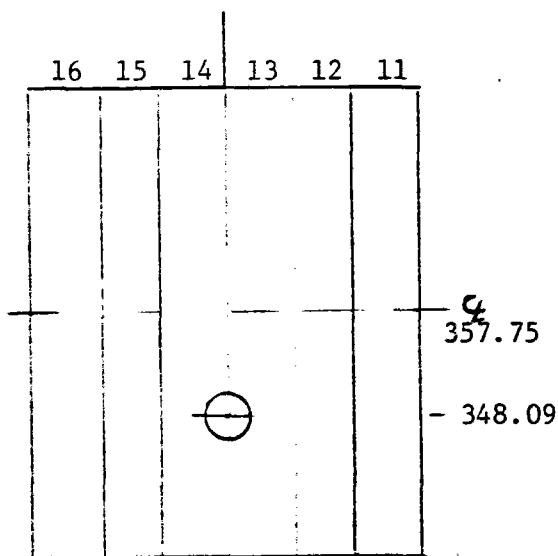


Aimpoint Array No. 01
 HST No. 2310
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation

C_LR_RC_VR

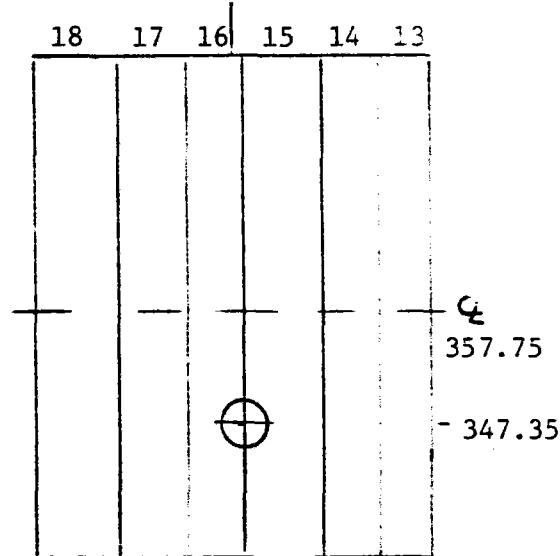


Aimpoint Array No. 01
 HST No. 2415
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation

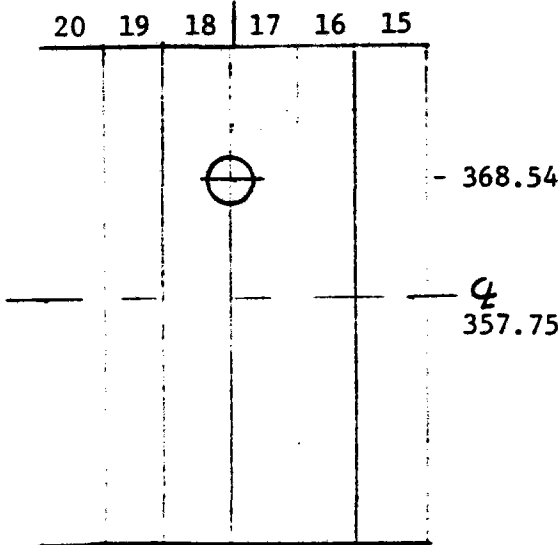
C_LR_RC_VR



Aimpoint Array No. 01
 HST No. 2433
 Date _____

Aimpoint
 North East Up

o = assigned aimpoint
 x = actual visual observation



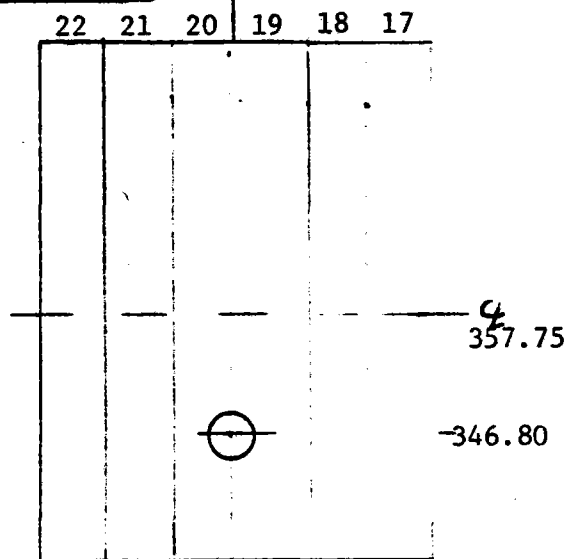
Aimpoint Array No. 01

HST No. 2349

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation



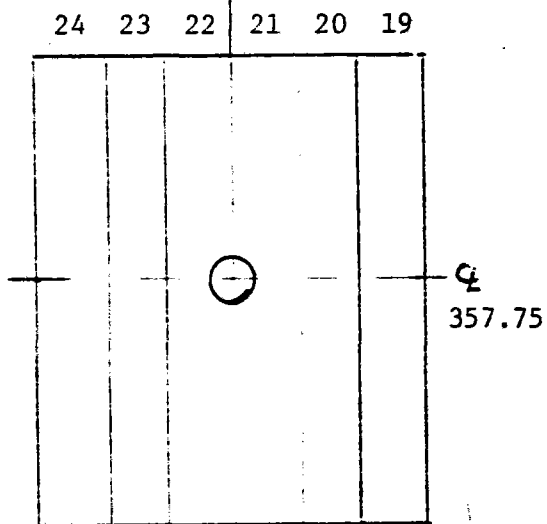
Aimpoint Array No. 01

HST No. 2267

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation



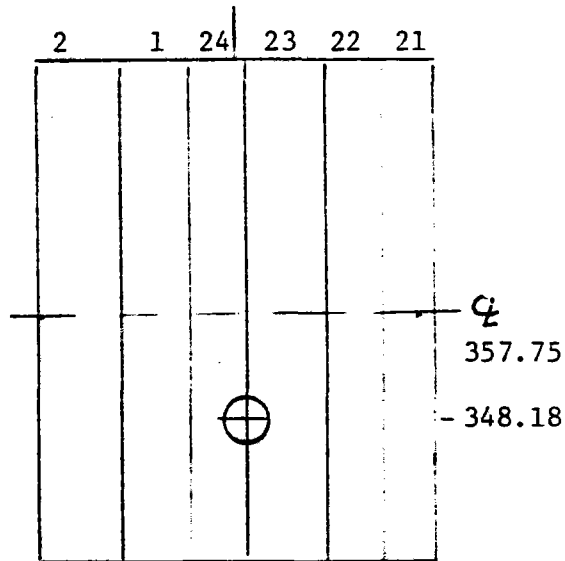
Aimpoint Array No. 01

HST No. 2091

Date _____

Aimpoint North East Up

o = assigned aimpoint
x = actual visual observation



Aimpoint Array No. 01

HST No. 1261

Date _____

Aimpoint North East Up

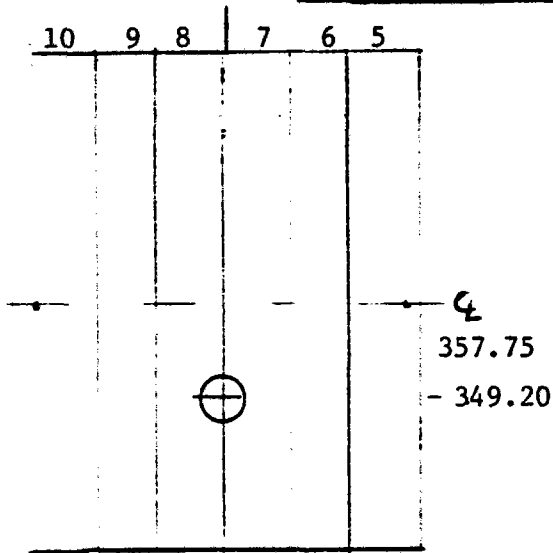
o = assigned aimpoint
x = actual visual observation

C_{LRCVR}

APP 10C-HST BEAM POSITION DATA SHEET

C_{LRCVR}

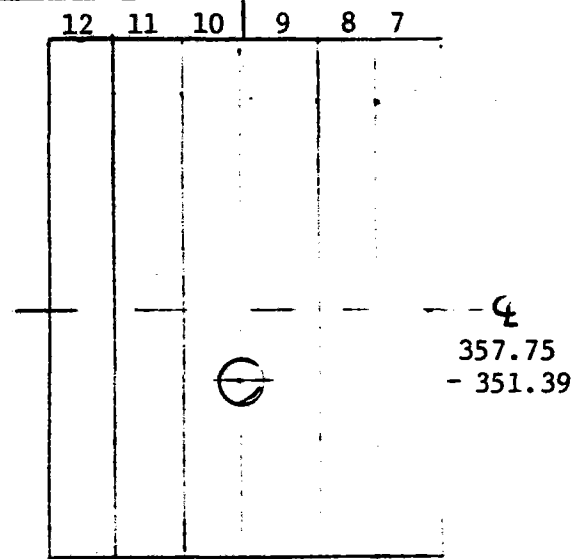
10C-14



Aimpoint Array No. 01
 HST No. 2360
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

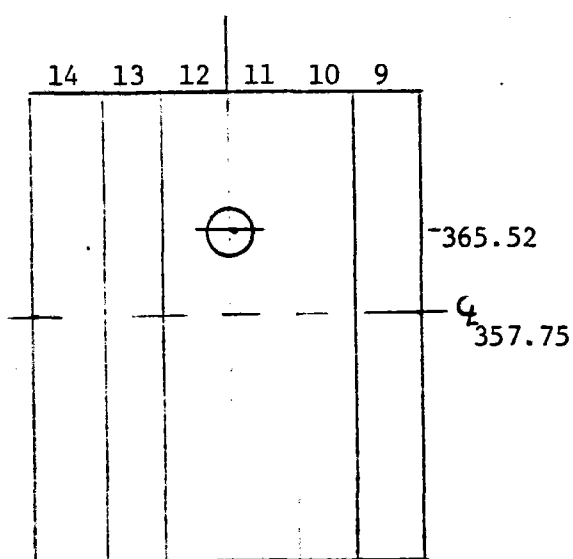


Aimpoint Array No. 01
 HST No. 2644
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C_{LRCVR}

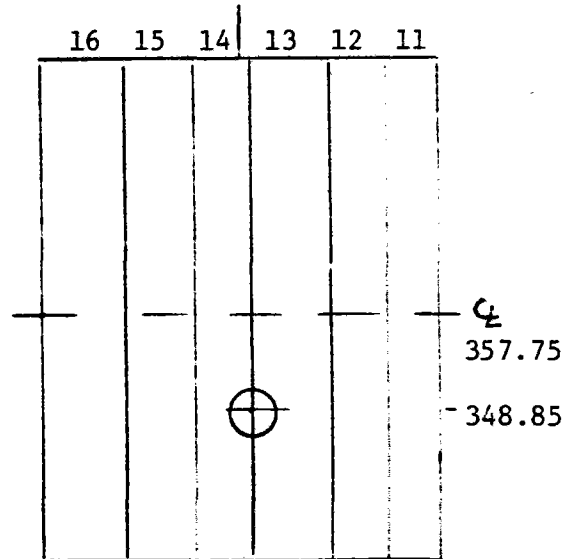


Aimpoint Array No. 01
 HST No. 2704
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

C_{LRCVR}

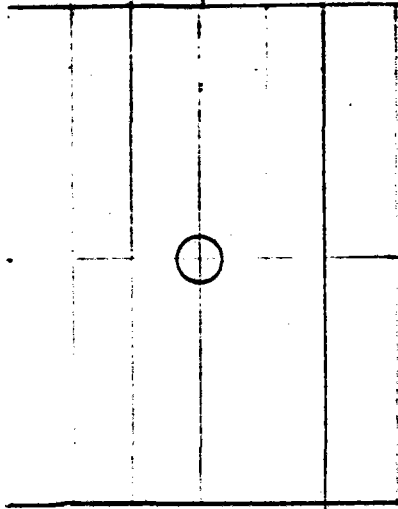


Aimpoint Array No. 01
 HST No. 2713
 Date _____

Aimpoint North East Up

o = assigned aimpoint
 x = actual visual observation

18 17 16 15 14 13

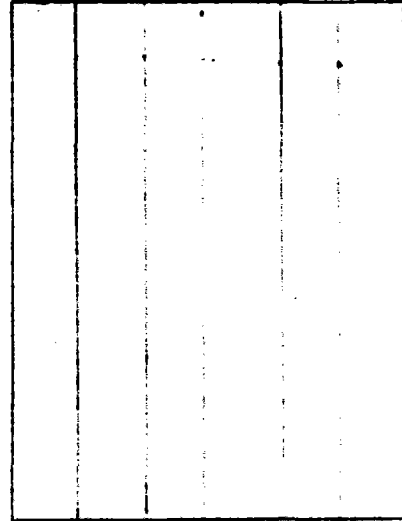


4
357.75

Aimpoint Array No. 20
 HST No. 2945
 Date _____

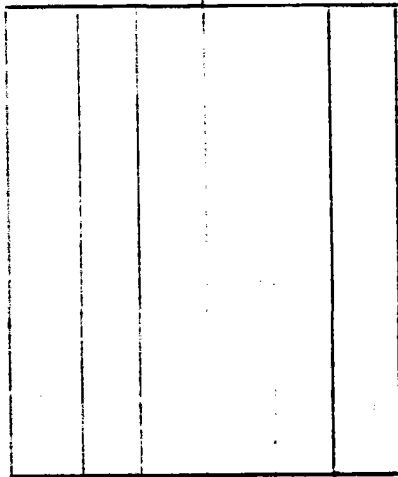
Aimpoint
 North East Up

o = original beam position
 x = new beam position for array 20



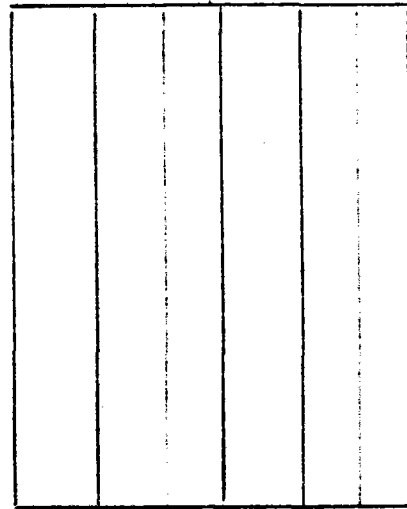
Aimpoint Array No. _____
 HST No. _____
 Date _____

Aimpoint
 North East Up



Aimpoint Array No. _____
 HST No. _____
 Date _____

Aimpoint
 North East Up



Aimpoint Array No. _____
 HST No. _____
 Date _____

Aimpoint
 North East Up

APPENDIX 10D

SELECTED HELIOSTATS FOR TARGETING VERIFICATION

<u>Heliostat</u>	<u>Segment</u>	<u>Heliostat</u>	<u>Segment</u>
0438	101	1734	304
0432	102	1732	305
0222	103	1806	306
0118	104	1811	307
0310	105	1819	308
0506	106	1939	309
0603	107	1759	310
0611	108	1671	311
1027	109	1165	312
0931	110	1260	401
0741	111	1764	402
0433	112	1962	403
0748	201	2062	404
0838	202	2236	405
1036	203	2310	406
1030	204	2415	407
1118	205	2433	408
1202	206	2349	409
1307	207	2267	410
1415	208	2091	411
1435	209	1261	412
1337	210	2360	504
1255	211	2644	505
0845	212	2704	506
0952	301	2713	507
1460	302	2655	509
1856	303		

MARTIN MARIETTA AEROSPACE

DENVER DIVISION
POST OFFICE BOX 179
DENVER, COLORADO 80201
TELEPHONE (303) 977-3000

August 19, 1981

Refer to: SOL-81-633

To: U.S. Department of Energy
San Francisco Operations Office
1333 Broadway
Oakland, California 94612

Attn: Ms. J. Macrusky

Subj: Contract DE-AC03-81SF-10539

Encl: Test Procedure 116, Collector Subsystem Heliostat
Targeting Verification, Revision 0

1. Enclosure 1 is transmitted for information purposes. This is one of several preoperational test procedures. The remainder will be issued as they are updated to incorporate the Test Working Group's comments.
2. Questions regarding this transmittal may be addressed to Mr. Ray Weeks, at (714) 254-2966 or P.O. Box 245, Daggett, California, 92327-0245.

Very truly yours,

MARTIN MARIETTA CORPORATION



Raymond M. Weeks
Site Manager
10 MWe Heliostat Program
Barstow, California

RMW:kmd

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U.S. DEPARTMENT OF ENERGY
memorandum

DATE: JUN 08 1984

FROM: S. D. Elliott, Jr., Director, DOE Solar One Project Office

SUBJECT: Submission of Five Documents Prepared under DOE Contract DE-AC03-80SF10539 with Martin Marietta Corporation for OPC and OSTI Processing

TO: Roger S. Gaither, DOE/SAN (OPC)
William D. Matheny, DOE/OSTI Document Control

Enclosed are five test procedure documents prepared for the Solar One Project by Martin Marietta Corporation under Contract DE-AC03-80SF10539:

<u>Primary Document No.</u>	<u>Secondary No.</u>	<u>Brief Title</u>
DOE/SF/10539-16	(STMP0-566)	Test Procedure 101 (Rev. 0) Heliostat Readiness
DOE/SF/10539-17	(STMP0-567)	Test Procedure 106 (Rev. 0) Dual H.A.C. Test
DOE/SF/10539-18	(STMP0-568)	Test Procedure 111 (Rev. 1) System Functional Test
DOE/SF/10539-19	(STMP0-569)	Test Procedure 116 (Rev. Q) Targeting Verification
DOE/SF/10539-20	(STMP0-570)	Test Procedure 118 (Rev. A) Optical Performance

One copy of each report, accompanied by a completed SAN Form 70, is provided for SAN Office of Patent Counsel review and clearance. (The first four test procedures, with tests checked-off as performed, were incorporated in the previously cleared "10 MWe Solar Thermal Central Receiver Pilot Plant: Collector Subsystem Functional Test Report", DOE/SF/10539-10 (STMP0-297); the last was not utilized in the present form and is provided for historical reference.) Please return a copy of the clearance to me at the Project Office; the original documents should be forwarded after clearance to Mike Lopez at DOE/SAN (FGS).

Two copies of each report, accompanied by a completed DOE Form RA-426, are provided to DOE Office of Scientific and Technical Information for processing, archiving, announcement and forwarding to the National Technical Information Service.

Encls.: 5 Technical Reports:
1 cy. ea. w/SAN Form 70
2 cys. ea. w/DOE Form RA-426


S. D. Elliott, Jr.

cc: M. Lopez, DOE/SAN (FGS)
D. Holz, DOE/SAN (ISEA)
M. Soderstrum, Burns & McDonnell

DOE AND MAJOR CONTRACTOR RECOMMENDATIONS FOR
ANNOUNCEMENT AND DISTRIBUTION OF DOCUMENTS

See Instructions on Reverse Side

1. DOE Report No. DOE/SF/10539-19 (STMPO-569)	2. Contract No. DE-AC03-80SF10539	3. Subject Category No. UC-62
--	--------------------------------------	----------------------------------

4. Title
"COLLECTOR SUBSYSTEM; HELIOSTAT TARGETING VERIFICATION: TEST PROCEDURE 116 (REV. 0)"

5. Type of Document ("x" one)

a. Scientific and technical report

b. Conference paper: Title of conference _____

_____ Date of conference _____

Exact location of conference _____ Sponsoring organization _____

c. Other (specify planning, educational, impact, market, social, economic, thesis, translations, journal article manuscript, etc.)

6. Copies Transmitted ("x" one or more)

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14. Submitted by (Name and Position) (Please print or type)
S. D. Elliott, Jr., Director, DOE Solar One Project Office

Organization
Post Office Box 366, Daggett, GA 92327 (619) 254-2672

Signature S. D. Elliott, Jr. Date JUN 07 1984



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

TO: Roger S. Gaither, Asst. Chief for Prosecution
Office of Patent Counsel/Livermore Office
P.O. Box 808, L-376
Livermore, California 94550

FROM: DOE Solar One Project Office
Post Office Box 366
Daggett, CA 92327
ATTEN: S. D. Elliott, Jr.

Prime Contract No.
DE-AC03-80SF10539
Subcontract No.
(N/A)
Report No.
DOE/SF/10539-19 (STMP0- 539 ⁻⁵⁶⁹)
Date of Report
August, 1981
Name & Phone No. of DOE Technical Representative
S. D. Elliott, Jr. (619) 254-2672

- Document Title:
"COLLECTOR SUBSYSTEM; HELIOSTAT TARGETING VERIFICATION; TEST PROCEDURE 116 (REV. 0)"
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary,
 Copy of Oral Presentation, Other (please specify): _____
- In order to meet a publication schedule or submission deadline, patent clearance by _____ (routine) _____ would be desired.

SENDER IS TO CHECK BOX #4 OR #5 BELOW.

- I have reviewed (or have had reviewed by technically knowledgeable personnel) this document for possible inventive subject matter (Subject Inventions) and that no inventions or discoveries (Subject Inventions) are deemed to be disclosed in this document except as stated below:
 - Attention should be directed to pages _____ of this document.
 - This document describes matter relating to an invention:
 - Contractor Invention Docket No. _____
 - A disclosure of the invention was submitted to DOE on _____ (date)
 - A disclosure of the invention will be submitted shortly _____ (approximate date)
 - A waiver of DOE's patent rights to the contractor:
 has been granted, has been applied for; or will be applied for _____ (date)

5. This document is being submitted, but no review has been made ^{by me} of this document for possible inventive subject matter.

6. Remarks: Return Clearance to Project Office; document to M. Lopez, SAN/FGS

Reviewing/Submitting Official: Name (Print/Type) S. D. Elliott, Jr., Director
 Title DOE Solar One Project Office
 Signature *S. D. Elliott* Date 7 June, 1984

TO: INITIATOR OF REQUEST

FROM: ASSISTANT CHIEF FOR PROSECUTION
Office of Patent Counsel/Livermore Office

- No patent objection to above-identified release.
- Please defer release until advised by this office.

Signed _____ Date Mailed _____



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

Prime Contract No. DE-AC03-80SF10539
Subcontract No. (N/A)
Report No. DOE/SF/10539-19 (STMP0-509) -569
Date of Report August, 1981
Name & Phone No. of DOE Technical Representative S. D. Elliott, Jr. (619) 254-2672

TO: Roger S. Gaither, Asst. Chief for Prosecution
Office of Patent Counsel/Livermore Office
P.O. Box 808, L-376
Livermore, California 94550

FROM: DOE Solar One Project Office
Post Office Box 366
Daggett, CA 92327
ATTEN: S. D. Elliott, Jr.

- Document Title:
"COLLECTOR SUBSYSTEM; HELIOSTAT TARGETING VERIFICATION: TEST PROCEDURE 116 (REV. 0)"
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary,
 Copy of Oral Presentation, Other (please specify): _____
- In order to meet a publication schedule or submission deadline, patent clearance by _____ (routine) would be desired.

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4. I have reviewed (or have had reviewed by technically knowledgeable personnel) this document for possible inventive subject matter (Subject Inventions) and that no inventions or discoveries (Subject Inventions) are deemed to be disclosed in this document except as stated below:
- Attention should be directed to pages _____ of this document.
 - This document describes matter relating to an invention:
 - Contractor Invention Docket No. _____
 - A disclosure of the invention was submitted to DOE on _____ (date)
 - A disclosure of the invention will be submitted shortly _____ (approximate date)
 - A waiver of DOE's patent rights to the contractor:
 has been granted, has been applied for; or will be applied for _____ (date)
5. This document is being submitted, but no review has been made of this document for possible inventive subject matter.
6. Remarks: Return Clearance to Project Office; document to M. Lopez, SAN/FCS

Reviewing/Submitting Official: Name (Print/Type) S. D. Elliott, Jr., Director
 Title DOE Solar One Project Office
 Signature [Signature] Date 7 June, 1984

TO: INITIATOR OF REQUEST

FROM: ASSISTANT CHIEF FOR PROSECUTION
Office of Patent Counsel/Livermore Office

M. Lopez, SAN

- No patent objection to above-identified release.
- Please defer release until advised by this office.

Signed L. E. Carrahan Date Mailed 6/10/84 6/13/84