

LAW OFFICES

HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

20 NORTH WACKER DRIVE

CHICAGO 60606

TELEPHONE
FINANCIAL 6-1630
AREA CODE 312

AXEL A. HOFGREN
ERNEST A. WEGNER
JOHN REX ALLEN
WILLIAM J. STELLMAN
JOHN B. McCORD
BRADFORD WILES
JAMES C. WOOD
STANLEY C. DALTON
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LLOYD W. MASON
TED E. KILLINGSWORTH
CHARLES L. ROWE
JAMES R. SWEENEY
W. E. RECKTENWALD
J. R. STAPLETON

WILLIAM R. McNAIR
JOHN P. MILNAMOW
DILLIS V. ALLEN
W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN

February 10, 1967 *Em.*

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

RE: UIF v. BT v. JFD

Dear Bob:

*

I enclose the material I have had copied from the Electrical Engineering Department business office records, relating to the reports. Apparently they did not keep a full set of copies of transmittal letters. On the other hand, there are copies of the letters with enough of the reports to indicate that they generally went out sometime after the report date. I suggest you check in particular the following documents:

<u>Document No.</u>	<u>Description</u>
5339	Purchase order April 21, 1959, covers for Quarterly Report No. 2
5340	Invoice April 27, 1959, covers for Quarterly Report No. 2
5341	Requisition dated 4-16-59, front and back covers Quarterly Report No. 2
5342	Purchase order April 21, 1959, Quarterly Report No. 2
5343	Invoice April 29, 1959, Quarterly Report No. 2 and transmittal letters.
5344	Requisition 4-16-59, Quarterly Report No. 2
5639	Transmittal letter dated April 27, 1959, Quarterly Report No. 2.

RECEIVED

FEB 13 1967

RINES AND RINES
NO. TEN POST OFFICE SQUARE, BOSTON

Mr. R. H. Rines

- 2 -

February 10, 1967

Document 5115 is the postal receipt slip dated May 5, 1959, which we had seen previously.

I don't think these documents conclusively establish that the reports went out before May 3. However, the letter of transmittal dated April 27 certainly raises a presumption of earlier mailing.

Very truly yours,

Dick

Richard S. Phillips

RSP:iag

* Enclosures

Pat. Application #
768-297

UNIVERSITY OF ILLINOIS
DISCLOSURE OF INVENTION AND
LETTER OF TRANSMITTAL

5124

To the University of Illinois
Patent Committee

Date: 20 May 1959

Entered herein and attached hereto is information concerning a potentially patentable invention for your consideration.

1. Descriptive Title of Invention

"Log Periodic Dipole Arrays"

2. Inventor

D. E. Isball
Staff Member,
Antenna Research
Laboratory

University of Illinois
Electrical Engineering
Research Laboratory
Room 311F Ext. 570

3. Description of Invention

- (a) Description: For a complete description of the invention please refer to Antenna Laboratory Technical Report No. 39, "Log Periodic Dipole Arrays," by D. E. Isball, Contract No. AF 33(616) - 6079, Project No. 9-(15-6278) Task 40572 Wright Air Development Center, Electrical Engineering Research Laboratory, University of Illinois
- (b) Earliest date and place invention was conceived; The antenna was conceived in September of 1958 at the University of Illinois Antenna Laboratory.
- (c) Date and place of first sketch, drawing, and written description: The first recorded sketches and drawings were given on pp. 2-3 of Quarterly Engineering Report No 2 "Research Studies on Problems related to ECM Antennas," Contract No. AF 33(616)-6079 Electrical Engineering Department, University of Illinois.

RECEIVED

FEB 13 1967

RINES AND RINES
NO. TEN POST OFFICE SQUARE, BOSTON

4. Disclosure

- (a) Disclosure of Invention to others: The invention was disclosed to other members of the Airborne Laboratory during its initial development and was also disclosed to some visitors to our laboratory.
- (b) Date and place of completion of the first operating model or full scale device: The first operating model was made in the University of Illinois Airborne Laboratory in December of 1948.
- (c) Present location of Model: It is still located at the Airborne Laboratory.
- (d) Date, place, description and results of first test or operation: The first results were described in Technical Report No. 39 mentioned above.

5. Sponsor of the University

- The development of this invention was supported entirely by the University of Illinois facilities, with the dates the same as above.
- 6. This invention was made while working on research sponsored by the Wright Air Development Center under Contract AF 33(616)-6079 entitled, "Research Studies on Problems Related to IIM Antennas."
- Note: This invention is unclassified.
- 7. If decision of the Patent Committee is to recommend release of interests of the University in this invention, the following is recommended:
Release to inventor, with recognition of contractual obligations of the University to sponsoring agency.

5126

Respectfully submitted,

W. H. E. Bell
Inventor

Date May 21, 1959

It is certified that the statements made herein are correct to the best of my knowledge and belief.

Date
Department Head, or other
Administrative Officer

RECOMMENDATIONS

It is my/our opinion and recommendation(s) that the potentially patentable invention described herein:

- Has little or no commercial value and should be released by the University to inventor(s) or sponsoring agency.
- Definite possibility of commercial value and retention by the University or University of Illinois Foundation for development, with partial distribution of any net income to the inventor(s).
- Other:

Date _____

Department Head or other
Administrative Officer

Date _____

Date _____

Other individuals who have
knowledge of this invention

LOCAL LIST

	<u>Technical</u>	<u>Progress</u>
P. Mayes	9	9
Dr. E. C. Jordan, E. E. Bldg.	1	1
Dean Wendell Miller, 145 E. E. Bldg.	1	1
Engineering Library, 106 Civil Eng. Hall	2	2
Local Library, E.E.R.L.	1	1
C. H. Tang (box)	1	1
Raj Mittra, E.E. College box	1	1

CIS - 001006 STIPES PUB. - 021164 c/o MARY JOHNSON, U OF T, VERMONT, VT.

5605

DATE	PARTICULARS	FOLIO		DEBITS	CREDITS	BALANCES	
		BOOK	PAGE			DR	CR
1959				11111	11111		
Apr 29	Bal. Billed						
	PO 44824 44825						
	Cont. 6079 - 2 Q 34						
	70 plates - 117 copies						
	479 f. only - 200 drawings						
	of plates & bound - 117 in list						
	Bill transmitted (letters)						
	31 add'l copies - gather		19015				78
Apr 29	PO 44827 44898						
	Cont 6079 - 2 Q 2						
	25 plates - 117 copies - get						
	plate - 2 no drawings - gather						
	1 bill - 117 transmitted						
	Bill due 117 on Bill						
	Bill						
	31 add'l copies - gather		19015				78

STATEMENTS IN DUP.

ACCOUNT U OF I ELECTRICAL ENGINEERING

NO. 8 155

GLS - 004006 STIPES FUD. - 021154 c/o MARGE JOHNSON, U OF I, URBANA, ILL.

DATE 1959	PARTICULARS	FOLIO		DEBITS	CREDITS	BALANCES	
		BOOK	PAGE			DR.	CR.
	Bal. Fwd						
Apr 27	P.O. 44899-J-Cont. 6079						
	2ER # 2-117 front cover aptd						
	117 back plain	19016	77	2000			
Nov 28	P.O. 45350-J-Cont. 1834(21)						

5606

Date Received 4-20 1959

No 19015

Date Received 4-20 1959

No 19016

Date Promised 19

Date Promised 19

CHAMPAIGN LETTER SHOP Job Ticket

CHAMPAIGN LETTER SHOP Job Ticket

Name U of I E E

Name U of I E E

Address AF 33 (616) 6079 - QR 2

Address AF 33 (616) 6079 - QR 2 Bind Pad

Description of Job: 148 total run

Description of Job:

Quantity 25 plates - 117 copies - run f 4 l - 2 vellums

Quantity 117 Front covers ptd } 44.299 Case

rather & bind

117 Plain back covers } 148 total run

117 trans letters on ltr & 117 on buff

EEIC - 31 add'l copies - rather & bind 8.68

EEIC { 31 Front covers ptd } 44.898

Dept. No. 1 Job Started 4-20-59 Finished 4-20-59

Dept. No. 1 Job Started 4/20/59 Finished 4/20/59

5807

REQUISITION

Department Requisitioning Electrical Engineering Office Address No. 62-3

TO THE DIRECTOR OF PURCHASES:

DATE 7-2-59

Please Deliver the Following to 100 Electrical Engineering Research Lab Room Number Building 5371

Not Later Than _____ Call U. Ripper Name Ext. 2521 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		Front and back covers for Technical Report 37, Contract 6079 printed on Antique Blue Stock. Cover copy supplied by EERL.		U. of I. Print Shop	
117		Front and back covers for Technical Report No. 38, Contract 6079 printed on Antique Blue Stock. Cover copy supplied by EERL.			
117		Front and back covers for Technical Report No. 39, Contract 6079 printed on Antique Blue stock. Cover copy supplied by EERL.			
PLEASE RUSH					
Johnson <u>46 22 25 314</u>					

APPROPRIATION

AF 33(616)6079

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

CLASSIFICATION

6. Equipment

7. Improvements

4. Other Expense

REQUISITION

Department Requisitioning Electrical Engineering No. 64-8
Office Address

TO THE DIRECTOR OF PURCHASES: DATE 7-2-59 5350
Please Deliver the Following to 100 Electrical Engineering Research Lab
Room Number Building

Not Later Than Call P. Rippon Ext. 2621 For additional information
Name

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
40		Additional front and back covers for Technical Report No. 37, Contract 6079, printed on Antique Blue Stock. Cover copy supplied by BERL.		U. of I. Print Shop	
40		Additional front and back covers for Technical Report No. 38, Contract 6079, printed on Antique Blue Stock Cover copy supplied by BERL.			
140		Additional front and back covers for Technical Report No. 39, Contract 6079, printed on Antique Blue Stock. Cover copy supplied by BERL.			
		PLEASE RUSH			
Johnson <u>40 22 25 300</u>					

<p>APPROPRIATION ERC</p> <p>I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.</p> <p>Approved _____</p>	<p>CLASSIFICATION</p> <p>6. Equipment</p> <p>7. Improvements</p> <p>4. Other Expense <u>1</u></p>
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REQUISITION

No. 1611-R
5372
DATE 6-16-59

Department Requisitioning Electrical Engineering Office Address

TO THE DIRECTOR OF PURCHASES:
Please Deliver the Following to 100 Electrical Engineering Research Lab Room Number 5372 Building

Not Later Than _____ Call R. Ripper Name Ext. 2621 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
31		additional copies of Technical Report No. 36 Contract AF33(616)-6079 on "Use of Coupled Waveguides in a Traveling Wave Scanning Antenna" (MacPhie) Print on one side of the paper only.	Cost	U. of I. Print Shop <i>Champaign Station</i> <i>Shop</i>	
31		71 mats including the preliminary pages, body and distribution list, and three page Reports Memorandum	Cost		
31		additional copies to be gathered and bound	Cost		
31		additional covers; fronts and backs.	Cost		
Johnson					

<p>APPROPRIATION</p> <p>I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.</p> <p>Approved _____</p>	<p>40 22 25 300</p> <p>EEIC</p>	CLASSIFICATION	
		6. Equipment	
		7. Improvements	
		4. Other Expense	4

REQUISITION

No. 1131-5

Department Requisitioning Electrical Engineering

Office Address

DATE 2-2-59

TO THE DIRECTOR OF PURCHASES:

Please Deliver the Following to

100 Electrical Engineering Research Lab.

Room Number

Building

5349

Not Later Than

Call R. H. H. H.

Name

Ext. 2611 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		copies of transmittal letter for quarterly status Report No. 1, Contract 6079, printed on letter head paper supplied by BNL		Champaign Print Shop	
117		copies of transmittal letter for quarterly status Report No. 1, Contract 6079, printed on yellow copy paper supplied by BNL			
		Total	2.50		
		Johnson			

45 22 25 314
AF 33(616)1073

APPROPRIATION

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

CLASSIFICATION

6. Equipment

7. Improvements

4. Other Expense

4

REQUISITION

Department Requisitioning Electrical Engineering Office Address No. 110-7 5348

TO THE DIRECTOR OF PURCHASES: DATE 1-27-57

Please Deliver the Following to 100 Electrical Engineering Research Lab Room Number Building

Not Later Than Call R. Ripper Name Ext. 2621 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
31		Additional copies of Quarterly Report #1 Contract 6079, mats to be run. All pages are mats. Run on two sides of the paper, fronts and backs as marked at the top of each page	Cost	<i>Chapman's Letter Shop</i> II. of I. Print Shop	
31		copies of Quarterly Report #1 gather and bind	Cost		
31		Additional front covers printed in accordance with copy supplied; backs plain. Quarterly Report #1; Contract 6079.	Cost		
		Johnson	49 22 25 300		

APPROPRIATION	CLASSIFICATION
<p>I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.</p> <p>Approved _____</p>	6. Equipment
	7. Improvements
	4. Other Expense

REQUISITION

Department Requisitioning Electrical Engineering Office Address 100 Electrical Engineering Research Lab No. 1100-5
 TO THE DIRECTOR OF PURCHASES: Please Deliver the Following to Room Number Building 3973 DATE 1-29-59
 Not Later Than Call E. Ripper Name Ext. 2621 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		copies of Quarterly Report #1 Contract 6079, 21 mats to be run. All pages are mats. Run on two sides of the paper, fronts and backs as marked at the top of each page.	Cost	<i>Champaign Letter Shop</i> U. of I. Print Shop	
117		copies of Quarterly Report #1 gather and bind	Cost		
2		complete vellum copies of Quarterly Report #1, Contract 6079, Print on one side of the paper only and gather.	Cost		
117 17		Front covers printed in accordance with copy supplied; backs plain. Quarterly Report #1, Contract 6079.	Cost		

46 22 25 314
AF 33(616)6079

Johnson 46 22 25 314

APPROPRIATION

CLASSIFICATION

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

6. Equipment

7. Improvements

4. Other Expense

US AF 6079

46-22-25-314

FEB 1959

1 PAGE

ACCOUNT TITLE

ACCOUNT NUMBER

DATE

REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH			44262.94	100000.00	55737.0
	INDIRECT COST CHARGE	4	JV 141	2354.54		
	46-22-25-314 FEB PAYROLL	01		6320.92		
	RICHARD RIPPER	4	T 007958	7.81		
	WALTER L WEEKS	3	T 008154	58.91		
523R	W J JAHR CO	4	T 008918	27.66		
458R	NEWARK ELECTRIC CO	4	T 008952	49.45		
1024R	CENTRAL STEEL & WIRE CO	4	T 008953	57.40		
1018R	NAZ DAR CO	4	T 011134	5.36		
1117R	NEWARK ELECTRIC CO	4	T 012072	26.34		
1116R	THE NARDA MICROWAVE CORP	4	T 012676	60.35		
	RICHARD RIPPER	4	T 013354	7.00		
	EMPLRS CONTRIB ON 0387744	04	T 36229	328.69		
	ELEC ENG REPL	4	ER 019044	56.94		
	ELEC ENG REPL	4	ER 019112	14.54		
	ELEC ENG REPL	4	ER 019116	9.49		
	ELEC ENG REPL	4	ER 019129	13.18		
	ELEC ENG REPL	4	ER 019139	27.78		
	ELEC ENG REPL	4	ER 019185	3.51		
	PHYSICS STORES	4	PC 001023	X 1.67		
	PHYSICAL PLANT STORES	4	PS 075176	X 5.11		
	COMPUTER SERVICE	4	CS 020895	47.40		
770R	PHYSICAL PLANT JOBS	4	PJ 023277	17.67		
	ILLINI UNION	4	IU 004025	X 1.66	420.00	
	TRANSFERS	4	TV 021779	420.00		
	TRANSFERS	4	TV 021810	X 22.26		
	TELEPHONE CHARGES	4	TL	16.65	16.65	
	WK COMP FOR FEB 0632092	04		63.21		
			supplier	30.70		
			del	436.65		
				467.35		
				5608		

EXPLANATION OF CLASS NUMBERS

- 1-SALARIES
- 2-WAGES
- 3-TRAVEL
- 4-COMMODITIES
- 5-CONTRACTUAL
- 6-EQUIPMENT
- 7-IMPROVEMENTS
- 8-LAND

EXPLANATION OF ABBREVIATIONS

- AC-ANALOG COMPUTE
- AT-AIR TRAVEL
- BD-BIOL DRAFTING
- BL-BLUEPRINTING
- CP-CAR POOL
- CR-CASH RECEIPT
- CS-COMPUTER SER
- EC-EMPLOYERS CONT
- ER-ELEC ENG. REPL
- EX-EXPRESS
- FE-FEDERAL EXT.
- FR-FEDERAL RES.
- FS-FEED STORAGE
- FT-FREIGHT
- G-GENERAL
- GA-GRAPHIC ARTS
- GB-GLASSBLOWING
- GC-GEN. CHEM STORES
- IS-INSTRUMENT SER
- IU-ILLINI UNION
- JV-JOURNAL VOUCHER
- LH-LIQUID HELIUM
- MG-MIMEOGRAPHING
- MI-MISCELLANEOUS
- MR-MACHINE REPAIR SER
- MS-MAILING SER
- OS-OFFICE SUPPLY STORE
- PC-PHYSICS STORES
- PH-PHOTOGRAPHY
- PJ-PP JOB
- PO-POSTAGE
- PR-PRINTING
- PS-PP STORES
- PY-PHYSICS SER
- RS-RECORDING SER
- S-STORES & SERVICE
- SG-STENOGRAPHIC SER
- SI-SALES INVOICE
- T-TRUST
- TG-TELEGRAMS
- TL-TELEPHONE
- TS-TABULATING SER
- TV-TRANSFER
- TY-TELETYPE
- UC-UNCLASSIFIED
- UP-UNIV PRESS ART SER
- WC-WORKING CASH

TOTALS TO DATE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	END OF MONTH BALANCE
33906 96		19692 05	689 43	54288.44	100000.00	45711.5

AF 6079 IC

45-22-25-314

FEB 1959

1

ACCOUNT TITLE

ACCOUNT NUMBER

DATE

PAGE

REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH INDIRECT COST CREDIT		JV 141	8.00	10275.80 2354.54	10267.80

EXPLANATION OF CLASS NUMBERS

- 1-SALARIES
- 2-WAGES
- 3-TRAVEL
- 4-COMMODITIES
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- LH-LIQUID HELIUM
- MG-MIMEOGRAPHING
- MI-MISCELLANEOUS
- MR-MACHINE REPAIR SER
- MS-MAILING SER
- OS-OFFICE SUPPLY STORE
- PC-PHYSICS STORES
- PH-PHOTOGRAPHY
- PJ-PP JOB
- PO-POSTAGE
- PR-PRINTING
- PS-PP STORES
- PY-PHYSICS SER
- RS-RECORDING SER
- S-STORES & SERVICE
- SG-STENOGRAPHIC SER
- SI-SALES INVOICE
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- TL-TELEPHONE
- TS-TABULATING SER
- TV-TRANSFER
- TY-TELETYPE
- UC-UNCLASSIFIED
- UP-UNIV PRESS ART SER
- WC-WORKING CASH

5609

TOTALS TO DATE

END OF MONTH BALANCE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	
		8.00		8.00	12630.34	12622.34

**UNIVERSITY OF ILLINOIS
MISCELLANEOUS VOUCHER**

This Copy
for
Department

Pay to:

Richard Wilson NAME	
209 NUMBER	Electrical Engineering Research Lab STREET
Urbana CITY	Illinois STATE

DATE 6-18-59 UNIVERSITY DEPARTMENT Electrical Engineering

QUANTITY	DESCRIPTION	AMOUNT	
	Postage on slides	2	82
	Bottle of processing solution	1	95
	Tubes	3	35
	Total	8	12

5610

46 22 25 314
AF 33(616)6079

E

039916

UNIVERSITY OF ILLINOIS
MISCELLANEOUS VOUCHER

This Copy
for
Department

Pay to:

Richard Ripper	
NAME	
209 Elec. Eng. Dep. Lab.	
NUMBER	STREET
Urbana, Ill.	
CITY	STATE

DATE 3-30-59 UNIVERSITY DEPARTMENT Elec. Eng.

QUANTITY	DESCRIPTION	AMOUNT
	postage on reports	72

5611

E

46 22 25
RE 33(616)6079

46 22 25 31A
RE 33(616)6079

021278

**UNIVERSITY OF ILLINOIS
MISCELLANEOUS VOUCHER**

This Copy
for
Department

Pay to:

Richard Ripper	
NAME	
209 Elec. Eng. Res. Lab.	
NUMBER	STREET
Urbana,	Ill.
CITY	STATE

DATE 4-15-59

UNIVERSITY DEPARTMENT Elec. Eng.

QUANTITY	DESCRIPTION	AMOUNT
	postage on reports	1 64
	paper	3 30
	paper	3 82
	Total	8 76
	5612	
	46 22 25 314	
	AF 33(616)6079	

025673

ACCOUNT TITLE

ACCOUNT NUMBER

DATE

PAGE

REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH			54288.44	100000.00	45711.56
	46-22-25-314 MAR PAYROLL	01		5811.99		
	IND COST CHARGE	4	JV 158	2164.93		
1214R	RADAR DESIGN CORP	4	T 014422	72.32		
1482R	GENERAL RADIO CO	4	T 014780	25.96		
805R	POLARAD ELECTRONICS CORP	4	T 014986	1.01		
158R	ALLIED RADIO CORP	4	T 015845	82.60		
1158R	GENERAL RADIO CO	4	T 016747	123.63		
614R	INDUSTRIAL PRODUCTS CO	4	T 017435	16.66		
1157R	CROSSLEY ASSOCIATES INC	4	J 017556	1.73		
1023R	HARRINGTON & KING PERFOR	4	T 017557	98.70		
1236R	NEWARK ELECTRIC CO	4	T 017582	3.67		
X	RICHARD RIPPER	4	T 018535	8.70		
1131R X	CHAMPAIGN LETTER SHOP	4	T 018558	6.00		
1103R X	CHAMPAIGN LETTER SHOP	4	T 018559	84.36		
1342R	ERBERS CAMERA SHOP	4	T 019170	44.22		
1169R	KEUFFEL & ESSER CO	4	T 020145	26.39		
1118R	SPERRY ELECTRONIC TUBE	4	T 020756	40.26		
X	RICHARD RIPPER	4	T 021278	.72		
	EMPLERS CONTRIB-ON038149A	04	T 43288	323.39		
18R	MACHINE REPAIR	4	MR 003805	39.00		
X	BLUEPRINTING PHOTOGRAPHY	4	BL 006839	X 4.32		
	INSTRUMENT SERVICE	4	IS 010019	X .99		
	COMPUTER SERVICE	4	CS 020906	25.80		
25840C	MARTIN MOD ADH	4	TG 000217	1.30	1345	
	TELEPHONE CHARGES	4	TL	12.15		
	WK COMP FOR MAR 0581190	04		58.12		

EXPLANATION OF CLASS NUMBERS

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- LH-LIQUID HELIUM
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- MR-MACHINE REPAIR SER
- MS-MAILING SER
- OS-OFFICE SUPPLY STORE
- PC-PHYSICS STORES
- PH-PHOTOGRAPHY
- PJ-PP JOB
- PO-POSTAGE
- PR-PRINTING
- PS-PP STORES
- PY-PHYSICS SER
- RS-RECORDING SER
- S-STORES & SERVICE
- SG-STENOGRAPHIC SER
- SI-SALES INVOICE
- T-TRUST
- TG-TELEGRAMS
- TL-TELEPHONE
- TS-TABULATING SER
- TY-TRANSFER
- TY-TELETYPE
- UC-UNCLASSIFIED
- UP-UNIV PRESS ART SER.
- WC-WORKING CASH

suppl 5.31
212 13.45
18.76

5613

TOTALS TO DATE

END OF MONTH BALANCE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	BALANCE
39718 86		22963 98	689 43	63372.27	100000.00	36627.73

45-22-25-314

MAR 1959

1

REQUISITION OR SALES INVOICE NO.	ACCOUNT TITLE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH IND COST CREDIT		JV 158	8.00	12630.34 2164.93	12622.34
<p>EXPLANATION OF CLASS NUMBERS</p> <p>1-SALARIES 2-WAGES 3-TRAVEL 4-COMMODITIES 5-CONTRACTUAL 6-EQUIPMENT 7-IMPROVEMENTS 8-LAND</p> <p>EXPLANATION OF ABBREVIATIONS</p> <p>AC-ANALOG COMPUTER AT-AIR TRAVEL BD-BIOL DRAFTING BL-BLUEPRINTING CP-CAR POOL CR-CASH RECEIPT CS-COMPUTER SER EC-EMPLOYERS CONT ER-ELEC ENG. REPL EX-EXPRESS FE-FEDERAL EXT. FR-FEDERAL RES. FS-FEED STORAGE FT-FREIGHT G-GENERAL GA-GRAPHIC ARTS GB-GLASSBLOWING GC-GEN. CHEM STORES IS-INSTRUMENT SER IU-ILLINI UNION JV-JOURNAL VOUCHER LH-LIQUID HELIUM MG-MIMEOGRAPHING MI-MISCELLANEOUS MR-MACHINE REPAIR SER MS-MAILING SER OS-OFFICE SUPPLY STORE PC-PHYSICS STORES PH-PHOTOGRAPHY PJ-PP JOB PO-POSTAGE PR-PRINTING PS-PP STORES PY-PHYSICS SER RS-RECORDING SER S-STORES & SERVICE SG STENOGRAPHIC SER SI-SALES INVOICE T-TRUST TG-TELEGRAMS TL-TELEPHONE TS-TABULATING SER TV-TRANSFER TY-TELETYPE UC-UNCLASSIFIED UP-UNIV PRESS ART SER WC-WORKING CASH</p>						
15614						
TOTALS TO DATE						END OF MONTH BALANCE
SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	
		8 00		8.00	14795.27	14787.27

POSTAL RECEIPTS

ILLINOIS
VOUCHER

RECEIVED

JAN 5 1967

E. E. BUS. OFF.

This Copy

for

Accounting

Division

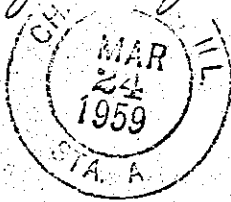
Date 24 March 1959

in quadruplicate

RECEIVED of Contract 6079

\$ 72

for postage on Journal Article (Mitter)



Postmaster

By _____

STREET

111.

CITY AND STATE

DATE 3-30-59

DEPARTMENT Elec. Eng.

QUANTITY	DESCRIPTION	AMOUNT
1	postage on reports	72
	5615	
<p>RECEIVED ACCOUNTING DIVISION</p>		
<p>MAR 31 1959</p>		
<p>AM 7 8 9 10 11 12 1 2 3 4 5 6 PB</p>		
<p><i>Richard R. Pfeiffer</i></p>		

ACCOUNT CODE NUMBER	<p>40 22 45 314 AF 33(616)6079</p>	EXPENSE	FUND	VOUCHER NUMBER
APPROPRIATION	<p><i>reception / other</i></p>	EXTENSION	FOR CHIEF ACCOUNTANT	021278
<p>I certify that no requisition has been issued, and that there is an unobligated balance available for the above expenditure in the appropriation indicated.</p>		POSTED	<p><i>E. E. Busby</i></p>	
APPROVED	<p><i>H. B. Lawler</i></p>		<p>MAR 31 1959</p>	

DEPARTMENT REQUISITIONING

DELIVER TO

UNIVERSITY OF ILLINOIS

BUSINESS OFFICE—PURCHASING DIVISION
203 ADMINISTRATION BUILDING (E)
URBANA, ILLINOIS

PURCHASE ORDER

NO. **35705**
THIS NUMBER MUST APPEAR
ON ALL CORRESPONDENCE AND
SHIPMENTS.

February 5, 1959

DATE

TO
• Champaign Letter Shop
• 10-12 Chester Street
• Champaign, Illinois

SHIP TO

UNIVERSITY OF ILLINOIS
100 Electrical Engineering
Research Lab.
URBANA, ILLINOIS

SHIPPING DATE _____ SHIP VIA _____ (SHIP CHEAPEST WAY UNLESS OTHERWISE SPECIFIED)

QUANTITY	DESCRIPTION	PRICE	AMOUNT
117	copies of transmittal letter for Quarterly Status Report No. 1, Contract 6079, printed on letter head paper supplies by EBNI		
117	copies of transmittal letter for Quarterly Status Report No. 1, Contract 6079, printed on yellow copy paper supplies by EBNI.		5616
<div style="font-family: cursive; font-size: 2em;"> $\begin{array}{r} 6.60 \\ 7.50 \\ \hline 3.50 \end{array}$ </div>			<div style="font-size: 2em;">+ 3.50</div>

PRICE F.O.B. _____ 2% 10TH OF MONTH FOLLOWING UNLESS OTHERWISE STATED TERMS _____ AS PER _____

INVOICE				TRANSPORTATION CHARGES						
PASSED	AMOUNT	PASSED	AMOUNT	Date	CRS. No.	Carrier	Pro. No.	Amt.	Pd	C

**UNIVERSITY OF ILLINOIS
INVOICE - VOUCHER**

UNIVERSITY ORDER NO.
35705-J

PLEASE RENDER INVOICE IN QUADRUPPLICATE
ON THIS FORM AND MAIL ALL COPIES TO:

MUST BE GIVEN

KEEP THIS FORM INTACT
Do Not Tear It Apart

UNIVERSITY OF ILLINOIS
PURCHASING DIVISION
203 ADMINISTRATION BLDG. (EAST)
URBANA, ILLINOIS

PAY TO:

FIRM NAME	Champaign Letter Shop 004006
STREET AND NUMBER	10 Chester Street
CITY AND STATE	Champaign, Illinois

THIS COPY FOR
DEPARTMENT

DATE February 5, 1959

FIRM INVOICE NO.

TERMS: Net

2% 10th OF MONTH FOLLOWING
UNLESS OTHERWISE STATED.

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
117	copies of transmittal letter for Quarterly Status Report No. 1, Contract 6079, printed on letter head paper supplied by ERL	56.17	
117	copies of transmittal letter for Quarterly Status Report No. 1, Contract 6079, printed on yellow copy paper supplied by ERL		\$ 6.00

PAYEE SHOULD NOT WRITE BELOW THIS LINE

1131-R

46 22 25 314

(4)

018558

REQUISITION

Department Requisitioning Electrical Engineering No. 1131-R
Office Address DATE 2-3-59

TO THE DIRECTOR OF PURCHASES:
Please Deliver the Following to 100 Electrical Engineering Research Lab.
Room Number Building

Not Later Than _____ Call R. Ripper Name Ext. 263 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		copies of transmittal letter for Quarterly Status Report No. 1, Contract 6079, printed on letter head paper supplied by EERL		Champaign Print Shop	
117		copies of transmittal letter for Quarterly Status Report No. 1, Contract 6079, printed on yellow copy paper supplied by EERL		5618	
Total			2.50	2/9/59 Loc. Dec.	
		Johnson	46 22 25 314 OF 221616079		E

APPROPRIATION	CLASSIFICATION
<p>I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.</p> <p>Approved _____</p>	6. Equipment
	7. Improvements
	4. Other Expense
	4

DEPARTMENT REQUISITIONING

DELIVER TO

UNIVERSITY OF ILLINOIS

BUSINESS OFFICE--PURCHASING DIVISION
203 ADMINISTRATION BUILDING (E)
URBANA, ILLINOIS

PURCHASE ORDER

NO. 35553
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE AND SHIPMENTS.

DATE February 3, 1953

TO: Champaign Letter Shop
10 Chester St.
Champaign, Illinois

SHIP TO

UNIVERSITY OF ILLINOIS
100 Electrical Engineering
Research Lab.
URBANA, ILLINOIS

SHIPPING DATE SHIP VIA: (SHIP CHEAPEST WAY UNLESS OTHERWISE SPECIFIED)

QUANTITY	DESCRIPTION	PRICE	AMOUNT
117	Copies of Quarterly Report #1 Contract 6079, 21 mats to be run. All pages are mats. Run on two sides of the paper, fronts and backs as marked at the top of each page.		5619
117	Copies of Quarterly Report #1 Gather and bind		
2	Complete galium copies of Quarterly Report #1, Contract 6079, Print on one side of the paper only and gather.		
117	Front covers printed in accordance with copy supplied; backs plain. Quarterly Report #1, Contract 6079		
NOTE: Prices to be in accordance with attached schedule			

all 124.36
60.00
entered

84.36
60.00

24.36

PRICE F.O.B. TERMS AS PER 3% 10TH OF MONTH FOLLOWING UNLESS OTHERWISE STATED

INVOICE				TRANSPORTATION CHARGES						
PASSED	AMOUNT	PASSED	AMOUNT	Date	CRS. No.	Carrier	Pro. No.	Amt.	Pd	C
				/						
				/						
				/						

FORM 105

Prices effective July 1, 1957 for printing and binding government research reports for the Electrical Engineering Department, University of Illinois, Urbana, Illinois

5620

Press work:

Prices based on 25 plates or more at one time

Prices based on less than 25 plates at one time

	<u>1 side</u>	<u>2 sides</u>		<u>1 side</u>	<u>2 sides</u>
Less than 100 copies	\$1.00	1.25	Less than 100 copies	\$1.25	1.50
Each add'n 50 or less	.25	.25	Each add'n 50 or less	.25	.25

Add per page for thesis copies on either of the above .25¢

Add per page for vellum copies on either of the above .10¢

No handling charge on paper furnished by University unless we cut paper.

		Add'n 25 p.	
Gather, bind (stitch, affix tape and tape) and trim:	25 p. or less	or less	
	50 copies or less	30¢ each	6¢ each
	More than 50 copies	28¢ each	6¢ each

(nailing books and trimming nailed books extra charge)

Photo plates, including line drawings and combination plates:

Our cost plus 20%. The following items of cost will remain constant on all plates: Plate 50¢ - check negatives, burn and develop \$1.00. Added to these two items will be our cost of negatives and postage.

Where it is necessary to "Clean up" plates, charge will be made at the rate of \$3.00 per hour.

Overtime charge when authorized will be billed at the rate of \$2.75 per hour over regular rates.

Oftentimes we must remove sheets after reports are gathered and insert new sheets - for this work time will be charged at \$2.50 per hour.

UNIVERSITY OF ILLINOIS
INVOICE - VOUCHER

UNIVERSITY ORDER NO.

35553 -J

MUST BE GIVEN

KEEP THIS FORM INTACT
 Do Not Tear It Apart

PLEASE RENDER INVOICE IN QUADRUPPLICATE
 ON THIS FORM AND MAIL ALL COPIES TO:

UNIVERSITY OF ILLINOIS
 PURCHASING DIVISION
 203 ADMINISTRATION BLDG. (EAST)
 URBANA, ILLINOIS

5621

THIS COPY FOR
 DEPARTMENT

PAY TO:

FIRM NAME	Champaign Letter Shop 004006
STREET AND NUMBER	10 Chester Street
CITY AND STATE	Champaign, Illinois

DATE **February 2, 1959**

FIRM INVOICE NO.

TERMS: **Net**

2% 10th OF MONTH FOLLOWING,
 UNLESS OTHERWISE STATED.

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
117	Copies of Quarterly Report #1 Contract 6079, 21 mats to be run. All pages are mats. Run on 2 two sides of the paper, fronts and backs as marked at the top of each page. 21 mats	@ 1.50	\$ 31.50
117	Copies of Quarterly Report #1 Gather and bind	@ .28	32.76
2	Complete vellum copies of Quarterly Report #1, Contract 6079, Print on one side of the paper only and gather. 21 mats	@ .10	2.10
117	Front covers printed in accordance with copy supplied: backs plain. Quarterly Report #1, Contract 6079		<u>18.00</u>
			\$ 84.36

PAYEE SHOULD NOT WRITE BELOW THIS LINE

1103-R

46 22 25 314

018559

REQUISITION

No. 1103-R

Department Requisitioning Electrical Engineering

Office Address

DATE 1-29-59

TO THE DIRECTOR OF PURCHASES:

Please Deliver the Following to

100 Electrical Engineering Research Lab

Room Number

Building

R. Ripper

2621

Not Later Than

Call

Ext.

For additional information

Name

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		copies of Quarterly Report #1 Contract 6079, 21 mats to be run. All pages are mats. Run on two sides of the paper, fronts and backs as marked at the top of each page.	Cost	U. of I. Print Shop	
117		copies of Quarterly Report #1 gather and bind	Cost		
2		complete vellum copies of Quarterly Report #1, Contract 6079, Print on one side of the paper only and gather.	Cost		
17		Front covers printed in accordance with copy supplied; backs plain. Quarterly Report #1, Contract 6079.	Cost		
		Johnson	46 22 25 314		

15622

3/6/59

Loode

E

APPROPRIATION

AF 33(616)6079

CLASSIFICATION

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

6. Equipment

7. Improvements

4. Other Expense

4

NAME J. White

PROMISED Tues 3:30 PM
(Day and Date)

DATE 2-20-59 REQ'N # _____

PHONE _____

CLERK MF

DUPLICATE

FOR DEPARTMENT _____

COPY CONSISTS OF

2 - Kodachromes 5623

WORK TO BE DONE

UNIT

CHARGES

1 - Standard Copy neg 20 1.00 200
of ea

2 - 5x7 glass subjects 40 40 160
of ea

20% Rushing 72

CHARGE TO 46-22-25-314

A 6079

RECEIVED BY J. White

Auditor

Class

Fund

Photography
Blueprinting
09-10-18-906

Total

4/32

Del. by _____

Correct _____

(Manager)

ACCOUNT TITLE

ACCOUNT NUMBER

DATE

PAGE

REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH			63372.27	100000.00	36627.73
	IND COST CHARGE	4	JV 176	2087.64		
	46-22-25-314 APR PAYROLL	01		5604.40		
1397	ALLIED RADIO CORP	4	T 021595	96		
1329R	BAMBACH MACHINERY CO INC	4	T 021888	68.16		
614R	INDUSTRIAL PRODUCTS CO	4	T 022501	16.66		
1422R	CROSSLEY ASSOCIATES INC	4	T 023223	22.09		
1118R	SPERRY ELECTRONIC TUBE	4	T 023700	20.26		
1322R	NEWARK ELECTRI CO	4	T 023701	19.63		
1397R	ALLIED RADIO CORP	4	T 024043	23.04		
	R MITTRA	3	T 024462	61.50		
153R	ALLIED RADIO CORP	4	T 024511	80.10		
1441R	EASTMAN KODAK STORES INC	4	T 025244	13.57		
14R	DEPKE WELDING SUPPLIES	4	T 025245	7.20		
	X RICHARD RIPPER	4	T 025673	8.76		
1446R	SPERRY ELECTRONIC TUBE	4	T 026244	84.26		
	EMPLRS CONTRIB ON 0381494	04	T 50387	323.39		
	ELEC ENG REPL	4	ER 012023	17.31		
	ELEC ENG REPL	4	ER 012041	21.99		
	ELEC ENG REPL	4	ER 024402	73.75		
	ELEC ENG REPL	4	ER 024421	67.46		
	ELEC ENG REPL	4	ER 024432	16.45		
	ELEC ENG REPL	4	ER 024434	.78		
	PHYSICS STORES	4	PC 001374	X 2.39		
	X BLUEPRINTING PHOTOGRAPHY	4	BL 007696	X 16.80		
	X BLUEPRINTING PHOTOGRAPHY	4	BL 007973	X 21.00		
	X BLUEPRINTING PHOTOGRAPHY	4	BL 008112	X 6.40		
	X BLUEPRINTING PHOTOGRAPHY	4	BL 008144	X .60		
	ILLINI UNION	4	IU 004248	X 2.17		
	ILLINI UNION	4	IU 004307	X 1.89		
41860	TRU TOOL	4	EX 022274	3.22		
34831	HARRINGTON	4	FT 016067	3.25		
	LAWLER MISSILE	4	TG 000318	1.46		
	TELEPHONE CHARGES	4	TL	19.50		
	WK COMP FOR APR 0560440	04		56.04		

5624

647

20.96

supplies 51.25
 Feb 6.47
 Jul 20.96
 48.68

EXPLANATION OF CLASS NUMBERS

- 1-SALARIES
- 2-WAGES
- 3-TRAVEL
- 4-COMMODITIES
- 5-CONTRACTUAL
- 6-EQUIPMENT
- 7-IMPROVEMENTS
- 8-LAND

EXPLANATION OF ABBREVIATIONS

- AC-ANALOG COMPUTER
- AT-AIR TRAVEL
- BD-BIOL DRAFTING
- BL-BLUEPRINTING
- CP-CAR POOL
- CR-CASH RECEIPT
- CS-COMPUTER SER
- EC-EMPLOYERS CONT
- ER-ELEC ENG. REPL
- EX-EXPRESS
- FE-FEDERAL EXT.
- FR-FEDERAL RES.
- FS-FEED STORAGE
- FT-FREIGHT
- G-GENERAL
- GA-GRAPHIC ARTS
- GB-GLASSBLOWING
- GC-GEN. CHEM STORES
- IS-INSTRUMENT SER
- IU-ILLINI UNION
- JV-JOURNAL VOUCHER
- LH-LIQUID HELIUM
- MG-MIMEOGRAPHING
- MI-MISCELLANEOUS
- MR-MACHINE REPAIR SER
- MS-MAILING SER
- OS-OFFICE SUPPLY STORE
- PC-PHYSICS STORES
- PH-PHOTOGRAPHY
- PJ-PP JOB
- PO-POSTAGE
- PR-PRINTING
- PS-PP STORES
- PY-PHYSICS SER
- RS-RECORDING SER
- S-STORES & SERVICE
- SG-STENOGRAPHIC SER
- SI-SALES INVOICE
- T-TRUST
- TG-TELEGRAMS
- TL-TELEPHONE
- TS-TABULATING SER
- TV-TRANSFER
- TY-TELETYPE
- UC-UNCLASSIFIED
- UP-UNIV PRESS ART SER
- WC-WORKING CASH

TOTALS TO DATE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	END OF MONTH BALANCE
45323 26		26127 66	639 43	72140.35	100000.00	27859.65

ACCOUNT TITLE		ACCOUNT NUMBER		DATE	PAGE	
REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH - IND COST CREDIT IND COST DISTRIBUTION		JV 176 JV 165	8.00	14795.27 2087.64 8144.50-	14787.27
						<p>EXPLANATION OF CLASS NUMBERS</p> <p>1-SALARIES 2-WAGES 3-TRAVEL 4-COMMODITIES 5-CONTRACTUAL 6-EQUIPMENT 7-IMPROVEMENTS 8-LAND</p> <p>EXPLANATION OF ABBREVIATIONS</p> <p>AC-ANALOG COMPUTER AT-AIR TRAVEL BD-BIOL DRAFTING BL-BLUEPRINTING CP-CAR POOL CR-CASH RECEIPT CS-COMPUTER SER EC-EMPLOYERS CONT ER-ELEC ENG. REPL EX-EXPRESS FE-FEDERAL EXT. FR-FEDERAL RES. FS-FEED STORAGE FT-FREIGHT G-GENERAL GA-GRAPHIC ARTS GB-GLASSBLOWING GC-GEN. CHEM STORES IS-INSTRUMENT SER IU-ILLINI UNION JV-JOURNAL VOUCHER LH-LIQUID HELIUM MG-MIMEOGRAPHING MI-MISCELLANEOUS MR-MACHINE REPAIR SER MS-MAILING SER OS-OFFICE SUPPLY STORE PC-PHYSICS STORES PH-PHOTOGRAPHY PJ-PP JOB PO-POSTAGE PR-PRINTING PS-PP STORES PY-PHYSICS SER RS-RECORDING SER S-STORES & SERVICE SG-STENOGRAPHIC SER SI-SALES INVOICE T-TRUST TG-TELEGRAMS TL-TELEPHONE TS-TABULATING SER TY-TRANSFER UC-UNCLASSIFIED UP-UNIV PRESS ART SER. WC-WORKING CASH</p>
5625						
TOTALS TO DATE						
SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	END OF MONTH BALANCE
		8 00		8.00	8738.41	8730.41

12158

RECEIPT FOR REGISTERED ARTICLE NO. _____ Date _____

Value \$ 10.00 Special delivery fee _____¢

Weight \$ 50 Return receipt fee 10¢

Postage charge \$ 10.00 Restricted delivery fee _____¢

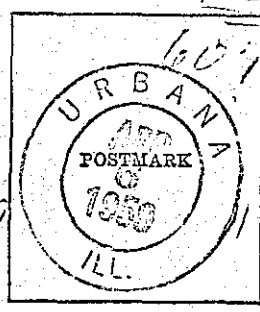
Postage stage \$ _____ Airmail

Origin from Prof. R. A. Deschamps

Addressed to Elect. Eng. R. L. Wald

Addressed to E. R. Gannett

(Address) _____ (Accepting employee) _____



GPO c9-10-12080-8

Urbana, ILL. CITY STATE

RECEIVED

JAN 5 1967

E. E. BUSBY OF THIS COPY

for Accounting Division

DATE 4-15-59 UNIVERSITY DEPARTMENT Elec. Eng.

QUANTITY	DESCRIPTION	AMOUNT
	postage on reports	1 64
	paper	3 30
	paper	3 82
	Total	8 76

5626

RECEIVED ACCOUNTING DIVISION

APR 17 1959

AM 7 8 9 10 11 12 1 2 3 4 5 6 PD

R. Reppe

46 22 25 314 AF 33(616)5079

ACCOUNT CODE NUMBER	46-22-25-314	EXPENSE	4	FUND	T	VOUCHER NUMBER	025673
APPROPRIATION	Elect. Eng. Dept.	EXTENSION	7	FOR CHIEF ACCOUNTANT	<i>E. E. Busby</i>		
I certify that no requisition has been issued, and that there is an unobligated balance available for the above expenditure in the appropriation indicated.		POSTED	APR 21 1959				
APPROVED	<i>H. B. Lawler</i>						

ACCOUNT TITLE

ACCOUNT NUMBER

DATE

PAGE

REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH			72140.35	100000.00	27859.65
	EXPENSE CLASS CHANGE	6	JV 189	369.91		
	IND COST CHARGE	4	JV 187	2972.13		
X	RICHARD RIPPER	4	T 028170	4.45		
14R	DEPKE WELDING SUPPLIES	4	T 028488	4.17		
1580R	NEWARK ELECTRIC CO	4	T 028802	12.05		
1445R	EUGENE DIETZGEN CO	4	T 029148	34.66		
1365R	EUGENE DIETZGEN CO	4	T 029514	77.63		
1631R	ARROW SALES-CHICAGO INC	4	T 030587	17.81		
	PAUL E MAYES	3	T 031002	14.45		
	JOHN D DYSON	3	T 031882	11.80		
1662R	PHILIP A HUNT CO	4	T 032596	47.56		
1613R	CHAMPAIGN LETTER SHOP	4	T 032623	20.00		
1612R	CHAMPAIGN LETTER SHOP	4	T 032624	77.26		
1610R	CHAMPAIGN LETTER SHOP	4	T 032625	20.00		
1609R	CHAMPAIGN LETTER SHOP	4	T 032626	147.15		
1685R	GENERAL RADIO CO	4	T 032924	4.08		
X	RICHARD RIPPER	4	T 033163	16.50		
	EMPI PS CONTRIB-ON0450479	04	T 57434	381.87		
	ELEC ENG REPL	4	ER 023777	45.43		
	ELEC ENG REPL	4	ER 023941	16.95		
	ELEC ENG REPL	4	ER 023962	.21		
	ELEC ENG REPL	4	ER 024024	15.77		
	ELEC ENG REPL	4	ER 024150	43.54		
	ELEC ENG REPL	4	ER 024270	13.57		
	ELEC ENG REPL	4	ER 024292	10.64		
	ELEC ENG REPL	4	ER 024310	38.10		
	ELEC ENG REPL	4	ER 024455	34.02		
	ELEC ENG REPL	4	ER 024462	18.95		
	ELEC ENG REPL	4	ER 024472	20.60		
	ELEC ENG REPL	4	ER 024491	21.45		
	ELEC ENG REPL	4	ER 024497	23.50		
X	BLUEPRINTING PHOTOGRAPHY	4	BL 008691	X 15.10		
X	BLUEPRINTING PHOTOGRAPHY	4	BL 008764	X 9.00		
X	BLUEPRINTING PHOTOGRAPHY	4	BL 008942	X 22.00		
X	BLUEPRINTING PHOTOGRAPHY	4	BL 008949	X 16.30		
	ILLINI UNION	4	IU 004451	X 1.69		
	TRANSFERS	4	TV 025191	X 150.74		
	TRANSFERS	4	IV 025202	X 293.92		
34319D	DYSON JACOBS	4	TG 000403	1.10		
	MARTIN NEWARK	4	TG 000420	.90		
	TELEPHONE CHARGES	4	TL	9.35		
	WK COMP FOR MAY 0797887	04		79.79		
	46-22-25-314 MAY PAYROLL	01		7978.87		
				508.75		
				11.35		
				520.10		

EXPLANATION OF CLASS NUMBERS

- 1-SALARIES
- 2-WAGES
- 3-TRAVEL
- 4-COMMODITIES
- 5-CONTRACTUAL
- 6-EQUIPMENT
- 7-IMPROVEMENTS
- 8-LAND

EXPLANATION OF ABBREVIATIONS

- AC-ANALOG COMPUTER
- AT-AIR TRAVEL
- BD-BIOL DRAFTING
- BL-BLUEPRINTING
- CP-CAR POOL
- CR-CASH RECEIPT
- CS-COMPUTER SER
- EC-EMPLOYERS CONT
- ER-ELEC ENG. REPL
- EX-EXPRESS
- FE-FEDERAL EXT.
- FR-FEDERAL RES.
- FS-FEED STORAGE
- FT-FREIGHT
- G-GENERAL
- GA-GRAPHIC ARTS
- GB-GLASSBLOWING
- GC-GEN. CHEM STORES
- IS-INSTRUMENT SER
- IU-ILLINI UNION
- JV-JOURNAL VOUCHER
- LH-LIQUID HELIUM
- MG-MIMEOGRAPHING
- MI-MISCELLANEOUS
- MR-MACHINE REPAIR SER
- MS-MAILING SER
- OS-OFFICE SUPPLY STORE
- PC-PHYSICS STORES
- PH-PHOTOGRAPHY
- PJ-PP JOB
- PO-POSTAGE
- PR-PRINTING
- PS-PP STORES
- PY-PHYSICS SER
- RS-RECORDING SER
- S-STORES & SERVICE
- SG-STENOGRAPHIC SER
- SI-SALES INVOICE
- T-TRUST
- TG-TELEGRAMS
- TL-TELEPHONE
- TS-TABULATING SER
- TV-TRANSFER
- TY-TELETYPE
- UC-UNCLASSIFIED
- UP-UNIV PRESS ART SER
- WC-WORKING CASH

5627

11.35

TOTALS TO DATE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	END OF MONTH BALANCE
53302 13		30893 85	1059 34	85255.32	100000.00	14744.68

AF 6079 IC

45-22-25-314

MAY 1959

1

REQUISITION OR SALES INVOICE NO.	ACCOUNT TITLE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH IND COST CREDIT		JV 187	8.00	8738.41 2972.13	8730.41
<p>EXPLANATION OF CLASS NUMBERS</p> <p>1-SALARIES 2-WAGES 3-TRAVEL 4-COMMODITIES 5-CONTRACTUAL 6-EQUIPMENT 7-IMPROVEMENTS 8-LAND</p> <p>EXPLANATION OF ABBREVIATIONS</p> <p>AC-ANALOG COMPUTER AT-AIR TRAVEL BD-BIOL DRAFTING BL-BLUEPRINTING CP-CAR POOL CR-CASH RECEIPT CS-COMPUTER SER EC-EMPLOYERS CONT ER-ELEC ENG. REPL EX-EXPRESS FE-FEDERAL EXT. FR-FEDERAL RES. FS-FEED STORAGE FT-FREIGHT G-GENERAL GA-GRAPHIC ARTS GB-GLASSBLOWING GC-GEN. CHEM STORES IS-INSTRUMENT SER IU-ILLINI UNION JV-JOURNAL VOUCHER LH-LIQUID HELIUM MG-MIMEOGRAPHING MI-MISCELLANEOUS MR-MACHINE REPAIR SER MS-MAILING SER OS-OFFICE SUPPLY STORE PC-PHYSICS STORES PH-PHOTOGRAPHY PJ-PP JOB PO-POSTAGE PR-PRINTING PS-PP STORES PY-PHYSICS SER RS-RECORDING SER S-STORES & SERVICE SER SI-SALES INVOICE T-TRUST TG-TELEGRAMS TL-TELEPHONE TS-TABULATING SER TV-TRANSFER TY-TELETYPE UC-UNCLASSIFIED UP-UNIV. PRESS. ART SER WC-WORKING CASH</p>						

5628

TOTALS TO DATE

END OF MONTH BALANCE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	BALANCE
		8 00		8.00	11710.54	11702.54

OFF. NO. 3-10-1	APPROPRIATION 42 02 03 834 AF 10(618)0070 (4)	ENC. NO. 10.00	DEPARTMENT NAME Elec. Eng. 100 Elec. Eng. Res. Lab.
-----------------	---	----------------	---

5339

DEPARTMENT REQUISITIONING

DELIVER TO

UNIVERSITY OF ILLINOIS

BUSINESS OFFICE—PURCHASING DIVISION
200 ADMINISTRATION BUILDING (B)
URBANA, ILLINOIS

PURCHASE ORDER

NO. 44899
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE AND SHIPMENTS.

April 21, 1959

TO: Champaign letter Shop
10-12 Cheater Street
Champaign, Illinois

SHIP TO

DATE UNIVERSITY OF ILLINOIS
100 Elec. Engineering Research Lab.
URBANA, ILLINOIS

DELIVERY DESIRED BY SHIP VIA: (SHIP CHEAPEST WAY UNLESS OTHERWISE SPECIFIED)

QUANTITY	DESCRIPTION	PRICE	AMOUNT
117	front and back covers; fronts to be printed in accordance with copy supplied, backs plain. Print on blue stock (GER #2, contract 6079)		

Prices to be in accordance with price schedule attached

20.00
10.00

10.00

W. J. W.
E

PRICE F.O.B. 2% 10TH OF MONTH FOLLOWING UNLESS OTHERWISE STATED TERMS AS PER

INVOICE				TRANSPORTATION CHARGES						
PASSED	AMOUNT	PASSED	AMOUNT	Date	CRS. No.	Carrier	Pro. No.	Amt.	Pd	C
				/						
				/						
				/						

THIS COPY FOR
DEPARTMENT

UNIVERSITY OF ILLINOIS DELIVERY INVOICE - VOUCHER

UNIVERSITY ORDER NO.

44899

MUST BE GIVEN

UNIVERSITY OF ILLINOIS
PURCHASING DIVISION
200 ADMINISTRATION BLDG. (EAST)
URBANA, ILLINOIS

PLEASE RENDER INVOICE IN QUADRUPPLICATE ON
THIS FORM AND MAIL ALL COPIES TO THE ABOVE ADDRESS.

5340

PAY TO:

FIRM NAME	Champaign Letter Shop Oct 2006
STREET AND NUMBER	10 Market Street
CITY AND STATE	Champaign, Illinois

DATE April 21, 1957 FIRM INVOICE NO.

TERMS: Net

2% 10th OF MONTH FOLLOWING,
UNLESS OTHERWISE STATED.

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
117	Card and text covers: Cards to be printed in accordance with copy supplied, backs plain. Print on blue stock. (121 12, Contract 1079)		\$ 22.00
PAYEE SHOULD NOT WRITE BELOW THIS LINE			

032623

REQUISITION

DUPLICATE
FOR DEPARTMENT
REQUISITIONING

1613-R
3573-R

Department Requisitioning Electrical Engineering

Office Address

No. _____

TO THE DIRECTOR OF PURCHASES:

DATE 4-16-59

Please Deliver the Following to

100 Electrical Engineering Research Lab

Room Number

Building

5341

Not Later Than

Call

R. Ripper

Name

Ext. 2621 For additional information

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		front and back covers; fronts to be printed in accordance with copy supplied, backs plain. Print on blue stock. (QER #2, contract 6079)	Cost ✓	U. of I. Print Shop ✓ 4/30/59	
		Johnson			

APPROPRIATION

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

46 22 75 314

AF 33(615)6079

CLASSIFICATION

- 6. Equipment
- 7. Improvements
- 4. Other Expense 4

REQ. NO.	APPROPRIATION	ENC. NO.	DEPARTMENT NAME
1-10-	40 22 23 314 AF 30(310)0079	10.00	Phys. Eng. 100 Elec. Eng. Res. Lab.

DEPARTMENT REQUISITIONING

DELIVER TO

UNIVERSITY OF ILLINOIS

BUSINESS OFFICE—PURCHASING DIVISION
200 ADMINISTRATION BUILDING (E)
URBANA, ILLINOIS

PURCHASE ORDER

NO. 44826-1
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE AND SHIPMENTS.

DATE April 21, 1959

TO: Champaign Letter Shop
10-12 Chester Street
Champaign, Illinois

SHIP TO

UNIVERSITY OF ILLINOIS

100 Elec. Engineering Research Lab.
URBANA, ILLINOIS

DELIVERY DESIRED BY

SHIP VIA:

(SHIP CHEAPEST WAY UNLESS OTHERWISE SPECIFIED)

QUANTITY	DESCRIPTION	PRICE	AMOUNT
117 ea.	Covers: Front and Back covers for Technical Report No. 36, Contract 6079 (MacPhie). Fronts as per the attached sample: backs plain. Please print on Blue Stock Prices to be in accordance with attached schedule		5629
	$\begin{array}{r} 20.00 \\ 10.00 \\ \hline 10.00 \end{array}$		

2% 10TH OF MONTH FOLLOWING UNLESS OTHERWISE STATED

PRICE F.O.B.

TERMS

AS PER

INVOICE				TRANSPORTATION CHARGES						
PASSED	AMOUNT	PASSED	AMOUNT	Date	CRS. No.	Carrier	Pro. No.	Amt.	Pd	C
				/						
				/						
				/						

THIS COPY FOR
DEPARTMENT

UNIVERSITY OF ILLINOIS DELIVERY INVOICE - VOUCHER

UNIVERSITY ORDER NO.

44826-3

MUST BE GIVEN

UNIVERSITY OF ILLINOIS
PURCHASING DIVISION
200 ADMINISTRATION BLDG. (EAST)
URBANA, ILLINOIS

PLEASE RENDER INVOICE IN QUADRUPPLICATE ON
THIS FORM AND MAIL ALL COPIES TO THE ABOVE ADDRESS.

PAY TO:

FIRM NAME	General Letter Shop 197-65
STREET AND NUMBER	10 Chester Street
CITY AND STATE	Urbana, Illinois

DATE: Jul 27, 1957

FIRM INVOICE NO.

TERMS: 1-4

2% 10th OF MONTH FOLLOWING,
UNLESS OTHERWISE STATED.

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
117 ea.	Covers: Front and Back covers for Technical Report No. 16, Contract (17) (metric) Printed on per attached samples: White plain. Printed on Blue Stock	5630	\$ 20.00 E
PAYEE SHOULD NOT WRITE BELOW THIS LINE			

032625

REQUISITION

Department Requisitioning Electrical Engineering

No. 7610-R

Office Address

DATE 4-16-59

TO THE DIRECTOR OF PURCHASES:

Please Deliver the Following to 100 Electrical Engineering Research Lab

Room Number

Building

Not Later Than

Call

R. Ripper

Ext. 2621

For additional information

Name

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117 ea.		covers; Front and Back covers for Technical Report No. 36, Contract 6079 (MacPhie). Fronts as per the attached sample; backs plain. Please print on Blue Stock.	Cost	U. of I. Print Shop <i>Complete</i> <i>4/21/59</i>	
		Johnson		5631	

APPROPRIATION

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

46 22 23 314
AF 33(616)6979

CLASSIFICATION

6. Equipment

7. Improvements

4. Other Expense 4

REQ. NO.	APPROPRIATION	ENC. NO.	DEPARTMENT NAME
1-312-R	45 22 25 314 AF 33(117) 379	1175.00	elec. Eng.
	(A)	hs	100 Elec. Eng. Res. Lab. 5342

DEPARTMENT REQUISITIONING

DELIVER TO

UNIVERSITY OF ILLINOIS

PURCHASE ORDER

BUSINESS OFFICE—PURCHASING DIVISION
200 ADMINISTRATION BUILDING (E)
URBANA, ILLINOIS

NO. 44827-J
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE AND SHIPMENTS.

DATE April 21, 1969

SHIP TO

UNIVERSITY OF ILLINOIS

100 Elec. Engineering Research Lab.

URBANA, ILLINOIS

TO : Champaign Letter Shop
10-12 Chester Street
Champaign, Illinois

DELIVERY DESIRED BY _____ SHIP VIA: _____ (SHIP CHEAPEST WAY UNLESS OTHERWISE SPECIFIED)

QUANTITY	DESCRIPTION	PRICE	AMOUNT
117	copies of Quarterly Engineering Report No. 2, Contract AF 6079 "Research Studies on Problems Related to E.C.M. Antennae" please print on both sides of the paper		
	25 mats, including six page distribution list and three page Reports Memoranda. fronts and backs as marked at the top of each mat.		
117	copies of the above - gather and bind.		
2	complete vellum copies of the above. Print on one side of the paper only.		
117	transmittal letters printed on letterhead paper		
117	transmittal letters printed on buff		
Prices to be in accordance with attached schedule			

adj - 97.74

*175.00
77.26
97.74*

E

PRICE F.O.B. _____ TERMS 2% 10TH OF MONTH FOLLOWING UNLESS OTHERWISE STATED AS PER _____

INVOICE				TRANSPORTATION CHARGES						
PASSED	AMOUNT	PASSED	AMOUNT	Date	CRS. No.	Carrier	Pro. No.	Amt.	Pd	C

THIS COPY FOR
DEPARTMENT

UNIVERSITY OF ILLINOIS
DELIVERY INVOICE - VOUCHER

UNIVERSITY OF ILLINOIS
PURCHASING DIVISION
200 ADMINISTRATION BLDG. (EAST)
URBANA, ILLINOIS

UNIVERSITY ORDER NO.

44827-3

MUST BE GIVEN

PLEASE RENDER INVOICE IN QUADRUPPLICATE ON
THIS FORM AND MAIL ALL COPIES TO THE ABOVE ADDRESS.

5343

PAY TO:

FIRM NAME	Clayton Letter Shop 001006
STREET AND NUMBER	10 Market Street
CITY AND STATE	Urbana, Illinois

DATE April 22, 1959

FIRM INVOICE NO.

TERMS:

net

2% 10th OF MONTH FOLLOWING,
UNLESS OTHERWISE STATED.

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
117	Copies of Quarterly Engineering Report No. 2, Contract # 679 "Research Studies on Problems Related to U.C.M. Antennas" please print on both sides of the paper 25 sets, including six page distribution list and three page Reports Memoranda. Fronts and backs as marked at the top of each mt. 0.25 1.50		37.50
117	copies of the above - gather and bind. 0.25		29.25
2	Complete volume copies of the above. Printed on one side of the paper only. 25 0.10		2.50
117	Transmitted letters printed on letterhead paper		1.20
117	Transmitted letters printed on buff		1.20
			77.25
PAYEE SHOULD NOT WRITE BELOW THIS LINE			

✓

1000-

15 22 25 31 10

032624

REQUISITION

No. 1612-7
~~1572-8~~

Department Requisitioning Electrical Engineering
Office Address

DATE 4-16-59

TO THE DIRECTOR OF PURCHASES:

Please Deliver the Following to 100 Electrical Engineering Research Lab
Room Number Building

5344

Not Later Than _____ Call R. Ripper Ext. 2621 For additional information
Name

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		copies of Quarterly Engineering Report No. 2, Contract AF 6079 "Research Studies on Problems Related to E. C. M. Antennas" please print on both sides of the paper. 25 mats, including six page distribution list and three page Reports Memoranda. Fronts and backs as marked at the top of each mat.	Cost	U. of I. Print Shop	
117		copies of the above - gather and bind.			
2		complete vellum copies of the above. Print on one side of the paper only.			
117		transmittal letters printed on letterhead paper.			
117		transmittal letters printed on buff.	Cost		

Completed 4/30/59

Johnson

APPROPRIATION

I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.

Approved _____

43 22 23 314

AF 33(016)0079

CLASSIFICATION

- 6. Equipment
- 7. Improvements
- 4. Other Expense 4

NO. 10	APPROPRIATION	ENC. NO.	DEPARTMENT NAME
42 22 25 014 27 20 (416) 079	(4)	100	Elec. Eng. 100 Elec. Eng. Res. Lab.

DEPARTMENT REQUISITIONING

DELIVER TO

UNIVERSITY OF ILLINOIS

BUSINESS OFFICE—PURCHASING DIVISION
200 ADMINISTRATION BUILDING (E)
URBANA, ILLINOIS

PURCHASE ORDER

NO. 44824 -3
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE AND SHIPMENTS.

DATE April 21, 1959

TO: Champaign Letter Shop
10-12 Chester Street
Champaign, Illinois

SHIP TO: UNIVERSITY OF ILLINOIS
100 Elec. Engineering Research Lab.
URBANA, ILLINOIS

DELIVERY DESIRED BY: SHIP VIA: (SHIP CHEAPEST WAY UNLESS OTHERWISE SPECIFIED)

QUANTITY	DESCRIPTION	PRICE	AMOUNT
117	copies of Technical Report No. 36 Contract AF33(616)-8079 on "Use of Coupled Waveguides in a Traveling Wave Scanning Antenna" (MacPhie) Print on one side of the paper only.		5632
	71 mats including the preliminary pages, body and distribution list, and three page Report memorandum		
117	copies to be gathered and bound		
2	complete vellum copies. Print on one side of the paper only		
117	transmittal letters: 117 on Letterhead paper and 117 on buff paper		
Prices to be in accordance with attached schedule			
$\begin{array}{r} 250.00 \\ 147.15 \\ \hline 102.85 \end{array}$		<i>Adj - 102.85</i>	

PRICE F.O.B. 2% 10TH OF MONTH FOLLOWING UNLESS OTHERWISE STATED TERMS AS PER

INVOICE				TRANSPORTATION CHARGES						
PASSED	AMOUNT	PASSED	AMOUNT	Date	CRS. No.	Carrier	Pro. No.	Am.	Pd	C
				/						
				/						
				/						

UNIVERSITY OF ILLINOIS
DELIVERY INVOICE - VOUCHER

UNIVERSITY OF ILLINOIS
PURCHASING DIVISION
200 ADMINISTRATION BLDG. (EAST)
URBANA, ILLINOIS

UNIVERSITY ORDER NO.

44824-0

MUST BE GIVEN

PLEASE RENDER INVOICE IN QUADRUPPLICATE ON
THIS FORM AND MAIL ALL COPIES TO THE ABOVE ADDRESS.

PAY TO:

FIRM NAME	General Letter Shop COXCO
STREET AND NUMBER	20 Center Street
CITY AND STATE	Urbana, Illinois

5633

DATE April 27, 1959

FIRM INVOICE NO.

TERMS: Net

2% 10th OF MONTH FOLLOWING,
UNLESS OTHERWISE STATED.

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
117	Copies of Technical Report No. 36, Contract AF33(616)-6079 on "Use of Coupled Invariables in a Travelling Wave Scanning Antenna" (the-110) Printed on one side of the paper only 72 rate including the preliminary pages, body and distribution list, and three page Report remainder @ 1.25		146.75
117	Copies to be gathered and bound @ .40		46.80
2	complete volume copies. Print on one side of the paper only @ .30		7.20
117	Transmitted letters: 117 on letterhead paper and 117 on buff paper		1.50
			(147.15)
PAYEE SHOULD NOT WRITE BELOW THIS LINE			

1000-8

15-12-25 114

032626

REQUISITION

Department Requisitioning Electrical Engineering No. 1609-R
Office Address 100 Electrical Engineering Research Lab DATE 4-16-59
Room Number Building
Please Deliver the Following to 100 Electrical Engineering Research Lab
Room Number Building
Not Later Than _____ Call R. Ripper Ext. 2621 For additional information
Name

QUANTITY	CATALOG NUMBER	ITEM (Give Complete Specifications)	Estimated Cost (If Available)	Suggested Vendor (If Available)	P. O. Number
117		copies of Technical Report No. 36 Contract AF33(616)-6079 on "Use of Coupled Waveguides in a Traveling Wave Scanning Antenna" (MacPhie) Print on one side of the paper only.	Cost ✓	U. of I. Print Shop	
		71 mats including the preliminary pages, body and distribution list, and three page Reports Memorandum	Cost ✓	5634 ✓ Complete 4/30/59	
117		copies to be gathered and bound	Cost ✓		
2		complete vellum copies. Print on one side of the paper only	Cost ✓		
117		transmittal letters: 117 on Letterhead paper and 117 on buff paper	Cost ✓		
		Johnson			E

<p>APPROPRIATION</p> <p>I hereby certify that there is an unobligated balance available for the above expenditures in the appropriation indicated.</p> <p>Approved _____</p>	<p>48 22 25 314</p> <p>AF 33(616)6079</p>	CLASSIFICATION	
		6. Equipment	
		7. Improvements	
		4. Other Expense	4

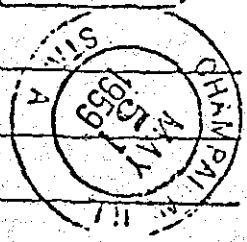
POSTAL RECEIPTS

Date May, 1957

RECEIVED of Contract 6079

\$ 13.30

for parties on reports



5115

Postmaster

By [Signature]

UNIVERSITY BOOK STORE

Phone Fleetwood 2-5726 **610** 610 E. DANIELS ST.

CHAMPAIGN, ILLINOIS

QUAN.	DESCRIPTION	Amount
1	Folder	3.20
	AK-6079	
	J. R. [Signature]	

PLUS SALES TAX

Sold by <u>[Signature]</u>	CASH <input checked="" type="checkbox"/>	CHARGE <input type="checkbox"/>	ON ACCT. <input type="checkbox"/>	MOSE. REID. <input type="checkbox"/>	TOTAL
----------------------------	--	---------------------------------	-----------------------------------	--------------------------------------	-------

Customer's Order No. 15-14 1959

Sold To _____

Address _____

C 6486 Received By [Signature]

ALL BILLS MUST BE PAID WITHIN 30 DAYS.

PINK - FOR CUSTOMER

13.30:
3.20:
16.50 H

**UNIVERSITY OF ILLINOIS
MISCELLANEOUS VOUCHER**

5114

The University department will prepare in quadruplicate
and mail three copies to
UNIVERSITY OF ILLINOIS
Accounting Division
257 Administration Bldg. (W)
Urbana, Illinois

This Copy
for
Accounting
Division

Pay to:

Richard Ripper	
NUMBER	STREET
209 Elec. Eng. Res. Lab.	
CITY	STATE
Urbana	Ill.

DATE 5-20-59 UNIVERSITY DEPARTMENT Elec. Eng.

QUANTITY	DESCRIPTION	AMOUNT
	postage on reports	13 30
	folder	3 20
	Total	16 50

W. H. Weston

Richard Ripper

ACCOUNT CODE NUMBER **46 22 25 314** *eco. form*
 APPROPRIATION **AF 33(616)6079** *81531*

EXPENSE *4* FUND *1* VOUCHER NUMBER **033163**

I certify that no requisition has been issued, and that there is an unobligated balance available for the above expenditure in the appropriation indicated.

EXTENSION *7* FOR CHIEF ACCOUNTANT *[Signature]*
 POSTED

APPROVED *[Signature]*

MAY 26 1959

**UNIVERSITY OF ILLINOIS
MISCELLANEOUS VOUCHER**

This Copy
for
Department

Pay to:

Richard Meyer	
NAME	
220 Elec. Eng. Bldg. Lab.	
NUMBER	STREET
Urbana,	Ill.
CITY	STATE

5635

DATE 5-20-59

UNIVERSITY DEPARTMENT Elec. Eng.

QUANTITY	DESCRIPTION	AMOUNT
	postage on reports	13 30
	folder	3 20
	Total	16 50

46 22 25 314

AF 33(616)6079

033163

US AF 6079

46-22-25-314

JUN 1959

1

FORM 503

REQUISITION OR SALES INVOICE NO.	ACCOUNT TITLE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE
	FROM PREV MONTH			85255.32	100000.00	14744.68
	IND COST CHARGE	4	JV 209	1897.38		
	46-22-25-314 JUN PAYROLL	01		5093.63		
1751R	THE NARDA MICROWAVE CORP	4	T 034495	24.16		
1817R	NEWARK ELECTRIC CO	4	T 035305	29.87		
1541R	CROSSELEY ASSOCIATES INC	4	T 035324	19.79		
	RICHARD RIPPER	4	T 036494	2.84		
14R	DEPKE WELDING SUPPLIES	4	T 036911	5.40		
1854R	STEVENS-ARNOLD INC	4	T 039395	43.84		
	RICHARD RIPPER	4	T 039916	8.12		
	GEORGES A DESCHAMPS	3	T 041608	186.75		
	EMPLRS CONTRIB FUND 300713	04	T 64866	254.91		
	OFFICE SUPPLY STORE	4	OS 022968	X2.31		
	OFFICE SUPPLY STORE	4	OS 023381	X1.85		
	OFFICE SUPPLY STORE	4	OS 023449	X19.80		
	ELEC ENG REPL	4	ER 024332	19.48		
	ELEC ENG REPL	4	ER 024344	70.76		
	ELEC ENG REPL	4	ER 028017	13.51		
	ELEC ENG REPL	4	ER 028040	7.42		
	ELEC ENG REPL	4	ER 028144	17.54		
	ELEC ENG REPL	4	ER 028165	25.59		
	ELEC ENG REPL	4	ER 028190	11.53		
	ELEC ENG REPL	4	ER 028304	4.07		
	PHYSICS STORES	4	PC 001674	X6.30		
	PHYSICAL PLANT STORES	4	PS 080789	X1.71		
	BLUEPRINTING PHOTOGRAPHY	4	BL 000025	X13.50		
	BLUEPRINTING PHOTOGRAPHY	4	BL 000357	X14.70		
	BLUEPRINTING PHOTOGRAPHY	4	BL 000689	X36.00		
	BLUEPRINTING PHOTOGRAPHY	4	BL 000819	X18.00		
	BLUEPRINTING PHOTOGRAPHY	4	BL 009090	X2.50		
	BLUEPRINTING PHOTOGRAPHY	4	BL 009877	X6.66		
	COMPUTER SERVICE	4	CS 020921	X64.75		
	COMPUTER SERVICE	4	CS 020940	X96.25		
	ILLINI UNION	4	IU 004649	X3.23		
	ILLINI UNION	4	IU 004651	X.84		
45951	P A HUNT	4	FT 031784	3.41	3.41	
	DYSON-NUSSBAUM	4	TG 000610	1.40	1.40	
00495	513 MAYES DAYTON O	03	CP 05-04	29.70		
	TELEPHONE CHARGES	4	TL	18.55	18.55	
	WK COMP FOR JUNE 0509363	04		50.94		
	UNBILLED EXPEND 6-30-59		JV 225		8128.93	
	INCOME DEFERRED TO 59-60		JV 225		14744.68	
				<i>supplies -</i>	288.40	
				<i>telephone + telegrams -</i>	19.95	
				<i>freight -</i>	3.41	
					<u>311.76</u>	

EXPLANATION OF CLASS NUMBERS

- 1-SALARIES
- 2-WAGES
- 3-TRAVEL
- 4-COMMODITIES
- 5-CONTRACTUAL
- 6-EQUIPMENT
- 7-IMPROVEMENTS
- 8-LAND

EXPLANATION OF ABBREVIATIONS

- AC-ANALOG COMPUTER
- AT-AIR TRAVEL
- BD-BIOL DRAFTING
- BL-BLUEPRINTING
- CP-CAR POOL
- CR-CASH RECEIPT
- CS-COMPUTER SER
- EC-EMPLOYERS CONT
- ER-ELEC ENG. REPL
- EX-EXPRESS
- FE-FEDERAL EXT.
- FR-FEDERAL RES.
- FS-FEED STORAGE
- FT-FREIGHT
- G-GENERAL
- GA-GRAPHIC ARTS
- GB-GLASSBLOWING
- GC-GEN. CHEM STORES
- IS-INSTRUMENT SER
- IU-ILLINI UNION
- JV-JOURNAL VOUCHER
- LH-LIQUID HELIUM
- MG-MIMEOGRAPHING
- MI-MISCELLANEOUS
- MR-MACHINE REPAIR SER
- MS-MAILING SER
- OS-OFFICE SUPPLY STORE
- PC-PHYSICS STORES
- PH-PHOTOGRAPHY
- PI-PP JOB
- PO-POSTAGE
- PR-PRINTING
- PS-PP STORES
- PY-PHYSICS SER
- RS-RECORDING SER
- S-STORES & SERVICE
- SG-STENOGRAPHIC SER
- SI-SALES INVOICE
- T-TRUST
- TO-TELEGRAMS
- TL-TELEPHONE
- TS-TABULATING SER
- TV-TRANSFER
- TY-TELETYPE
- UC-UNCLASSIFIED
- UP-UNIV PRESS ART SER.
- WC-WORKING CASH

5636

TOTALS TO DATE

SALARIES	WAGES	EXPENSE	EQUIPMENT	EXPENDITURES	CREDITS	END OF MONTH BALANCE
58395 76		33929 15	1059 34	93384.25	93384.25	

AF 6079 IC

45-22-25-314

JUN 1959

1

ACCOUNT TITLE

ACCOUNT NUMBER

DATE

PAGE

REQUISITION OR SALES INVOICE NO.	ARTICLES OR PAYEE	CLASS	BUSINESS OFFICE NUMBER	EXPENDITURES	CREDITS	BALANCE							
	FROM PREV MONTH IND COST CREDIT INDIRECT COST DISTR		JV 209 JV 193	8.00	11710.54 1897.38 4442.22-	11702.54							
<p>EXPLANATION OF CLASS NUMBERS</p> <p>1-SALARIES 2-WAGES 3-TRAVEL 4-COMMODITIES 5-CONTRACTUAL 6-EQUIPMENT 7-IMPROVEMENTS 8-LAND</p> <p>EXPLANATION OF ABBREVIATIONS</p> <p>AC-ANALOG COMPUTER AT-AIR TRAVEL BD-BIOL DRAFTING BL-BLUEPRINTING CP-CAR POOL CR-CASH RECEIPT CS-COMPUTER SER EC-EMPLOYERS CONT ER-ELEC ENG. REPL EX-EXPRESS FE-FEDERAL EXT. FR-FEDERAL RES. FS-FEED STORAGE FT-FREIGHT G-GENERAL GA-GRAPHIC ARTS GB-GLASSBLOWING GC-GEN. CHEM STORES IS-INSTRUMENT SER IU-ILLINI UNION JV-JOURNAL VOUCHER LH-LIQUID HELIUM MG-MIMEOGRAPHING MI-MISCELLANEOUS MR-MACHINE REPAIR SER MS-MAILING SER OS-OFFICE SUPPLY STORE PC-PHYSICS STORES PH-PHOTOGRAPHY PJ-PP JOB PO-POSTAGE PR-PRINTING PS-PP STORES PY-PHYSICS SER RS-RECORDING SER S-STORES & SERVICE SG-STENOGRAPHIC SER SI-SALES INVOICE T-TRUST TG-TELEGRAMS TL-TELEPHONE TS-TABULATING SER TV-TRANSFER TY-TELETYPE UC-UNCLASSIFIED UP-UNIV. PRESS ART SER. WC-WORKING CASH</p>													
TOTALS TO DATE						5637							
SALARIES		WAGES		EXPENSE		EQUIPMENT		EXPENDITURES		CREDITS		END OF MONTH BALANCE	
				8 00				8.00		9165.70		9157.70	

POSTAL RECEIPTS

ILLINOIS
VOUCHER

RECEIVED

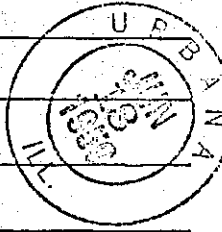
JAN 5 1967

Date June 18, 1959 re in quadruplicate to DIS (W)

E. E. BHS. OFF
**This Copy
for
Accounting
Division**

RECEIVED of Contract 6679

\$ 152.82
for Postage on slides



Postmaster
By J. L. Dilley

Arch Lab
STREET
Illinois
STATE

DATE 6-18-59 UNIVERSITY DEPARTMENT Electrical Engineering

QUANTITY	DESCRIPTION	AMOUNT
	Postage on slides	2 82
	Bottle of processing solution	1 95
	Tubes	3 35
	Total	8 12

15638

**RECEIVED
ACCOUNTING DIVISION**

JUN 23 1959

AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Richard Ripper

ACCOUNT CODE NUMBER	EXPENSE	FUND	VOUCHER NUMBER
APPROPRIATION 46 22 25 314 <small>AF 33(616)G76</small>	<i>4</i>	<i>7</i>	<i>66636</i>
	EXTENSION	FOR CHIEF ACCOUNTANT	<i>E. E. BHS.</i>

I certify that no requisition has been issued, and that there is an unobligated balance available for the above expenditure in the appropriation indicated.

APPROVED H. B. Lawler *C. C. DePue*

POSTED *[initials]*

JUN 24 1959

**UNIVERSITY OF ILLINOIS
MISCELLANEOUS VOUCHER**

5113

The University Department will prepare in quadruplicate
and mail three copies to
UNIVERSITY OF ILLINOIS
Accounting Division
257 Administration Bldg. (W)
Urbana, Illinois

This Copy
for
Accounting
Division

Pay to:

Richard Ripper NAME
209 Electrical Engineering Research Lab NUMBER STREET
Urbana CITY Illinois STATE

DATE 8-25-59

UNIVERSITY DEPARTMENT Electrical Engineering

QUANTITY	DESCRIPTION	AMOUNT
	Postage	36 18
1	Protractor	
1	Protractor	3 35
	Total	39 53

RECEIVED
ACCOUNTING DIVISION

AUG 26 1959

AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Richard Ripper

46 22 25 314

ACCOUNT CODE NUMBER	AF 33(616)6079	EXPENSE	FUND	VOUCHER NUMBER
APPROPRIATION	<i>eeo. long / alj</i> Bursar			054206
I certify that no requisition has been issued, and that there is an unobligated balance available for the above expenditure in the appropriation indicated.		EXTENSION	FOR CHIEF ACCOUNTANT	
APPROVED		POSTED	<i>[Signature]</i>	
<i>H B Lawler</i>			AUG 28 1959	

THE U. of I. SUPPLY STORE BOOKS

STATIONERY, ART AND ATHLETIC SUPPLIES

625-31 S. WRIGHT ST.

PHONE 6-1369

No. _____ Champaign, Ill. Aug 18 1959

Sold to EE Research Lab

Address _____

QUAN.	DESCRIPTION	AMOUNT
1	protractor	1.25
1	"	1.00
		(3.25)
	paid	
	26	
	AF 6079	
	R. Carrel	

Received by J. D. Kessler

POSTAL RECEIPTS

Date 21 Aug 1959

RECEIVED of Contract 6079

\$ 36.18

for postage on TR # 37, 38, 39 & QER # 3

JOHN THEODORE, Postmaster, Urbana, Illinois

By J. L. Kelley
Postmaster

27 April 1959

5639

Dear Sir:

In accordance with contract requirements, attached please find copies
each of

Technical Report No. 36, "Use of Coupled Waveguides In a Traveling
Wave Scanning Antenna" by Robert H. MacPhie.

Quarterly Engineering Report No. 2, "Research Studies on Problems
Related to ECM Antennas"

issued by our Antenna Laboratory under Contract AF33(616)-6079. Project
number is 9(13-6278), Task 40572, and the sponsor is the Wright Air Develop-
ment Center.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
210 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:sk

15 February 1962

Aeronautical Systems Div.
Attn: (ASRNRE-4)
Wright-Patterson Air Force Base
Ohio

5640

Dear Sir:

In accordance with contract requirements, we are sending you one ³(1) copy of Quarterly Engineering Report No. 13 on "Research Studies on Problems Related to ECM Antennas," for the period 1 September 1961 to 30 November 1961, issued under contract AF33(616)-6079.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
205 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:ss

cc: *Mr. H. B. Fowler*
Mr. F. X. Finnigan

FOR INFORMATION OF

Lawler 6079

12 December 1961

5641

Commander
Aeronautical Systems Division
Wright-Patterson Air Force Base
Ohio

Attention: ASENRE-4

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you two (2) copies of the October Monthly Progress Report on "Broadbanding, Pattern Synthesis, and New Radiating Structures," issued under the subject contract.

Sincerely,

G. A. Deschamps
Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

GAD:bsc

Enclosure

cc: ASD, Attn: ASKES
ONR, Chicago
F. X. Finnigan
H. B. Lawler

FOR INFORMATION OF

Lawler

31 October 1961

5042

Commander
Aeronautical Systems Division
Wright-Patterson Air Force Base
Ohio

Attention: ASRNRE-4

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you two (2) copies of the September Monthly Progress Report on "Broadbanding, Pattern Synthesis, and New Radiating Structures," issued under the subject contract.

Sincerely,

G. A. Deschamps
Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

GAD:bsc
Enclosure

cc: ASD, Attn: ASKCE
ONR, Chicago
F. X. Finnigan
H. B. Lawler

ABJ

11 September 1961

Aeronautical Systems Div.
Attn: (ASRNRE-4)
Wright-Patterson Air Force Base
Ohio

5643

Dear Sir:

In accordance with contract requirements please find enclosed ^{10 copies} ~~one~~ ~~(1)~~ copy of Quarterly Engineering Report No. 11 on "Research Studies on Problems Related to ECM Antennas," for the period 1 March 1961 to 1 June 1961, issued under contract AF33(616)-6079.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
205 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:ss

Enclosure

cc: *H. B. Gaudes*
D. X. Finnigan

H. B. Gaudes

29 August 1961

5644

Commander
Aeronautical Systems Division
Wright-Patterson Air Force Base
Ohio

Attention: ASTRIDE-4

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the July Monthly Progress Report on "Broadbanding, Pattern Synthesis, and New Radiating Structures," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Hayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEH:jh

Enclosure

cc: ASD, Attn: ASTRIDE
ASD, Chicago
F. X. Finnigan
H. B. Lawler

26 July 1961

5645

Commander
Aeronautical Systems Division
Wright-Patterson Air Force Base
Ohio

Attention: ASRNRE-4

Re: Contract AF33(615)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the June Monthly Progress Report on "Broadbanding, Pattern Synthesis, and New Radiating Structures," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PE:as

Enclosure

cc: ASD, Attn: ASKCE
ONR, Chicago
F. X. Finnigan
H. B. Lawler

BL

19 June 1961

5646

Commander
Aeronautical Systems Division
Air Force Systems Command
Wright-Patterson Air Force Base, Ohio

Attention: ASRNRE-4

Re: Contract AF33(616)-6070

Dear Sir:

In accordance with contract requirements, we are forwarding to you the April Monthly Progress Report on "Broadbanding, Pattern Synthesis, and New Radiating Structures," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:jk

Enclosure

cc: ASD, Attn: ASKCE
ONR, Chicago
F. X. Finnigan
H. B. Lawler

5647

8 February 1961

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attention: WCLRS-A

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the December Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:ss

Enclosure

cc: WADC, Attn: WCKCE
ONR Chicago
F. X. Finnigan
H. B. Lawler

HBL.

5648

7 February 1961

Wright Air Development Div.
Attn: WWDBEG, Mr. Nicholas C. Draganjac
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, please find enclosed one (1) copy of Quarterly Engineering Report No. 9, "Research Studies on Problems Related to ECM Antennas", by P. E. Mayes and G. A. Deschamps, dated 31 December 1960, sponsored by Wright Air Development Center, under contract number AF33(616)-6079.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
205 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:bsc
Enclosure

cc: H.B. Lawler

HBL

FOR INFORMATION OF

6079

5649

29 November 1960

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attention: WCLRS-A

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the October Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:ss

Enc.

cc: WADC, Attn: WCKCE
CNR Chicago
P. X. Finnigan
H. B. Lawler

HBL

5650

10 November 1960

Wright Air Development Div.
Attn: WWDBEG, Mr. Nicholas C. Draganjac
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, enclosed please find one copy of Quarterly Report No. 8, "Research Studies on Problems Related to ECM Antennas," Sponsored by Wright Air Development Center for the period 1 June 1960 to 1 September 1960 and issued under Contract No. AF33(616)-6079.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
205 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:jk

Encl

cc: *F. X. Finnigan*
H. B. Fowler ✓

HBS

5651

18 November 1960

Wright Air Development Div.
Attn: WWDBEG, Mr. Nicholas C. Draganjac
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, please find enclosed one (1) copy of Technical Report No. 47, "Logarithmically Periodic Resonant-V Arrays," by Paul E. Mayes and Robert L. Carrel, dated 15 July 1960, sponsored by Wright Air Development Center, under contract number AF33(616)-6079.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
205 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:ss

Enclosure

cc: *F. X. Finnigan*
H. B. Fowler ✓

H.B.F.

5652

22 February 1961

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attention: WCLRE-A

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the January Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:es

Enclosure

cc: WADC, Attn: WCKCB
CNR Chicago
F. X. Finnigan
H. B. Lawler

5653

21 June 1960

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attn: WCLRS-A

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the June Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:aa

Enc.

cc: WADC, Attn: WCKCE
ONR Chicago
F. X. Finnigan
H. B. Lawler ✓

Handwritten signature

5654

15 July 1960

Wright Air Development Division
ATTN: WWRNRE-4, E.M. Turner
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, enclosed please find ^{2 copies} ~~one copy~~ of Quarterly Engineering Report No. 7 on "Research Studies on Problems Related to ECM Antennas", for the period 1 March 1960 to 1 June 1960, sponsored by Wright Air Development Center and issued under Contract No. AF33(616)-6079.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
205 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:sk

Encl.

cc: *D. X. Dunigan*
H. B. Lander

HBL

Jo Lawler

5655

May 23, 1960

Re: Contract No.
AF33(616)-6079

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, we are forwarding to you the April Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas", issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:san

Enclosure

CC: WADC, ATTN: WORCE
OMR Chicago
F. X. Finnigan
✓H. B. Lawler

HBL

6079

5656

April 25, 1960

6079

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, we are forwarding to you the March Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas", issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Hayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:san
Enclosure
CC: WADC, ATTN; WCKCE
ONR Chicago
F. X. Finnigan
✓ H. B. Lawler

HBL

6079

3657

Commander
Wright Air Development Division
ATTN: E. M. Turner (WCLRRB)
Wright-Patterson Air Force Base, Ohio

27 April 1960

Dear Sir:

In accordance with contract requirements, enclosed please find ^{two} one copy of Quarterly Engineering Report on "Research Studies on Problems Related to ECM Antennas," sponsored by Wright Air Development Center for the period 1 December 1959 to 1 March 1960 and issued under Contract No. AF33(616)-6079. The Project No. is 9-(13-6278), the Task is 40572. This is the sixth quarterly report.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
210 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:sk

Encl.

cc: *J. X. Finnegan*
H. B. Hawler

FOR INFORMATION OF

H. B. Lawler

5658

February 24, 1960

6079

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attn: WCLAS-A

Dear Sir:

In accordance with contract requirements, we are forwarding to you the January Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

F. E. Hayes
Associate Professor
Electrical Engineering Research
Laboratory
University of Illinois
Urbana, Illinois

PEM:san

Enc.

CC: WADC, ATTN: WCLAS-A
ONI Chicago
F. X. Finnigan
H. B. Lawler

5659

15 February 1960

Commander
Wright Air Development Division
ATTN: E. M. Turner (WCLRRB)
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, enclosed please find ^{two copies} ~~one copy~~ of Quarterly Engineering Report No. 5 on "Research Studies on Problems Related to ECM Antennas." This report is issued under Contract No. AF33(616)-6079, Project No. 9-(13-6278) Task 40572, and is sponsored by Wright Air Development Center.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
210 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:sk

cc: J. X. Amador
H. B. Lawler

6079
212 Electrical Engineering
Research Laboratory
February 18, 1960

5660

Professor W. E. Miller
156 E. E. Building

Professor Miller:

Attached are seven copies of a Disclosure of Invention and Letter of Transmittal entitled, "All-Channel TV and FM Receiving Antenna." This disclosure has been prepared by Professor P. E. Mayes and Mr. Robert L. Carrel. This is the invention for which support was recently requested from the University of Illinois Foundation. Will you please transmit all copies along with the recommendation of the Department Head to Mr. C. C. DeLong, Secretary, Patent Committee.

Harold B. Lawler
Laboratory Manager

HBL:mag

5661

January 27, 1963

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attn: WCLMS-A

Re: Contract AF33(616)-6379

Dear Sir:

In accordance with contract requirements, we are forwarding to you the December Monthly Progress Report on Research Studies on Problems Related to ECM Antennas, issued under the subject contract. Attached please find two copies.

Sincerely,

P.E. Hayes
Associate Professor
Electrical Engineering Research
Laboratory
University of Illinois
Urbana, Illinois

PEM:aa

Enc.

cc: WADC, Attn: WCECS

CNR Chicago

F. K. Finnigan

✓ H. B. Lawler

5662

January 27, 1960

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Chicago

Attn: WCLRS-A

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the December Monthly Progress Report on Research Studies on Problems Related to ECM Antennas, issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Hayes
Associate Professor
Electrical Engineering Research
Laboratory
University of Illinois
Urbana, Illinois

PEM:aa

Enc.

cc: WADC, Attn: WCHCE

ONR Chicago

F. K. Finnigan

✓ H. B. Lawler

6079

November 27, 1959

5663

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attn: WCLRS-A

Re: Contract AF33(616)-6079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the October Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas" issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering Research
Laboratory
University of Illinois
Urbana, Illinois

PJM:ea
Enc.

cc: WADC, Attn: WCKCE
ONR Chicago
F. X. Finnigan
H. B. Lawler

5664

6 November 1959

Commander
Wright Air Development Center
Attn: WCLRS-A, Mr. W. J. Portune
Wright-Patterson Air Force Base, Ohio

Dear Sir:

In accordance with contract requirements, attached please find one copy of Quarterly Engineering Report on Research Studies on Problems Related to ECM Antennas issued on Contract No. AF33(616)-6079. Project number is 9-(13-6278), Task 40572, and the sponsor is the Wright Air Development Center.

Sincerely,

Marge Johnson

(Miss) Marge Johnson
Technical Editor
210 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:sk

Encl.

H. L. Frumgar
R. B. Lauder

27 October 1955

5665

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Re: Contract AF32(616)-6079

Attn: WCLRS-A

Dear Sir:

In accordance with contract requirements, we are forwarding to you the September Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Hayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:sk

Encl.

cc: WADC, Attn: WCSCS
ONR Chicago
F. X. Finnigan
H. B. Lawler

5666

August 13, 1959

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Attn: NCLRS-6

Re: Contract AF32(616)-0079

Dear Sir:

In accordance with contract requirements, we are forwarding to you the July Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P. E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:ds

Enc.

cc: WADC, Attn: WCECE
ONR Chicago
F. X. Finnigan
H. B. Lawler
P. E. Mayes

5667

21 August 1959

Armed Services Technical
Information Agency
Arlington Hall Station
Arlington 12, Va.

Dear Sir:

In accordance with contract requirements, attached please find ^{10 ~~of~~ 1 report} one copy each of

Quarterly Engineering Report No. 2, "Research Studies on Problems Related to ECM Antennas,"

Technical Report No. 37, "On the Solution of a Class of Wiener-Hopf Integral Equations in Finite and Infinite Ranges," by Raj Mittra.

Technical Report No. 38, "Prolate Spheroidal Wave Functions for Electromagnetic Theory," by Walter L. Weeks.

Technical Report No. 39, "Log Periodic Dipole Arrays," by Dwight E. Isbell.

issued by our Antenna Laboratory under Contract AF33(616)-6079 Project number is 9-(13-6278), Task 40572, and the sponsor is the Wright Air Development Center.

Sincerely,

Marge Johnson
(Miss) Marge Johnson
Technical Editor
210 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:sk

L. X. Linnigan
A. B. Lawler

5668

21 July 1959

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Re: Contract AF32(616)-6079

Attn: WCIRS-6

Dear Sir:

In accordance with contract requirements, we are forwarding to you the June Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P.E. Hayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEH:sk

Encl.

cc: WADC, Attn: WCIRS
Chicago
F.K. Finnigan

FOR INFORMATION OF ~~Air~~ Electrical Engineering
Research Laboratory
June 19, 1959

Mr. R. E. Gentry
100b Administration

5669

Ref: AF33(616)-6079

Mr. Gentry:

Accompanying this letter is a Disclosure of Invention prepared by Mr. D. E. Isbell of the Department of Electrical Engineering. Seven copies of the University letter of transmittal and three copies each of forms NAVEXOS 2374 and NAVEXOS 2375. There is also included five copies of Technical Report No. 59 on the subject contract in which this invention is described in detail. It is my understanding that two copies of this report are required by the University Patent Committee and three copies for the Department of Defense.

Will you please execute these documents at your earliest convenience.

Harold B. Lawler
Laboratory Manager

HBL:mat

cc: F.X. Finnigan
P.E. Mayes

H.B. Lawler

210 E.E.R.L.

3 February 1959

5670

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

ATTN: WCLRS-6, Mr. F.E. Burnham

Dear Sir:

In accordance with contract requirements, attached please find 3 copies of Quarterly Engineering Report No. 1, "Research Studies on Problems Related to Antennas," issued by our Antenna Laboratory under Contract AF33(616)-6079. Project number is O(18-6278) Task 40572, and sponsor is the Wright Air Development Center.

Sincerely,

(Miss) Marge Johnson
Technical Editor
210 Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

MJ:dm

cc: F.X. Finnigan
H.B. Lawler

All copies of this report have been distributed in accordance with instructions received from Wright Air Development Center, Wright-Patterson Air Force Base, Ohio.

29 January 1963

5671

Commander
Wright Air Development Center
Wright-Patterson Air Force Base, Ohio

Re: Contract AF33(616)-6079

ATTN: WC123-6

Dear Sir:

In accordance with contract requirements, we are forwarding you the January Monthly Progress Report on "Research Studies on Problems Related to ECM Antennas," issued under the subject contract. Attached please find two copies.

Sincerely,

P.E. Mayes
Associate Professor
Electrical Engineering
Research Laboratory
University of Illinois
Urbana, Illinois

PEM:da

cc: WADC, Attn: WC123
OER, Chicago
F.X. Finnigan

PART I - STATEMENT OF WORK

A. The Contractor shall, within the period of time set forth in PART II hereof, provide the necessary personnel, facilities, materials and supplies and shall perform antenna research in accordance with the following:

1. Attachment I, dated 7 July 1958, attached hereto and made a part hereof.

B. The Contractor shall, as a result of the work accomplished in accordance with the requirements of Paragraph A above, and in accordance with the schedule set forth in PART II hereof, submit the following ITEMS:

1. ITEM I - Monthly Progress Reports - in two (2) copies containing a brief outline of the status of the project and a discussion bearing upon the approach to the objectives specified herein, including both positive and negative results obtained during the reporting period.
2. ITEM II - Quarterly Engineering Reports - in ninety (90) copies, one (1) copy of which shall be in a reproducible form prepared in accordance with ARDC Manual 5-1, dated June 1957, and using as a guide Exhibit WCLR 519, dated 8 October 1957, both incorporated by reference. A copy of the distribution list mentioned in PART II hereof shall be bound into each copy of the report by the Contractor.
3. ITEM III - Final Engineering Report - in ninety (90) copies, one (1) copy of which shall be in a reproducible form prepared in accordance with ARDC Manual 5-1, and using as a guide Exhibit WCLR 519. A copy of the distribution list mentioned in PART II hereof shall be bound into each copy of the report by the Contractor.

C. The Contractor shall prepare in three (3) copies a letter of transmittal which shall be submitted concurrently with each Item delivered under this contract. The Letter of Transmittal which accompanies the Monthly Progress Report shall contain an indication as to the percentage of completion of the total work required as of the end of the reporting period. The Contractor shall certify in the letter of transmittal which accompanies the Quarterly and Final Engineering Reports that the other copies of the reports have been distributed to the destinations outlined in the distribution list. The Letter of Transmittal shall be submitted in accordance with instructions contained in PART II hereof.

D. All Items required herein shall bear the Contract Number and Task Number designated on the cover page of this contract.

PART II - TIME OF PERFORMANCE AND DELIVERY INSTRUCTIONS

A. The Contractor shall commence performance of the work set forth herein on or after 1 September 1958 and shall deliver the items required by PART I hereof in accordance with the following schedule:

1. ITEM I - Monthly Progress Reports - The first report shall be submitted no later than 20 October 1958 and each subsequent report shall be submitted monthly thereafter for the duration of the contract.

05040

2. ITEM II - Quarterly Engineering Reports - The first report shall be submitted no later than 31 December 1958 and each subsequent report shall be submitted quarterly thereafter for the duration of the contract.
3. ITEM III - Final Engineering Report - shall be submitted on or before 31 October 1959.

B. The Contractor shall submit by prepaid mail all items required by PART I hereof as follows:

1. ITEM I to: Commander
Wright Air Development Center
ATTN: WCLRS-6, Contract AF 33(616)-6079
Wright-Patterson Air Force Base, Ohio
2. ITEM II and ITEM III shall be distributed in accordance with a distribution list to be furnished by the Aerial Reconnaissance Laboratory.

C. The Contractor shall forward the three (3) copies of the Letter of Transmittal called for herein to the following: One (1) copy to accompany the ITEM submitted to the Laboratory; one (1) copy to the Administrative Office designated on the cover page of this contract; and one (1) copy to Commander, Wright Air Development Center, ATTN: WCLRO-3, Wright-Patterson Air Force Base, Ohio

PART III - CONSIDERATION AND PAYMENT

A. The estimated cost of this contract as contemplated by the General Provisions is ONE HUNDRED THOUSAND DOLLARS AND NO CENTS (\$100,000.00).

B. The Contractor shall be reimbursed for overhead expense during each overhead period at a provisional rate, applicable to direct salaries and wages, including vacation, holidays and sick leave allowance; subject, however, to the provisions of the Clause hereof entitled "Negotiated Overhead Rates". The rate for the first period is 37.25%. The first period shall extend from the inception of this Contract through 31 August 1959, and subsequent periods shall be of 12 months duration each.

PART IV - INSPECTION AND ACCEPTANCE

A. The Aerial Reconnaissance Laboratory, WCLR, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio, is hereby designated as the point for final inspection and acceptance of all ITEMS required herein.

PART V - ADVANCE PAYMENTS

A. Advance Payments will be made for the work called for hereunder in accordance with the Findings and Authorization signed by the Assistant Secretary of the Air Force on 7 August 1953. Payments made pursuant to this clause shall be governed

B

AF 33(616)-6079

FIRST: The Provisions of this Schedule shall become effective 28 October 1960.

SECOND: By amending PART I - STATEMENT OF WORK as follows:

A. By adding to Paragraph A, subparagraph 3 as follows:

"3. Exhibit B, dated 1 June 1960, attached hereto and made a part hereof."

B. By making inapplicable subparagraphs 2 and 3 of Paragraph B and Making applicable in lieu thereof the following new subparagraphs 2 and 3, as follows:

"2. ITEM II - Quarterly Engineering Reports - in one hundred seventy-five (175) copies, prepared in accordance with ARDC Manual 5-1, dated June 1957, and using as a guide Exhibit WCLR-519, dated 8 October 1957, both incorporated herein by reference. A copy of the distribution list mentioned in PART II hereof shall be bound into each copy of the report by the Contractor.

"3. ITEM III - Final Engineering Report - in one hundred seventy-five (175) copies, one (1) copy of which shall be in a reproducible form prepared in accordance with ARDC Manual 5-1, and using as a guide Exhibit WCLR-519. A copy of the distribution list mentioned in PART II hereof shall be bound into each copy of the report by the Contractor."

THIRD: By amending PART II - TIME OF PERFORMANCE AND DELIVERY INSTRUCTIONS as follows:

A. By extending the date as set forth in Paragraph A.3 from "30 September 1960" to "30 September 1961".

FOURTH: By amending PART III - CONSIDERATION AND PAYMENT as follows:

A. By increasing the estimated cost set forth in Paragraph A by ONE HUNDRED NINETEEN THOUSAND NINE HUNDRED EIGHTY-NINE DOLLARS AND NO CENTS (\$119,989.00), thereby reflecting a new total estimated cost of THREE HUNDRED THIRTY-NINE THOUSAND NINE HUNDRED THIRTY-NINE DOLLARS AND NO CENTS (\$339,939.00).

FIFTH: By revising PART VII - SPECIAL PROVISIONS to read as follows:

"A. Notwithstanding any of the provisions of this contract, the Contracting Officer shall be the only individual authorized to redirect the effort or in any way amend any of the terms of this contract.

"B. FINANCIAL STATUS REPORT OF CONTRACT

1. Notwithstanding the provisions of the Clause of the General Provisions hereof entitled 'Financial Status Report of Contract', information called for in block Item 17 on the DD Form 1097 is not required.

GENERAL PROVISIONS
TO
CONTRACT AF 33(616)-6079

ARTICLE I - GENERAL TERMS AND CONDITIONS

A. All of the clauses of Section A of the Basic Agreement designated Contract AF 18(600)-2370, dated 30 December 1960, between the parties hereto, referred to hereinafter as the "Basic Agreement", are incorporated by reference.

B. For the purposes of this contract Clause A.13 entitled, "Nondiscrimination in Employment" incorporated in the above referenced Basic Agreement is made inapplicable, and a new Clause A.13 entitled, "Nondiscrimination in Employment", (April 1961) attached hereto is now made applicable.

ARTICLE II - SPECIAL TERMS AND CONDITIONS

A. In addition to the clauses designated by ARTICLE I above, the following clauses of Section B of the Basic Agreement are incorporated by reference:

1. Clause B-1 Financial Management Report
2. Clause B-3 Advance Payments

B. The Patent Indemnity (Not Predetermined) clause referenced in PART VIII of the Schedule is hereby designated as Clause C-1 and is attached hereto and made a part hereof.

LAW OFFICES

HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

20 NORTH WACKER DRIVE

CHICAGO 60606

TELEPHONE
FINANCIAL 6-1630
AREA CODE 312

AXEL A. HOFGREN
ERNEST A. WEGNER
JOHN REX ALLEN
WILLIAM J. STELLMAN
JOHN B. McCORD
BRADFORD WILES
JAMES C. WOOD
STANLEY C. DALTON
RICHARD S. PHILLIPS
LLOYD W. MASON
TED E. KILLINGSWORTH
CHARLES L. ROWE
JAMES R. SWEENEY
W. E. RECKTENWALD
J. R. STAPLETON

WILLIAM R. McNAIR
JOHN P. MILNAMOW
DILLIS V. ALLEN
W. A. VAN SANTEN, JR.
JOHN R. HOFFMAN

May 4, 1967

RECEIVED
MAY 8 1967
RINES AND RINES
NO. TEN POST OFFICE SQUARE, BOSTON

Mr. Robert H. Rines
Rines and Rines
No. Ten Post Office Square
Boston, Massachusetts 02109

Dear Bob:

I borrowed from Mike Cass a collection of the periodicals listed in their notice of prior art. I considered making copies only of the report pages on which they intend particularly to rely. However, after examining the reports, I thought it best to give you copies of the whole thing. A booklet with these copies is enclosed. This has everything except the article from the Champaign-Urbana Courier, May 12, 1961.

I also enclose copies of JFD drawings 12449-0001, 12450-0001 and 12451-0001 which Mike gave me.

Very truly yours,

Diak

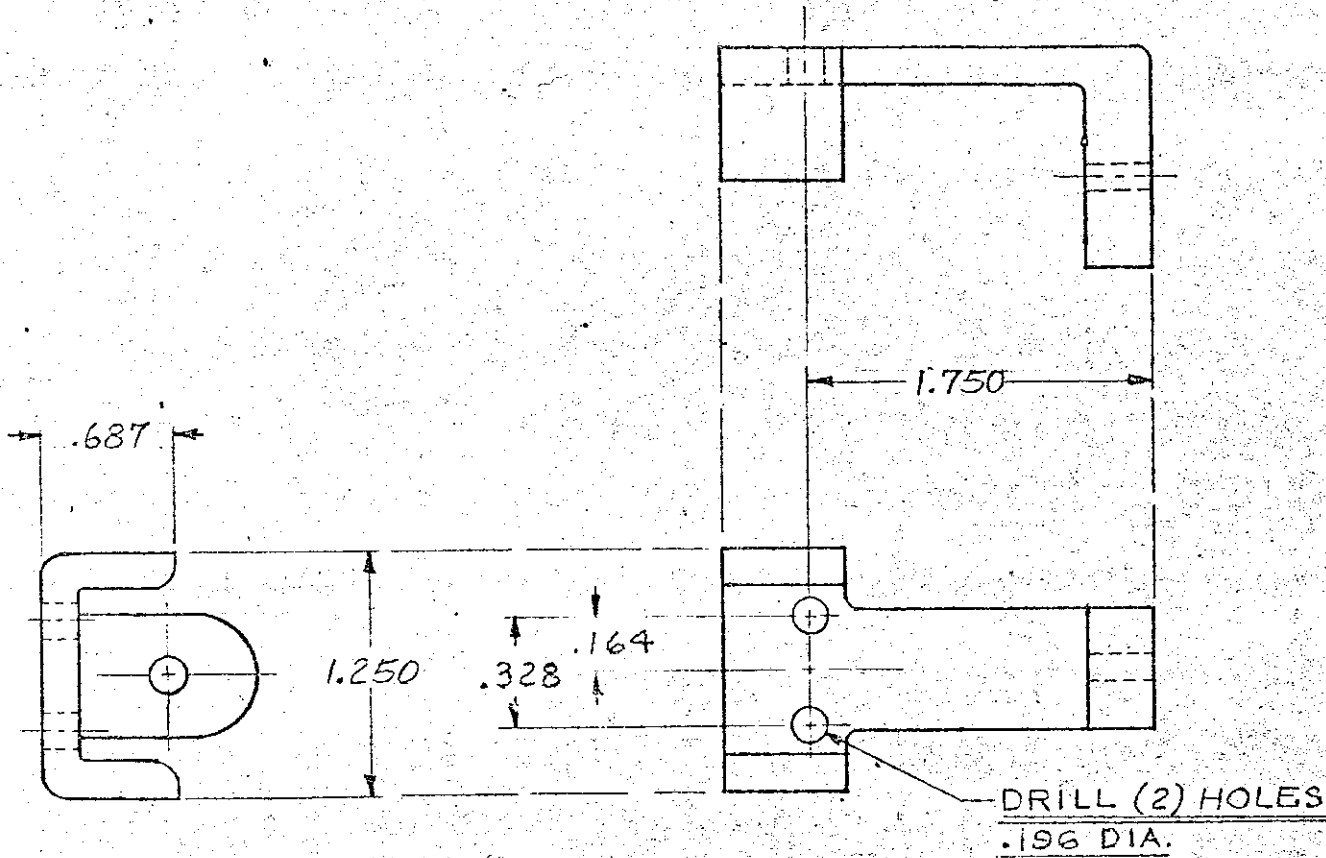
Richard S. Phillips

RSP:iag

* Enclosures

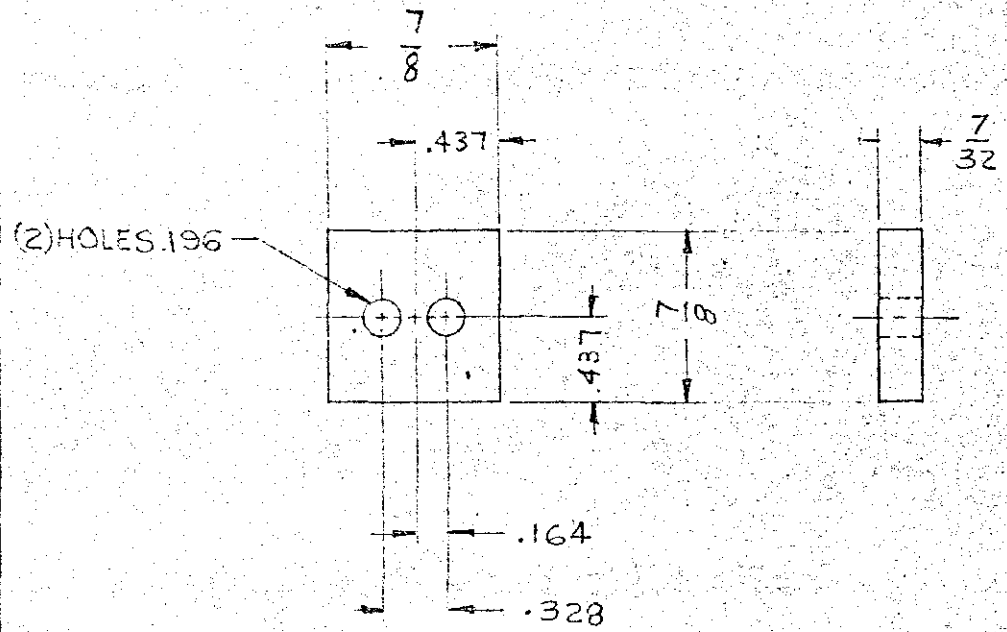
* PS: I also enclose a copy of TR-39.

REV.	DESCRIPTION	DATE	APP.
A	437 WAS 562	6-16-64	



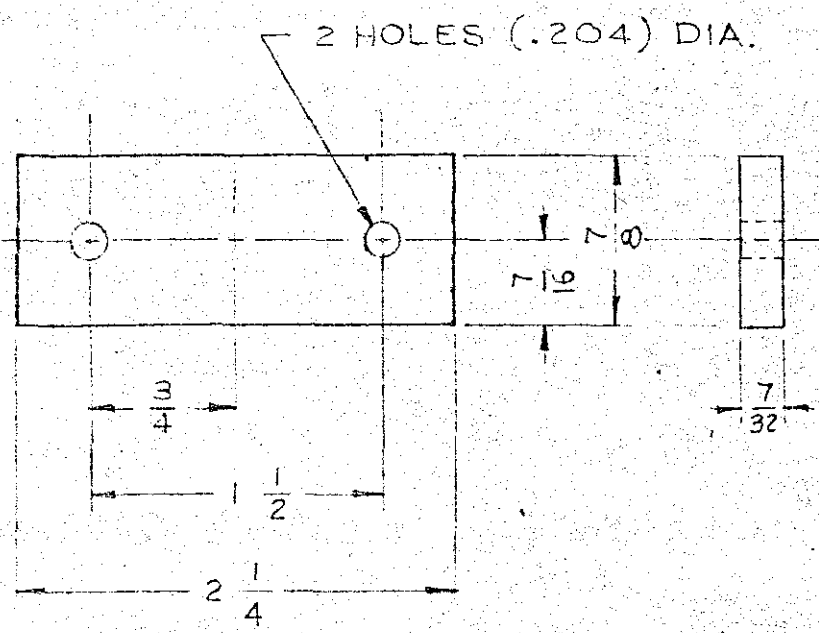
ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE
SCALE: 1:1			STAND-OFF LPV-VU ANTENNAS			DATE OF PRINTING
NO. REQ'D PER ASSEMBLY: 3		TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL ± 1/64 DECIMAL ± .005 ANGULAR ± 1/2°				APR 5 1967 NEXT ASSEMBLY
MATERIAL: MADE FROM PART # 10000-0001			DRAWN: Anderson	CHECKED:	ENG. APP.:	PROD. APP.:
HEAT TREAT: <i>ct</i>			1-2-63			
FINISH: <i>ct</i>			JFD ELECTRONICS CORP. BROOKLYN 19. N. Y.			12449-0001

REV.	DESCRIPTION	DATE	APP.

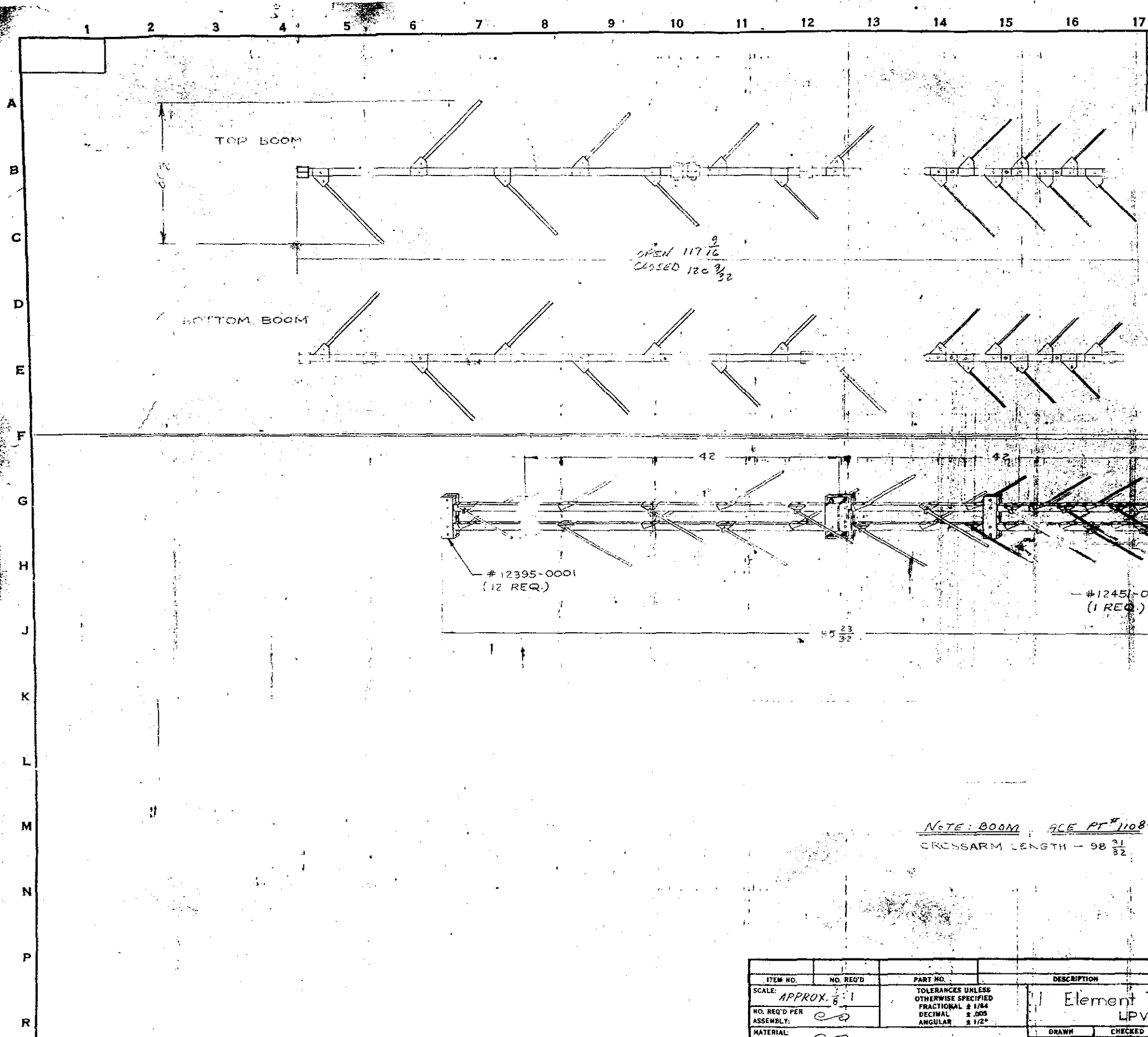


ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE
SCALE: FULL		TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL ± 1/64 DECIMAL ± .005 ANGULAR ± 1/2°	SPACER INSULATOR LPV-VIA		DATE OF PRINTING APR 5 1967	
NO. REQ'D PER ASSEMBLY: 3					NEXT ASSEMBLY	
MATERIAL:			DRAWN <i>Handwritten</i>	CHECKED	ENG. APP.	PROD. APP.
HEAT TREAT: <i>Handwritten symbol</i>			12-26-63			
FINISH: <i>Handwritten symbol</i>			JFD ELECTRONICS CORP. BROOKLYN 19, N. Y.		DRAWING NO. 12450-0001	

REV.	DESCRIPTION	DATE	APP.



ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE	
SCALE: FULL	NO. REQ'D PER ASSEMBLY: 1	TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL ± 1/64 DECIMAL ± .005 ANGULAR ± 1/2°	TAKE-OFF Insulator LPV-VU	DRAWN: Anderson 1-2-67	CHECKED:	ENG. APP.	DATE OF PRINTING APR 5 1967
MATERIAL: 1/32 x 3/4 MADE FROM 85090							PROD. APP.
HEAT TREAT:	JFD ELECTRONICS CORP. BROOKLYN 19, N.Y.				DRAWING NO. 12451-0001		
FINISH:							



REV.	DESCRIPTION	DATE	APP.
A	BOOM BRACE 51" OUTSIDE DIA. 5/4 1/2	1-24-64	
B	CROSSARM CHANGED TO ONE PIECE	7-1-64	
C	REVISED CUTSIZE OF .166 WIRE	8-21-64	

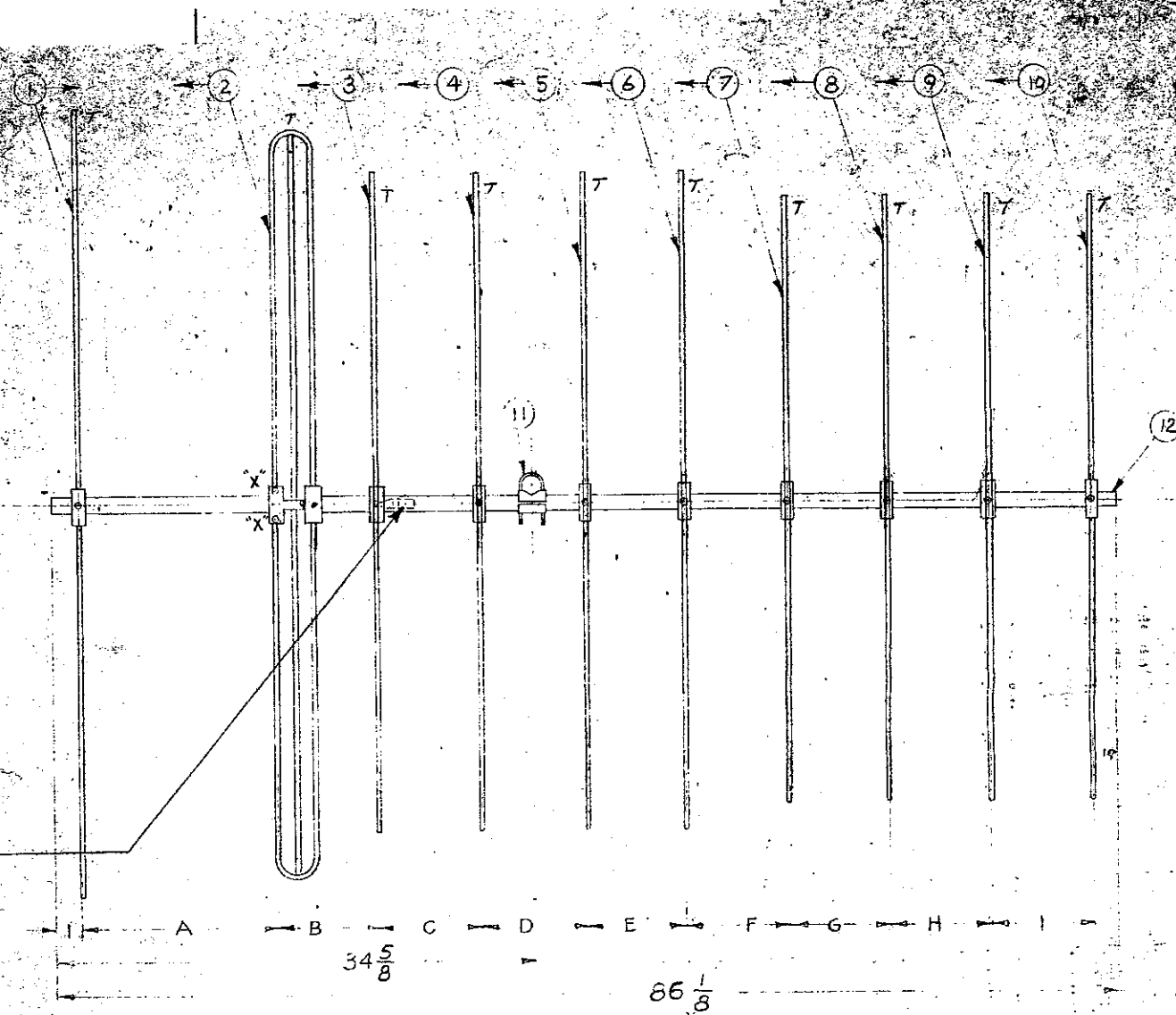
**NOTICE
THIS PRINT
SUPERCEDES ALL
ISSUES TO DATE
JFD SOUTHERN**

NOTE: BOOM ACE PT #11089 (OUTSIDE 51)
CROSSARM LENGTH - 98 $\frac{21}{32}$

00332

ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE
SCALE: APPROX. $\frac{1}{8}$ " = 1"			TOLERANCES UNLESS OTHERWISE SPECIFIED		DATE OF PRINTING	
NO. REQ'D PER ASSEMBLY: 12			FRACTIONAL $\pm 1/64$		NOV 7 1966	
MATERIAL: SS			DECIMAL $\pm .005$		NEXT ASSEMBLY	
HEAT TREAT: CP			ANGULAR $\pm 1/2^\circ$		DRAWING NO.	
FINISH:			DRAWN: <i>Anders</i>		52720	
			CHECKED: <i>A</i>		JFD ELECTRONICS CORP.	
			ENG. APP.:		BROOKLYN 19, N. Y.	
			PROD. APP.:			

NOTE:
 STRAIN RELIEF PIN
 11881-0101, RIVETED TO
 UNDERSIDE OF CROSSARM
 AS SHOWN.



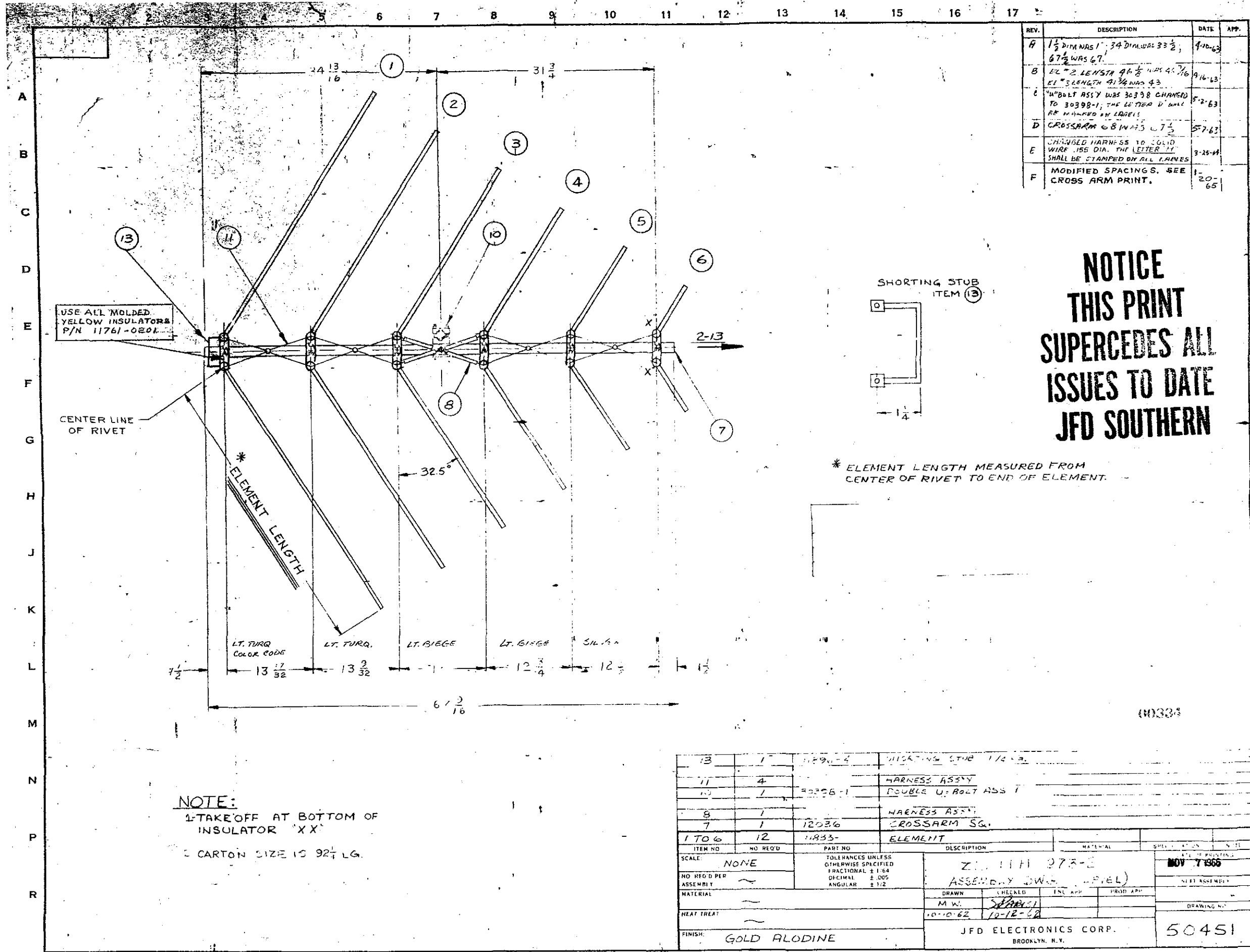
NOTE:
 ALL ELEMENTS TO BE CONSTRUCTED OF $\frac{3}{8}$ " DIA.
 BUTSEAM ALUM. TUBING
 FOR MODEL 10Z1013, SUBSTITUTE 1" RD. CROSSARM
 PRINT (50171) IBM 53691
 X-X DENOTES TAKE-OFF POINT.

DESCRIPTION	DATE	APP.
MODIFIED EL. SIZE + SPACING	6-15-60	
DEL. MODIFICATION	6-28-60	
ADDED STRAIN RELIEF PIN	7-7-60	
CHANGED FROM 1" RD. CROSSARM	7-14-60	
OLD NO. 50171	6-15-60	
CHANGED TO IBM NO. DIR 01170		

ITEM NO.	QTY.	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE
1 & 10	1	30043	HI-LQ REFLECTOR SPLIT ASS'Y - ONE PS CONST.			
12	1	10950	CROSSARM 1" SQ. ALUM. TUBING			
11	1	BR38	U BOLT ASS'Y			
2	1	30002	HI BAND FOLDED DIPOLE ASS'Y			
3 THROUGH 9	7	30004	HI BAND REFLECTOR ASS'Y - 2 PS CONST.			

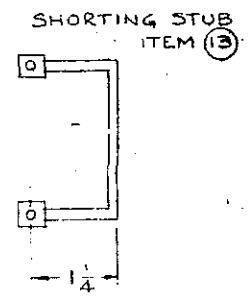
SCALE	TOLERANCES UNLESS OTHERWISE SPECIFIED	DATE OF PRINTING
NONE	FRACTIONAL 1/64 DECIMAL .005 ANGULAR 1/2°	JAN 2 0 1967
NO. REQS. FOR ASSEMBLY	ANTENNA 10 ELEMENT 10Y10136 ALBANY, N.Y.	NEXT ASSEMBLY
MATERIAL	DRAWN BY: [Signature] CHECKED BY: [Signature] ENG. APP. [Signature] PROD. APP. [Signature]	DRAWING NO. 0120170
DATE DESIGNED	6-12-59	JFD MANUFACTURING CO. INC. BROOKLYN 19, N.Y.

IBM 53701



REV.	DESCRIPTION	DATE	APP.
A	1/2 DIA NRS 1 - 3/4 DIA W/L 33 1/2; 67 1/2 WAS 67.	4-10-63	
B	EL # 2 LENGTH 40 1/2 WAS 40 7/16; EL # 3 LENGTH 41 3/8 WAS 43.	9-16-63	
C	"W/BOLT ASSY WAS 30398 CHANGED TO 30398-1, THE LETTER 'D' WILL BE MARKED BY LABELS	5-2-63	
D	CROSSARM 68 IN #13 07 1/2	5-7-63	
E	CHANGED HARNESS TO SOLID WIRE .155 DIA. THE LETTER 'D' SHALL BE STAMPED ON ALL LAMENES	3-25-64	
F	MODIFIED SPACINGS. SEE CROSS ARM PRINT.	1-20-65	

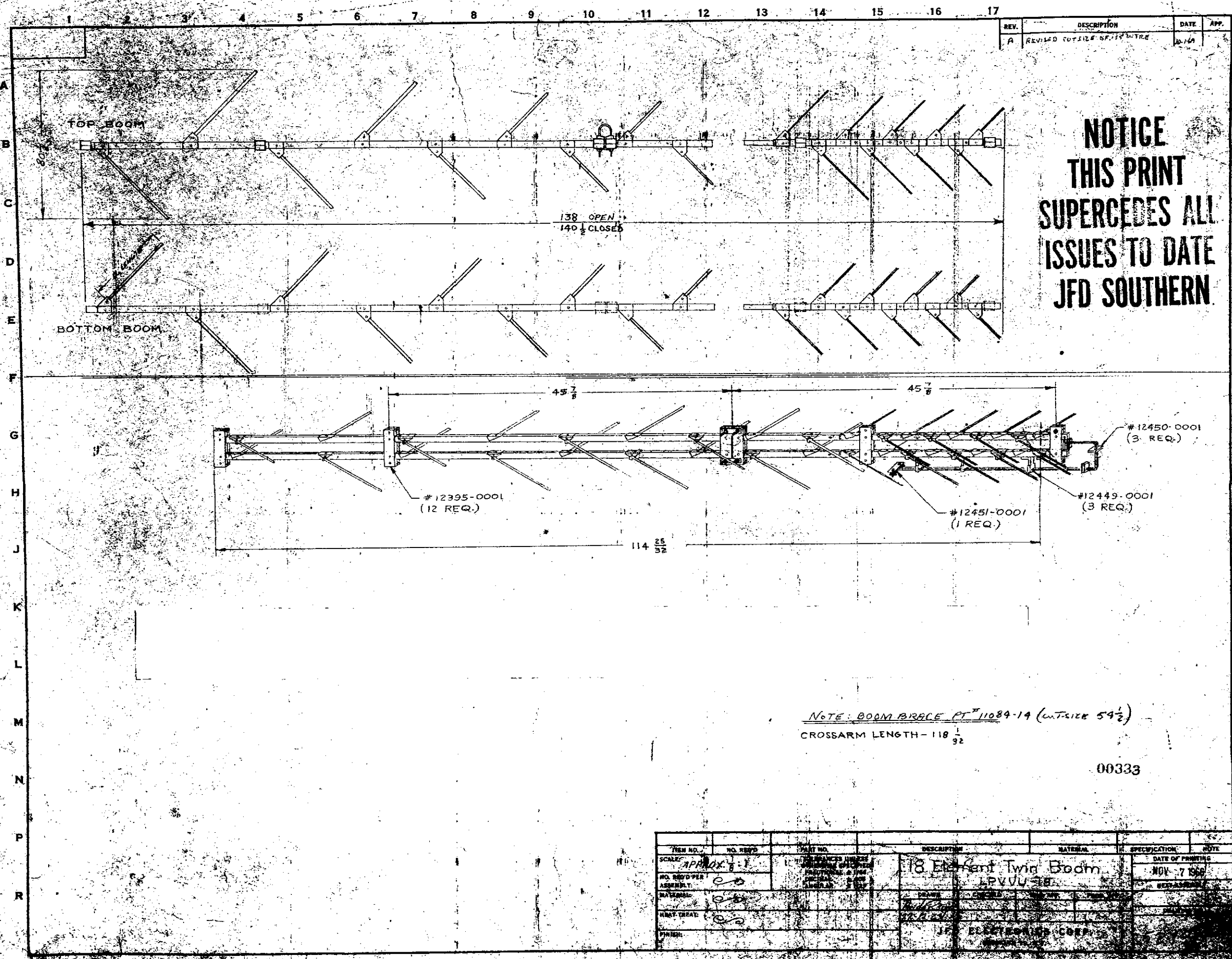
**NOTICE
THIS PRINT
SUPERCEDES ALL
ISSUES TO DATE
JFD SOUTHERN**



* ELEMENT LENGTH MEASURED FROM CENTER OF RIVET TO END OF ELEMENT.

NOTE:
1-TAKE OFF AT BOTTOM OF INSULATOR "XX"
2-CARTON SIZE IS 92 1/4 LG.

13	1	11890-4	SHORTING STUB 1/4 DIA.
11	4		HARNESS ASSY
10	1	30398-1	DOUBLE U-BOLT ASSY
8	1		HARNESS ASSY
7	1	12036	CROSSARM SQ.
1 TO 6	12	11833-	ELEMENT
SCALE:	NONE	TOLERANCES UNLESS OTHERWISE SPECIFIED	Z. I. H. 273-2
NO REQ'D PER ASSEMBLY	~	FRACTIONAL ± 1/64	ASSEMBLY DWG. (PIEL)
MATERIAL	~	DECIMAL ± .005	NOV 7 1965
HEAT TREAT	~	ANGULAR ± 1/2	SEE ASSEMBLY
FINISH:	GOLD ALODINE	DRAWN	M.W.
		CHECKED	10-12-62
		ENG. APP.	
		PROD. APP.	
		DRAWING NO.	50451
		JFD ELECTRONICS CORP.	
		BROOKLYN, N.Y.	



REV.	DESCRIPTION	DATE	APP.
A	REVISED OUTSIDE OF ASSEMBLY	10-1-64	

**NOTICE
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SUPERCEDES ALL
ISSUES TO DATE
JFD SOUTHERN**

NOTE: BOOM BARBLE PT #11089-14 (W/TSIZE 54 1/2)
CROSSARM LENGTH - 118 1/32

00333

ITEM NO.	NO. REQ'D	PART NO.	DESCRIPTION	MATERIAL	SPECIFICATION	NOTE
SCALE: APPROX 1/8"			18 Element Twin Boom			DATE OF PRINTING: NOV - 7 1964
NO. BOOM PER ASSEMBLY: 2			LEVVUS			NO. ASSEMBLY:
MATERIAL:						
HARD TREAD:						
FINISH:			JFD ELECTRONICS CORP.			