

PROJECT 10073 RECORD CARD

1. DATE 25 Oct 63		2. LOCATION Sioux City, Iowa		12. CONCLUSIONS ☐ Was Balloon ☐ Probably Balloon ☐ Possibly Balloon ☒ Was Aircraft ^{Refueling} ☐ Probably Aircraft ☐ Possibly Aircraft ☐ Was Astronomical ☐ Probably Astronomical ☐ Possibly Astronomical ☐ Other ☐ Insufficient Data for Evaluation ☐ Unknown	
3. DATE-TIME GROUP Local 10 Min Prior to Sunset GMT 23/2200Z		4. TYPE OF OBSERVATION ☐ Ground-Visual ☒ Air-Visual ☐ Ground-Radar ☐ Air-Intercept Radar			
5. PHOTOS ☐ Yes ☒ No		6. SOURCE CIVILIAN (REDACTED)			
7. LENGTH OF OBSERVATION 25 Minutes		8. NUMBER OF OBJECTS one		9. COURSE Maneuvered	
10. BRIEF SUMMARY OF SIGHTING Reilly Bates Case. KC-135 refueling in area. Object appeared to "loom" and then disperse into 10-20 objects. Then appeared as dot moving away from observers a/c. 10 minutes later reappeared approaching observers a/c. Sighting to West at sunset. Object appeared as KC-135 with drogue. Not clear and distinct. No unusual atmospheric conditions could be determined from WX data available.				11. COMMENTS "Looming" phenomena of KC-135 in area to West approximately 50 miles away.	

point where it became hard to maintain visual contact. Contact would be lost momentarily, and then, regained again only after an intense search of that particular area of the sky, when a tiny black speck could be seen. This black speck was much like a jet being observed at the maximum distance, high in the sky. The elevation was still about 4° above the horizon.

The black speck seemed to remain stationary and quite out of our range so, we took up a N-NE course for Mitchell once again. After two or three minutes, Bates looked over his left shoulder and noted that the black speck was becoming larger and, immediately changed course to head directly toward the black speck, which continued to close, or become larger. As the size increased, ~~he~~ fancied he saw flickering red and green lights along the upper surface. Reilly could not substantiate this. The lights, if any, were of such low intensity and duration as to be extremely difficult to see. At this point, there was excitement in the cockpit and Bates is unsure about the lights.

As the object continued to approach or grow larger, the splitting action was observed again, and the tiny drogue began to grow and the main body diminished until it was gone. We were unable to approach as closely on this encounter as previously, and the case had the appearance of a DC-3 at three-quarter's of a mile. Continuing on a course directly for the object, it was observed to break up into perhaps 12 separate and distinct pieces, which seemed to materialize just below

the original mass and then, the pieces seemed to speed away from us at a rapid rate. Once again, the tiny black speck was noted in the twilight, on approximately the same true bearing, 255° , as it had originally been observed. Visibility at that altitude was still very good, although the time was now about 15 minutes past sunset. When the black speck appeared to remain stationary, our course was altered to NE, or 045° , and the 25 to 30 minute encounter was ended.

LOCAL MEAN TIME OF SUNSET AND END OF ASTRONOMICAL
TWILIGHT—MERIDIAN OF GREENWICH

Date		Lat.												
		0°	+10°	+20°	+30°	+35°	+40°	+45°	+50°	+52°	+54°	+56°	+58°	+60°
SUNSET (UPPER LIMB)														
Oct.	2	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
	7	17 53	17 50	17 48	17 45	17 44	17 42	17 40	17 38	17 37	17 36	17 35	17 33	17 32
	12	17 51	17 48	17 44	17 39	17 37	17 34	17 31	17 27	17 26	17 24	17 22	17 19	17 17
	17	17 50	17 45	17 39	17 33	17 30	17 26	17 22	17 17	17 14	17 12	17 09	17 06	17 02
	22	17 49	17 42	17 36	17 28	17 24	17 19	17 13	17 06	17 03	17 00	16 56	16 52	16 48
Nov.	27	17 48	17 40	17 32	17 23	17 18	17 12	17 05	16 57	16 53	16 49	16 44	16 39	16 33
	1	17 47	17 38	17 29	17 18	17 12	17 05	16 57	16 47	16 43	16 38	16 32	16 26	16 19
	6	17 47	17 37	17 26	17 14	17 07	16 59	16 49	16 38	16 33	16 27	16 21	16 14	16 06
	11	17 47	17 36	17 24	17 10	17 02	16 53	16 43	16 30	16 24	16 18	16 10	16 02	15 53
	16	17 48	17 35	17 22	17 07	16 58	16 48	16 36	16 22	16 16	16 09	16 01	15 52	15 41
	21	17 48	17 35	17 20	17 04	16 54	16 44	16 31	16 16	16 08	16 00	15 52	15 42	15 30
Dec.	26	17 49	17 35	17 19	17 02	16 52	16 40	16 26	16 10	16 02	15 53	15 44	15 33	15 20
	1	17 51	17 35	17 19	17 01	16 50	16 37	16 23	16 05	15 57	15 48	15 37	15 25	15 11
	6	17 53	17 36	17 19	17 00	16 49	16 36	16 20	16 02	15 53	15 43	15 32	15 19	15 04
	11	17 55	17 38	17 20	17 00	16 48	16 35	16 19	15 59	15 50	15 40	15 28	15 14	14 58
	16	17 57	17 40	17 22	17 01	16 49	16 35	16 18	15 58	15 49	15 38	15 26	15 11	14 54
	21	17 59	17 42	17 23	17 02	16 50	16 36	16 19	15 58	15 49	15 38	15 25	15 10	14 53
	26	18 01	17 44	17 25	17 04	16 52	16 38	16 21	16 00	15 50	15 39	15 26	15 11	14 54
	31	18 04	17 47	17 28	17 07	16 55	16 40	16 24	16 03	15 53	15 42	15 29	15 15	14 57
	36	18 07	17 49	17 31	17 10	16 58	16 44	16 27	16 07	15 57	15 46	15 34	15 20	15 03
		18 09	17 52	17 34	17 14	17 02	16 48	16 32	16 12	16 03	15 52	15 40	15 26	15 10

END OF ASTRONOMICAL TWILIGHT

Oct.	2	19 02	19 00	19 01	19 04	19 08	19 12	19 18	19 26	19 30	19 35	19 40	19 45	19 53
	7	19 00	18 58	18 57	18 55	19 01	19 04	19 08	19 14	19 18	19 22	19 26	19 30	19 36
	12	18 59	18 55	18 52	18 52	18 54	18 56	18 59	19 04	19 06	19 10	19 13	19 17	19 21
	17	18 59	18 52	18 50	18 48	18 48	18 49	18 51	18 53	18 55	18 58	19 00	19 03	19 07
	22	18 58	18 51	18 46	18 43	18 42	18 42	18 43	18 45	18 46	18 47	18 48	18 50	18 52
Nov.	27	18 57	18 49	18 43	18 38	18 37	18 36	18 36	18 36	18 36	18 37	18 37	18 38	18 40
	1	18 58	18 49	18 41	18 35	18 33	18 31	18 28	18 27	18 27	18 27	18 28	18 28	18 28
	6	18 58	18 48	18 39	18 31	18 28	18 25	18 23	18 20	18 20	18 19	18 18	18 18	18 17
	11	19 00	18 48	18 38	18 29	18 25	18 21	18 17	18 14	18 13	18 12	18 11	18 10	18 08
	16	19 01	18 48	18 36	18 27	18 21	18 18	18 13	18 09	18 06	18 05	18 04	18 02	18 00
Dec.	21	19 02	18 49	18 36	18 25	18 20	18 15	18 09	18 04	18 02	17 59	17 58	17 56	17 53
	26	19 05	18 49	18 36	18 25	18 19	18 12	18 07	18 01	17 58	17 56	17 53	17 50	17 47
	1	19 07	18 51	18 37	18 24	18 18	18 12	18 05	17 59	17 56	17 53	17 50	17 47	17 43
	6	19 10	18 53	18 38	18 25	18 18	18 12	18 05	17 57	17 54	17 51	17 48	17 44	17 40
	11	19 12	18 55	18 40	18 26	18 19	18 12	18 04	17 57	17 54	17 50	17 47	17 42	17 38
	16	19 14	18 57	18 42	18 27	18 21	18 14	18 06	17 57	17 55	17 51	17 47	17 43	17 39
	21	19 16	18 59	18 44	18 30	18 23	18 16	18 08	18 00	17 56	17 53	17 48	17 44	17 40
	26	19 19	19 02	18 47	18 32	18 26	18 18	18 11	18 02	17 59	17 55	17 51	17 48	17 43
	31	19 22	19 04	18 50	18 35	18 29	18 21	18 13	18 06	18 02	17 59	17 56	17 52	17 48
	36	19 24	19 07	18 52	18 39	18 32	18 25	18 18	18 10	18 08	18 04	18 00	17 56	17 53

SOUTHERN LATITUDES (April to July)

For dates on first line *below*, enter tables above with dates on second line,
and apply the correction (in minutes) given on the third line.

Date	Apr. 3	9	14	19	24	Apr. 29	May 4	9	14	20	25	May 30	June 4	10	15	21	26	July 1	7
Use	Oct. 7	12	17	22	27	Nov. 1	Nov. 6	11	16	21	26	Dec. 1	Dec. 6	11	16	21	26	Dec. 31	36
Apply	+15	+15	+15	+15	+14	+14	+13	+13	+12	+11	+10	+9	+7	+6	+5	+4	+2	+1	0

HEADQUARTERS
FOREIGN TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO



REPLY TO
ATTN OF: TDEW/Capt Quintanilla/69216

SUBJECT: Request for Information on Refueling Operation

15 JAN 1964

TO: Commander
28th Bomb Wing
Ellsworth, South Dakota, 57706

Request information regarding possible use of USAF High Altitude Refueling Area, High Life, on the evening of 25 Oct 63, about 1845 local time. Information desired is to assist in evaluation of a UFO report under AFR 200-2.

FOR THE COMMANDER

Eric T de Jonckheere
ERIC T de JONCKHEERE
Colonel, USAF
Deputy for Technology
and Subsystems

1st Ind (28DCOTPS)

23 JAN 1964

Hq 28 Bomb Wing (SAC), Ellsworth AFB, SDak

TO: Hq, Foreign Technology Division, Wright-Patterson AFB, Ohio

Records indicate KC-135, #3104 and B-52, #066, departed the High Life Refueling Area at 1720 Local, 25 Oct 63. No other aircraft scheduled into this area until 28 October 63.

John R Hinton, Jr
JOHN R HINTON, JR
LtCol, USAF
Deputy Commander for Operations

HEADQUARTERS
FOREIGN TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO



REPLY TO
ATTN OF: TDEW/Capt Quintanilla/69216

SUBJECT: Request for Information on Refueling Operation

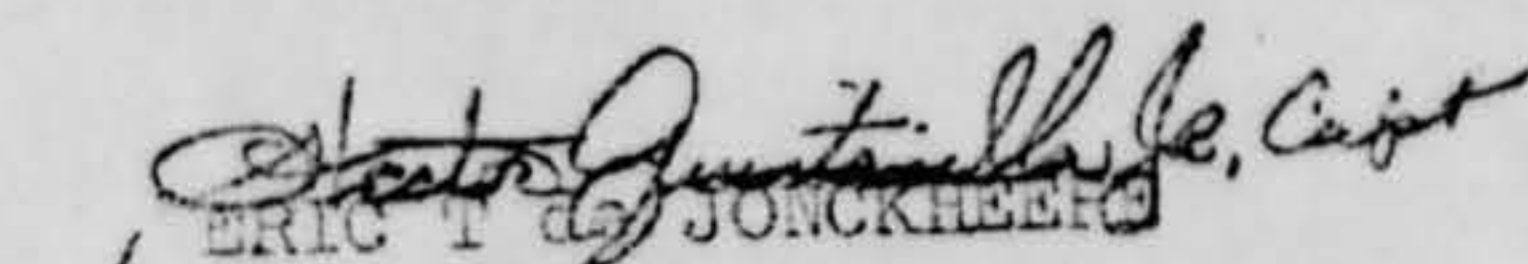
30 JAN 1964

TO: 28th Bomb Wing (28 DCOTPS)
Ellsworth, South Dakota, 57706

1. Reference is made to your 1st indorsement, 23 Jan 64, to our letter, TDEW, 15 Jan 64, subject as above. Specific information is needed in order to complete our evaluation. Give inclusive times, altitudes and profile in latitude and longitude of KC-135 #8104 and B-52 #066 while in the immediate area or in the "High Life" area. Please give all available times, locations and altitudes. Report can be classified SECRET if warranted. Would also appreciate the respective organizations and aircraft Commander's names if available.

2. We believe that a rare phenomena called "Lining" occurred on 25 Oct 63 and that a KC-135 #8104 and B-52 #066 were involved. Two experienced Bonanza pilots reported what they believed to be a refueling operation with a KC-135 involved. The pilots could distinguish the features of the KC-135 and could even identify the drogue; however, the closest KC-135 was #8104 and it was located approximately 120 nautical miles from the observer. Possible? Yes, under ideal weather conditions this is possible.

FOR THE COMMANDER


ERIC T. JONCKHEERE
Colonel, USAF
Deputy for Technology
and Subsystems

Ltr, Hq, Foreign Technology Div, 30 Jan 64

1st Ind (28DCOTPS)

8:1 FIP 1001

Hq, 28 Bomb Wing (SAC), Ellsworth Air Force Base, SDak

TO: Foreign Technology Div (TDEW)

Kc-135 #8104 and B-52 #066 were in contact from 25/2357Z at 42-50N, 105-12W to 26/0019Z at 44-08N, 101-32W. The refueling altitude was 29,000 Ft. The aircraft commanders of #0104 and #066 were Captain Gardner M Watkins, and Captain Charles W Holmes, respectively. Both are members of the 28th Bomb Wing.



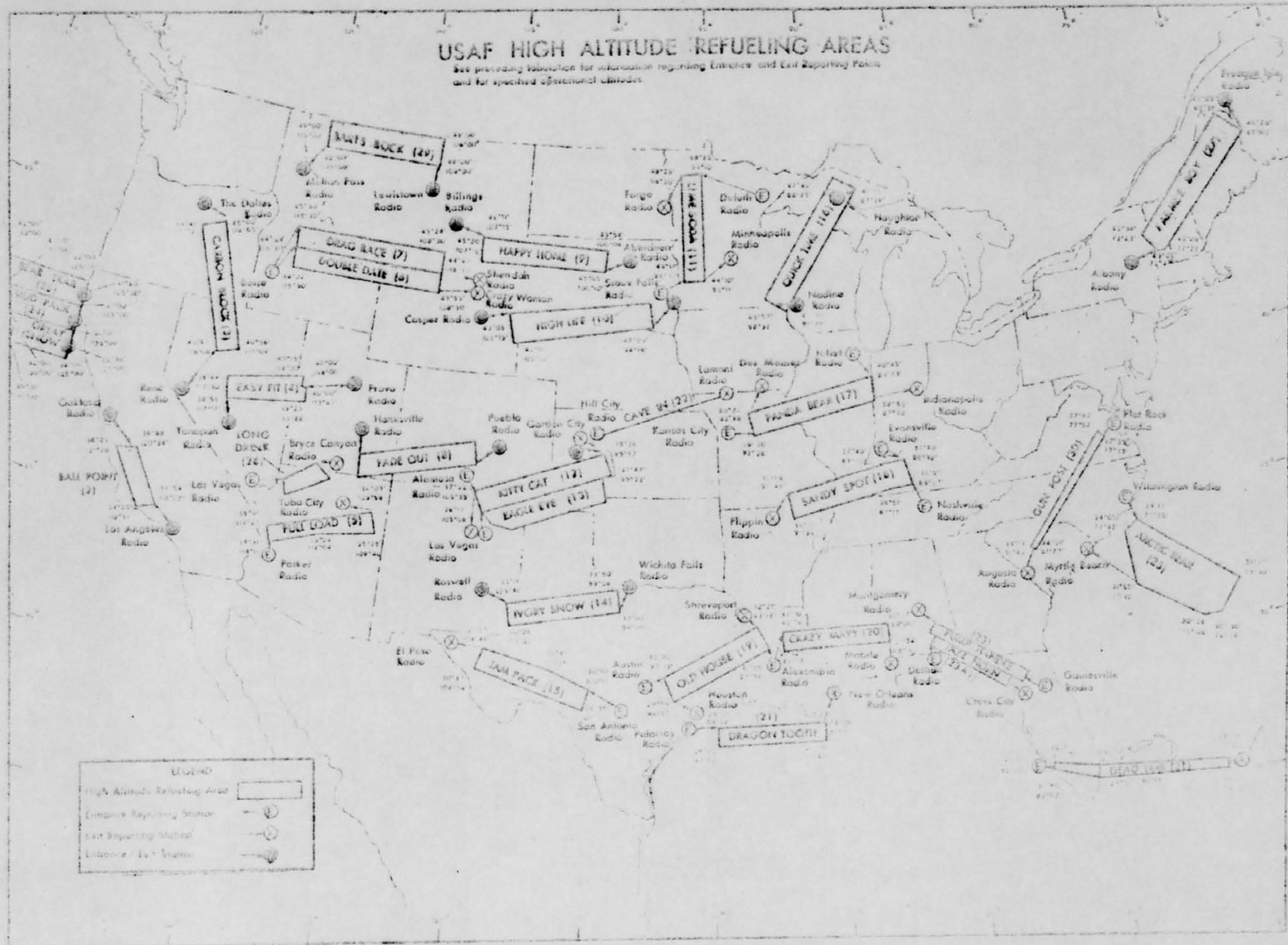
JOHN R HINTON, JR

LtCol, USAF

Deputy Commander for Operations

USAF HIGH ALTITUDE REFUELING AREAS

See preceding tabulation for information regarding Entrance and Exit Reporting Points and for specified operational climates.



CHAPTER 1

USAF HIGH ALTITUDE REFUELING AREAS

1. Purpose. To provide SAC crews and operations planning staffs with complete information concerning the high altitude refueling areas. Effective utilization of this information will permit air refueling to be conducted with a minimum of planning and will insure maximum utilization of airspace.

2. Concept of Operation:

a. Except as specified in the following paragraph, all SAC high altitude refueling operations will be confined to the published high altitude refueling areas within the Continental Control Area. These areas have been established as reserved airspace. During a scheduled refueling period, other IFR assigned altitude traffic will not be cleared by FAA through an active refueling area unless the refueling aircraft and the aircraft proposing to traverse the area can be provided radar separation and two-way radio contact is maintained with the aircraft involved and an FAA facility. VFR and IFR-VFR-on-top traffic may traverse the area; however, they are responsible for providing their own separation visually.

b. The following procedures have been established to warn VFR and VFR-on-top traffic of all refueling operations:

(1) The areas are published in the Airman's Guide and USAF Aeronautical Publications. The description of the high altitude refueling areas published in the Airman's Guide will be considered the official document. Changes appearing in the Airman's Guide are automatic pen and ink revisions to SACM 55-14. Periodic revisions to this manual will reflect the current data in the Airman's Guide.

(2) FAA Flight Service Stations include in scheduled broadcasts the fact that air refueling is being conducted in specified areas.

(3) FAA Flight Service Stations issue flight advisory information to VFR traffic known to be operating in the vicinity of active refueling areas.

c. It is recognized that certain essential training and tactical requirements such as large scale missions and no-notice exercises cannot in all cases be confined within the established areas, either in time, altitude, or location. These missions will be held to the absolute minimum and requests for waiver will be approved by this headquarters only on an individual basis in accordance with the following:

(1) Missions will utilize the established areas expanded as required in preference to wholly new areas.

(2) Missions will be conducted on altitude reservation flight plans.

(3) Only priority #7 missions, as defined in SACM 55-3, or higher will be approved. When approved, this headquarters will validate the requirement to CARF.

3. Scheduling Procedures. Controlling agencies of refueling areas will closely monitor the tracks/headings being utilized to insure safe separation between refueling operations. Receiver aircraft

will not enter the area unless radio or electronic rendezvous equipment contact has been established with the respective tanker. The following ground rules are established for the tanker aircraft:

a. Normal Procedures. A complete daily refueling schedule for each refueling area shall be submitted by the scheduling units at an agreed time to the assigned ARTC Centers 24 hours in advance. The schedule will contain the following data on each tanker and receiver aircraft: Identification, type, estimated time of entry at entrance point, flight levels to be used, estimated time of exit, and exit point. This information will be forwarded via the most convenient and expeditious military or FAA circuit available.

(1) Normally only one group of published flight levels, 240-290 or 310-340, will be scheduled for concurrent use in the same area. Whenever possible, the top altitude of the upper group should be established as 330 to permit other enroute utilization of flight level 350.

(2) Each refueling area will have a specific military unit assigned the responsibility for the scheduling of all refueling activity within that area. An FAA ARTC Center will be assigned the responsibility for coordination with each scheduling unit.

(3) Military units, when flight-planning an altitude reservation that will traverse a published refueling area, will be required to obtain approval from the scheduling unit and will so indicate in the Remarks section of the altitude reservation request. CARF will take action to re-route altitude reservations which do not indicate that approval has been obtained to transit the refueling area. The scheduling unit will insure that the daily refueling schedule does not contain refueling operations which conflict with the approved altitude reservation.

(4) The scheduling unit will notify the assigned ARTC Center of subsequent cancellations as soon as this information is available.

(5) The FAA will consider the tanker and receiver aircraft as one aircraft from point of hookup to point of breakoff for position reporting and separation purposes. The ARTC Centers will, when required, clear other IFR traffic at assigned flight levels through published refueling areas, provided such IFR traffic can be separated by use of ANC or radar separation standards.

(6) The FAA will reserve only those flight levels in the refueling area that are requested in advance through the SAC controlling unit. The flight plans submitted by the refueling units must contain the same flight levels. The flight levels approved by FAA are IFR hard altitude assigned flight levels. Do not use IFR/VFR-on-top flight plan in the high altitude refueling areas.

b. For Single and Dual Track Areas:

(1) Tanker aircraft will not be scheduled to enter the areas at designated entry points at intervals less than one hour. To provide a degree of flexibility for unforeseen conditions, a pad of plus or minus 10 minutes to the scheduled entry time may be provided; however, the area will not be entered prior to the scheduled operational time of the first aircraft.

NOTE: For special missions directed by the parent numbered air force, the time interval may be reduced.

(2) If the tanker aircraft is orbiting at the air refueling control point and the receiver aircraft does not arrive within plus or minus 10 minutes of the scheduled refueling time, the tanker will either depart on the refueling track to exit at the designated exit point or will obtain a revised ARTC clearance and exit the area, avoiding the rendezvous areas. It is imperative that timing be maintained within this limit or a conflict will exist with subsequent refueling formations.

c. Special Procedures for Dual Track Areas:

(1) Since reciprocal refueling tracks are established within dual track areas, aircraft may be scheduled to complete refueling on one track, cross over to the other track prior to exiting the area, and continue refueling in the opposite direction. If this concept is utilized, aircraft will hold at the exit end of the first refueling track, within the published area, and depart the holding area to make good the next scheduled area entry time at the ARCP for opposite direction refueling. It is imperative that scheduling agencies closely monitor this operation. Tankers will not utilize the cross-over procedure unless previously scheduled for the opposite track.

(2) Both tracks in a dual track refueling area may be utilized for refueling in the same or opposite direction (parallel refueling operation) provided all aircraft concerned are briefed on the refueling being conducted on the adjacent track. Simultaneous use of both tracks is not authorized when cross-over to reverse track is scheduled.

(3) While crossing over to the opposite track, the communications will be switched to the appropriate communications-rendezvous plan as defined in Annex I, SACM 100-24, for the opposite track.

(4) Altitude reservation missions are not limited to area entry times and ARCP departure timing described above; however, refueling aircraft formations on the same track will be separated by a minimum of 30 minutes.

4. Priority. The peacetime FAA-JCS Air Traffic Control priorities as defined in SACM 55-3 do not apply to activity in high altitude air refueling areas. During periods of operation, the high altitude refueling areas have the same status as altitude reservations. Permission to traverse the area on IFR or altitude reservation flight plans must be obtained prior to takeoff from the refueling area controlling agency. The controlling agency must, in turn, advise the Central Altitude Reservation Facility (CARF) when the area, or specified altitudes within the area, are cleared to allow a conflicting altitude reservation to operate. Higher headquarters have the authority to grant priority for certain exercises over the normal training. Numbered air forces may clear those areas controlled by agencies under their command jurisdiction. Headquarters SAC clears all areas in which SAC executed missions conflict with the refueling areas. Agencies with responsibilities for planning missions must take cognizance of these refueling areas. The command post of the controlling agency will cancel with CARF all scheduled periods which will not be utilized, except short periods which are due to aborts. Aircraft aborting either on the ground or in the air will call the command post of the controlling agency. In the air, the numbered Air Force short order stations and telephone patch will be utilized. "Bootleg" aircraft may then contact the controlling agency by the same method for possible use of these periods.

5. MARSA. The military assumes responsibility for separation of aircraft within the high altitude refueling areas. The FAA will provide a buffer zone free from IFR traffic around the refueling areas (except for radar monitored flights) but will make no attempt to provide separation between aircraft within the area. Consequently, permission from FAA to extend refueling operations over and above a unit's allotted portion of the daily schedule within the daily time block does not mean that separation is being provided. Only strict adherence to the schedule within the ground rules provided in this manual will insure the safe conduct of the air refueling operations. MARSA between tanker/receiver will be indicated in the Remarks section of the SAC Form 121 or AF Form 175, as appropriate, for both tanker and receiver.

OFFICIAL FILE COPY

FED (TDEW/UFO)
Wright-Patterson AFB, Ohio
29 Jan 64

Dr J Allen Hynek
2523 Ridge Avenue
Evanston, Illinois

Dear Allen,

Have good news on the 25 Oct 63 sighting of [redacted] and [redacted]. Refueling operations were conducted in the "High Life" refueling area. There is some discrepancy in the time reported. However, since the prior report indicated that the observation was 10 minutes before sunset I felt that this was a better guide than the stated time. I am enclosing an extract of Sunset and Twilight times from the Ephemeris. With the reported altitude of [redacted] and [redacted] you can no doubt figure this closer than we can. I have also attached portions of SAC Manual 55-14 which gives the refueling procedures for high altitudes and that portion pertaining to "High Life". ONC-306 and 307 cover this area as well as all geographic locations mentioned in their report. Also enclosed is a copy of the FAA report and Mr [redacted] letter. The weather data from Asheville, North Carolina has been ordered and will be forwarded upon arrival.

I thought this might be a good case on which to write a case summary, not necessarily for general release but for our files. Would it be possible for you to do this since the figures concerned with sunset, twilight, distance to refueling area, altitude of the pilot's aircraft, altitude of the air refueling operations aircraft, etc, are quite involved. I am sure that your figures would be much more exact than mine. Therefore, I would appreciate it if you would write up some sort of a summary which includes the geometry of the situation assuming that a "looming" phenomena of the refueling aircraft was the cause of the sighting.

We have completed duplicating the cases from the first nine months of 1963 and should have this portion of the project completed by next weekend. Miscellaneous information including maps of the refueling areas, for the committee, have been forwarded in a separate envelope.

Have fun!

DAVID N MOODY
TSCT, USAF
Aerial Phenomena Branch

6. Right-of-Way. Civil Air Regulations, Part 60, paragraph 60.14(b), was amended on 15 Feb 60 to give refueling aircraft the same right of way as aircraft being towed.

7. Tactical Doctrine. The SAC Tactical Doctrine will be complied with to the maximum extent. Deviations are authorized when it is necessary to comply with the USAF-FAA agreements reflected in this manual.

8. Flight Levels. Flight levels indicated as operational altitudes are inclusive. Special care must be exercised when using flight level 240, as it is not authorized as an operational level. The tanker crew will be required to secure the best available altimeter setting for the refueling area and assure that refueling operations are not conducted below 24,000 feet MSL.

9. Altitude Clearance. Operations other than refueling will avoid active refueling areas by at least 1,000 feet above or below the published altitudes, except for flight levels above 290, which require 2,000 feet altitude separation.

10. RBS Activity. Aircraft engaged in RBS activity VFR or VFR-on-top adjacent to a high altitude refueling area at altitudes which conflict with the refueling operation will avoid the refueling area by at least 15 nautical miles during the periods of time the refueling area is active.

11. Manual Changes. The procedures contained in this chapter are directive in nature. The refueling areas have been implemented by a formal agreement between USAF and the FAA. Changes to the refueling areas will appear in the Airman's Guide with subsequent changes to this manual. INFORMATION CONTAINED IN THE AIRMAN'S GUIDE TAKES PRECEDENCE OVER THIS MANUAL. Simultaneous publication of a formal change to this manual with the effective date of the change in the Airman's Guide is not possible. The briefing officer will be responsible for briefing the changes to the refueling areas as they become effective in the Airman's Guide. The following procedures will be followed to coordinate changes to existing areas or initiate action to coordinate new areas:

a. Alpha. Numbered air forces will coordinate directly with FAA Region and/or FAA ARTC Center personnel for changes desired to existing areas or to initiate action on establishing a new area. The FAA Liaison Officer at the numbered air force headquarters may be requested to assist in this coordination.

b. Bravo. After approval, the Region will forward the approved coordinates and flight levels to the FAA-SAC Liaison Officer at this headquarters (DOOPF).

c. Charlie. The new area or the changes to a revised area will be effective 12 days after the date of the publishing date of the Airman's Guide in which it first appears.

12. Communications. Communications-rendezvous plans contained in this manual refer to Annex I, SACM 100-24. The following procedures are prescribed for use during refueling operations: All refueling aircraft approaching refueling areas shall establish communication with the appropriate ARTC Center on the center "area discrete" UHF frequency. All tanker and receiver aircraft will report over the entrance and exit points.

a. Receiver aircraft commanders will:

(1) Prior to rendezvous with tanker aircraft, advise Air Traffic Control that the ATC frequency will not be guarded for a specified period while conducting the refueling mission. Further contacts should be addressed through the tanker aircraft involved in the refueling operation.

(2) Upon establishing contact with the tanker aircraft, give the pertinent portion of the current flight plan under which flight is being conducted to the tanker pilot. In the event that tanker and receiver aircrews attended a common briefing prior to flight, and the current flight plan is as briefed, a detailed flight plan need not be given. However, all changes in effect will be relayed in order to insure that the tanker pilot is familiar with the current clearance.

(3) Receive positive position reports from tanker aircraft upon completion of the refueling operation. This will include any changes to the ATC clearance which may have been obtained.

(4) Insure that aircraft proceed in accordance with the ATC clearance or, in the event a change is required, obtain the necessary amendments.

(5) Immediately after breakoff from the tanker, establish communications with the appropriate ARTC Center in order that one of the following services can be effected:

(a) If on an IFR flight plan after completion of the air refueling, ANC or radar separation can be continued between the receiver aircraft and other aircraft operating at assigned altitudes on IFR flight plans,

(b) If on an IFR flight plan, in VFR conditions on top, the receiver can be issued appropriate traffic advisories, or,

(c) If operating VFR, appropriate traffic advisories can be issued to the receiver prior to departing the immediate vicinity of the completed refueling operation. In the event that no pertinent traffic exists, the receiver will so be advised and clearance will be issued to leave the center frequency.

b. Tanker aircraft commanders will:

(1) Insure that they have obtained the current ATC clearance under which the receiver aircraft is operating. In the event the course of the refueling mission deviates from the provisions of this clearance, tanker aircraft commanders will insure that necessary amendments are obtained from ATC for both tanker and receiver aircraft. They will supply:

(a) The flight levels to be used in refueling.

(b) Estimated time in refueling area.

(c) If other than a single direction track through the entire length of refueling area, sufficient description of the route within the area to provide the controller with information necessary to effect separation with other aircraft.

(2) When rendezvous has been completed and visual contact established, be responsible for completing all position reports for both tanker and receiver aircraft.

(3) During refueling operations, designate a crew member to:

(a) Maintain a continuous listening watch on appropriate ATC frequency.

(b) Complete radio calls required for both aircraft.

(4) Furnish the receiver aircraft commander a positive position at the completion of refueling operations together with any amendments or changes to the ATC clearance, if such have been obtained.

c. All procedures outlined in paragraphs 12a and b, above, apply to the tanker task force commander during mass air refuelings whenever aircraft of either the tanker or receiver force is operating under ATC clearance.

13. Numbering. High altitude refueling areas will be numbered consecutively as coordinated and implemented.

14. Grid Navigation. Whenever key ARCPs are located 60° North Latitude or above, grid navigation will be used and all references to headings between aircraft will be in grid.

COLUMNAR DATA HIGH ALTITUDE REFUELING AREAS

ALPHA TRACK				BRAVO TRACK			
ENTRY POINTS	ARCP	EXIT POINT/S	C/R PLAN	ENTRY POINT/S	ARCP	EXIT POINT	C/R PLAN
Hanksville VOR 179/44 3742N 11056W	3750N 11013W	Pueblo VOR 270/58 3832N 10538W	George Alfa	Pueblo VOR 244/55 3806N 10533W	3759N 10634W	Hanksville VOR 171/69 3716N 11050W	George Bravo
Billings VOR 064/59 4559N 10713W	4557N 10623W	Aberdeen VOR 273/75 4542 1/2N 10005W	Howard Alfa	Aberdeen VOR 254/75 4517 1/2N 10008W	4523N 10118W	Billings VOR 089/59 4533N 10716W	Howard Bravo
Casper VOR 94/51 4250N 10512W	4256N 10422W	Sioux Falls 251/68 4329N 9818W	Norman Alfa	Sioux Falls 231/74 4303N 9817W	4259N 9922.5W	Casper 113/67 4226N 10504W	Norman Bravo
Sioux Falls VOR 029/41 4411N 9613W	4503N 9613W	Fargo VOR 008/104 4825N 9611W	Sam Alfa	Duluth VOR 300/167 4825N 9525W	4743N 9528W	Minneapolis 231/107 4411N 9527W	Sam Bravo
Alamosa VOR 138/34 3650N 10530W	3703N 10442W	Garden City VOR 043/50 3824N 9951W	Thomas Alfa	Garden City VOR 073/50 3800N 9939W	3745N 10042W	Las Vegas VOR 337/49 3628N 10515W	Thomas Bravo
Garden City VORTAC 125/55 3715N 9955W Las Vegas 020/18	3700N 10054W 3611N 10357W	Las Vegas VOR 020/18 3553N 10455W Garden City 125/55	Owen Alfa				
Roswell VOR 098/50 3304N 10342W	3310N 10300W	Wichita Falls VOR 218/32 3337N 9905W	Perry Alfa	Wichita Falls VOR 195/52 3312N 9902W	3306N 10000W	Roswell VOR 118/66 3238N 10338W	Perry Bravo

SACM 55-14

C5

COLUMNAR DATA HIGH ALTITUDE REFUELING AREAS

NUMBER	NICKNAME	AREA COORDINATES	FLT LVL	MILITARY CONTROLLING UNIT	FAA CONTROLLING CENTER	REMARKS
8	Fade Out Fig 1	3753N 10530W 3848N 10541W 3706N 11048W 3753N 11059W	240-260	6BW, Walker, 15AF	Denver	
9	Happy Home Fig 1	4505N 10010W 4554N 10004W 4611N 10715W 4520N 10716W	310-330	4136th SW Minot 15AF	Denver	
10	High Life Fig 1	4305N 10515W 4210N 10500W 4343N 9820W 4253N 9814W	240-290	28BW, Ellsworth, 15AF	Denver	
11	Lime Soda Fig 1	4411N 9630W 4411N 9510W 4825N 9630W 4825N 9510W	240-290	4321 SW Offutt AFB 2AF	Minneapolis	
12	Kitty Cat Fig 1	3747N 9933W 3836N 9957W 3702N 10535W 3617N 10508W	240-270	95BW, Biggs, 15AF	Albuquerque	Will not be used concurrently with flight levels 280-290 in the Eagle Eye area.
13	Eagle Eye Fig 1	3740N 10000W 3649N 9950W 3547N 10349W 3553N 10455W 3617N 10508W	240-270 280-290	832AD, Cannon, TAC	Albuquerque	Both blocks of flight levels will <u>not</u> be used concurrently.
14	Ivory Snow Fig 1	33151/2N 10340W 32261/2N 10332W 3350N 9906W 3300N 9900W	310-340	6BW, Walker, 15AF	El Paso	

COLUMNAR DATA HIGH ALTITUDE REFUELING AREAS

ALPHA TRACK				BRAVO TRACK			
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Billings VOR 064/59 4559N 10713W	4557N 10623W	Aberdeen VOR 273/75 4542 1/2N 10005W	Howard Alfa	Aberdeen VOR 254/75 4517 1/2N 10008W	4523N 10118W	Billings VOR 089/59 4533N 10716W	Howard Bravo
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SACM 55-14

C5

COLUMNAR DATA HIGH ALTITUDE REFUELING AREAS

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11	Lime Soda Fig 1	4411N 9630W 4411N 9510W 4825N 9630W 4825N 9510W	240-290	4321 SW Offutt AFB 2AF	Minneapolis	
12	Kitty Cat Fig 1	3747N 9933W 3836N 9957W 3702N 10535W 3617N 10508W	240-270	95BW, Biggs, 15AF	Albuquerque	Will not be used concurrently with flight levels 280-290 in the Eagle Eye area.
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SACM 55-14

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COLUMNAR DATA HIGH ALTITUDE REFUELING AREAS

NUMBER	NICKNAME	AREA COORDINATES	FLY LVL	MILITARY CONTROLLING UNIT	FAA CONTROLLING CENTER	REMARKS
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Garden City VORTAC 125/55 3715N 9955W Las Vegas 020/18	3700N 10054W 3611N 10357W	Las Vegas VOR 020/18 3553N 10455W Garden City 125/55	Owen Alfa				
Roswell VOR 098/50 3304N 10342W	3310N 10300W	Wichita Falls VOR 218/32 3337N 9905W	Perry Alfa	Wichita Falls VOR 195/52 3312N 9902W	3306N 10000W	Roswell VOR 118/66 3238N 10338W	Perry Bravo

LOCAL MEAN TIME OF SUNSET AND END OF ASTRONOMICAL
TWILIGHT—MERIDIAN OF GREENWICH

Date	Lat.	0°	+10°	+20°	+30°	+35°	+40°	+45°	+50°	+52°	+54°	+56°	+58°	+60°
SUNSET (UPPER LIMB)														
Oct.	2	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
	7	17 53	17 50	17 48	17 45	17 44	17 42	17 40	17 38	17 37	17 36	17 35	17 33	17 32
	12	17 51	17 48	17 44	17 39	17 37	17 34	17 31	17 27	17 26	17 24	17 22	17 19	17 17
	17	17 50	17 45	17 39	17 33	17 30	17 26	17 22	17 17	17 14	17 12	17 09	17 06	17 02
	22	17 49	17 42	17 36	17 28	17 24	17 19	17 13	17 06	17 03	17 00	16 56	16 52	16 48
	27	17 48	17 40	17 32	17 23	17 18	17 12	17 05	16 57	16 53	16 49	16 44	16 39	16 33
Nov.	1	17 47	17 38	17 29	17 18	17 12	17 05	16 57	16 47	16 43	16 38	16 32	16 26	16 19
	6	17 47	17 37	17 26	17 14	17 07	16 59	16 49	16 38	16 33	16 27	16 21	16 14	16 06
	11	17 47	17 36	17 24	17 10	17 02	16 53	16 43	16 30	16 24	16 18	16 10	16 02	15 53
	16	17 48	17 35	17 22	17 07	16 58	16 48	16 36	16 22	16 16	16 09	16 01	15 52	15 41
	21	17 48	17 35	17 20	17 04	16 54	16 44	16 31	16 16	16 08	16 00	15 52	15 42	15 30
Dec.	26	17 49	17 35	17 19	17 02	16 52	16 40	16 26	16 10	16 02	15 53	15 44	15 33	15 20
	31	17 51	17 35	17 19	17 01	16 50	16 37	16 23	16 05	15 57	15 48	15 37	15 25	15 11
	1	17 53	17 36	17 19	17 00	16 49	16 36	16 20	16 02	15 53	15 43	15 32	15 19	15 04
	6	17 55	17 38	17 20	17 00	16 48	16 35	16 19	15 59	15 50	15 40	15 28	15 14	14 58
	11	17 57	17 40	17 22	17 01	16 49	16 35	16 18	15 58	15 49	15 38	15 26	15 11	14 54
	16	17 59	17 42	17 23	17 02	16 50	16 36	16 19	15 58	15 49	15 38	15 25	15 10	14 53
	21	18 01	17 44	17 25	17 04	16 52	16 38	16 21	16 00	15 50	15 39	15 26	15 11	14 54
	26	18 04	17 47	17 28	17 07	16 55	16 40	16 24	16 03	15 53	15 42	15 29	15 15	14 57
	31	18 07	17 49	17 31	17 10	16 58	16 44	16 27	16 07	15 57	15 46	15 34	15 20	15 03
	36	18 09	17 52	17 34	17 14	17 02	16 48	16 32	16 12	16 03	15 52	15 40	15 26	15 10

END OF ASTRONOMICAL TWILIGHT

Oct.	2	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
	7	19 02	19 00	19 01	19 04	19 08	19 12	19 18	19 26	19 30	19 35	19 40	19 45	19 53
	12	19 00	18 58	18 57	18 58	19 01	19 04	19 08	19 14	19 18	19 22	19 26	19 30	19 36
	17	18 59	18 55	18 52	18 52	18 54	18 56	18 59	19 04	19 06	19 10	19 13	19 17	19 21
	22	18 59	18 52	18 50	18 48	18 48	18 49	18 51	18 53	18 55	18 58	19 00	19 03	19 07
	27	18 58	18 51	18 46	18 43	18 42	18 42	18 43	18 45	18 46	18 47	18 48	18 50	18 52
Nov.	1	18 57	18 49	18 43	18 38	18 37	18 36	18 36	18 36	18 36	18 37	18 37	18 38	18 40
	6	18 58	18 49	18 41	18 35	18 33	18 31	18 28	18 27	18 27	18 27	18 28	18 28	18 28
	11	18 58	18 48	18 39	18 31	18 28	18 25	18 23	18 20	18 20	18 19	18 18	18 18	18 17
	16	19 00	18 48	18 38	18 29	18 25	18 21	18 17	18 14	18 13	18 12	18 11	18 10	18 08
	21	19 01	18 48	18 36	18 27	18 21	18 18	18 13	18 09	18 06	18 05	18 04	18 02	18 00
Dec.	26	19 02	18 49	18 36	18 25	18 20	18 15	18 09	18 04	18 02	17 59	17 58	17 56	17 53
	31	19 05	18 49	18 36	18 25	18 19	18 12	18 07	18 01	17 58	17 56	17 53	17 50	17 47
	1	19 07	18 51	18 37	18 24	18 18	18 12	18 05	17 59	17 56	17 53	17 50	17 47	17 43
	6	19 10	18 53	18 38	18 25	18 18	18 12	18 05	17 57	17 54	17 51	17 48	17 44	17 40
	11	19 12	18 55	18 40	18 26	18 19	18 12	18 04	17 57	17 54	17 50	17 47	17 42	17 38
	16	19 14	18 57	18 42	18 27	18 21	18 14	18 06	17 57	17 55	17 51	17 47	17 43	17 39
	21	19 16	18 59	18 44	18 30	18 23	18 16	18 08	18 00	17 56	17 53	17 48	17 44	17 40
	26	19 19	19 02	18 47	18 32	18 26	18 18	18 11	18 02	17 59	17 55	17 51	17 48	17 43
	31	19 22	19 04	18 50	18 35	18 29	18 21	18 13	18 06	18 02	17 59	17 56	17 52	17 48
	36	19 24	19 07	18 52	18 39	18 32	18 25	18 15	18 10	18 08	18 04	18 00	17 56	17 53

SOUTHERN LATITUDES (April to July)

For dates on first line below, enter tables above with dates on second line,
and apply the correction (in minutes) given on the third line.

Date	Apr. 3	9	14	19	24	Apr. 29	May 4	9	14	20	25	May 30	June 4	10	15	21	26	July 1	7
Use	Oct. 7	12	17	22	27	Nov. 1	Nov. 6	11	16	21	26	Dec. 1	Dec. 6	11	16	21	26	Dec. 31	36
Apply	+15	+15	+15	+15	+14	+14	+13	+13	+12	+11	+10	+9	+7	+6	+5	+4	+2	+1	0

TAB

- A Initial Report from [REDACTED] and [REDACTED]
- B Refueling Area Data
- C Weather Data

U.S. DEPARTMENT OF COMMERCE WEATHER BUREAU ADIABATIC CHART

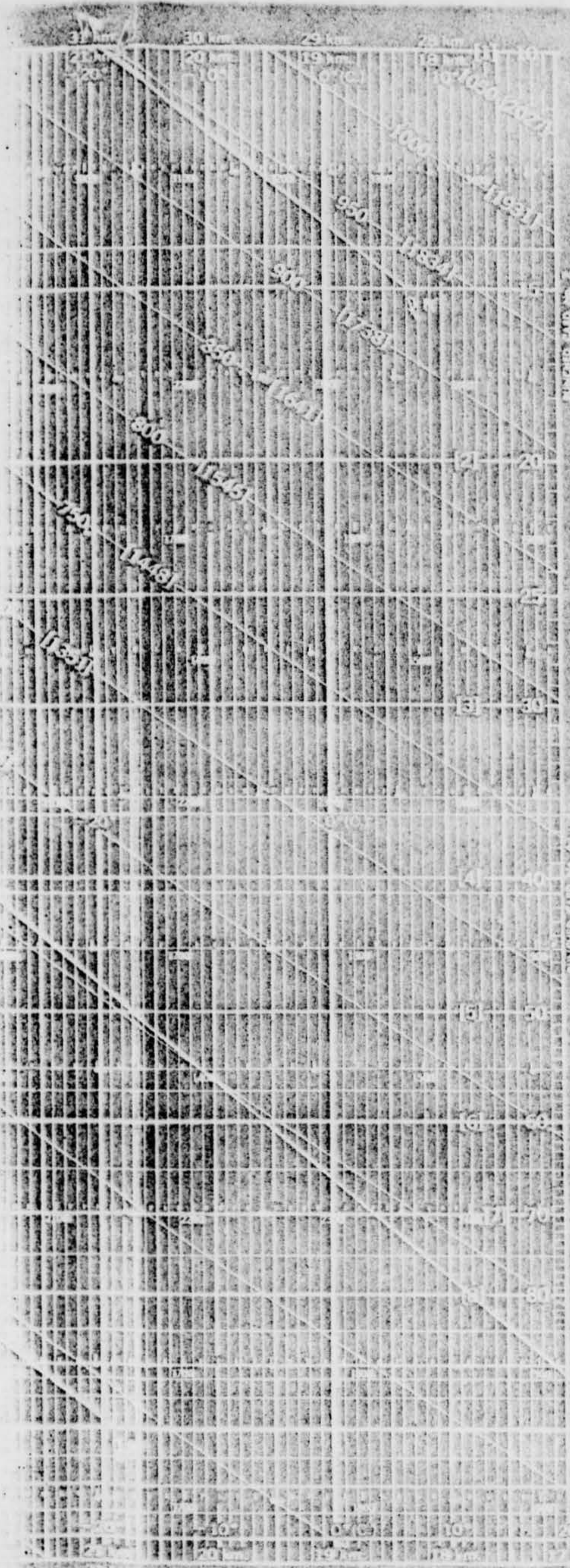


Table 1: Conversion factors for pressure and temperature.

Pressure	Temperature
30 in. Hg	100°F
29 in. Hg	90°F
28 in. Hg	80°F
27 in. Hg	70°F
26 in. Hg	60°F
25 in. Hg	50°F
24 in. Hg	40°F
23 in. Hg	30°F
22 in. Hg	20°F
21 in. Hg	10°F
20 in. Hg	0°F

Table 2: Conversion factors for humidity and mixing ratio.

Humidity	Mixing Ratio
100%	1.0
90%	0.9
80%	0.8
70%	0.7
60%	0.6
50%	0.5
40%	0.4
30%	0.3
20%	0.2
10%	0.1
0%	0.0

Table 3: Legend for constant humidity lines.

Line Style	Humidity
Solid line	100%
Dashed line	90%
Dotted line	80%

Table 4: Legend for constant mixing ratio lines.

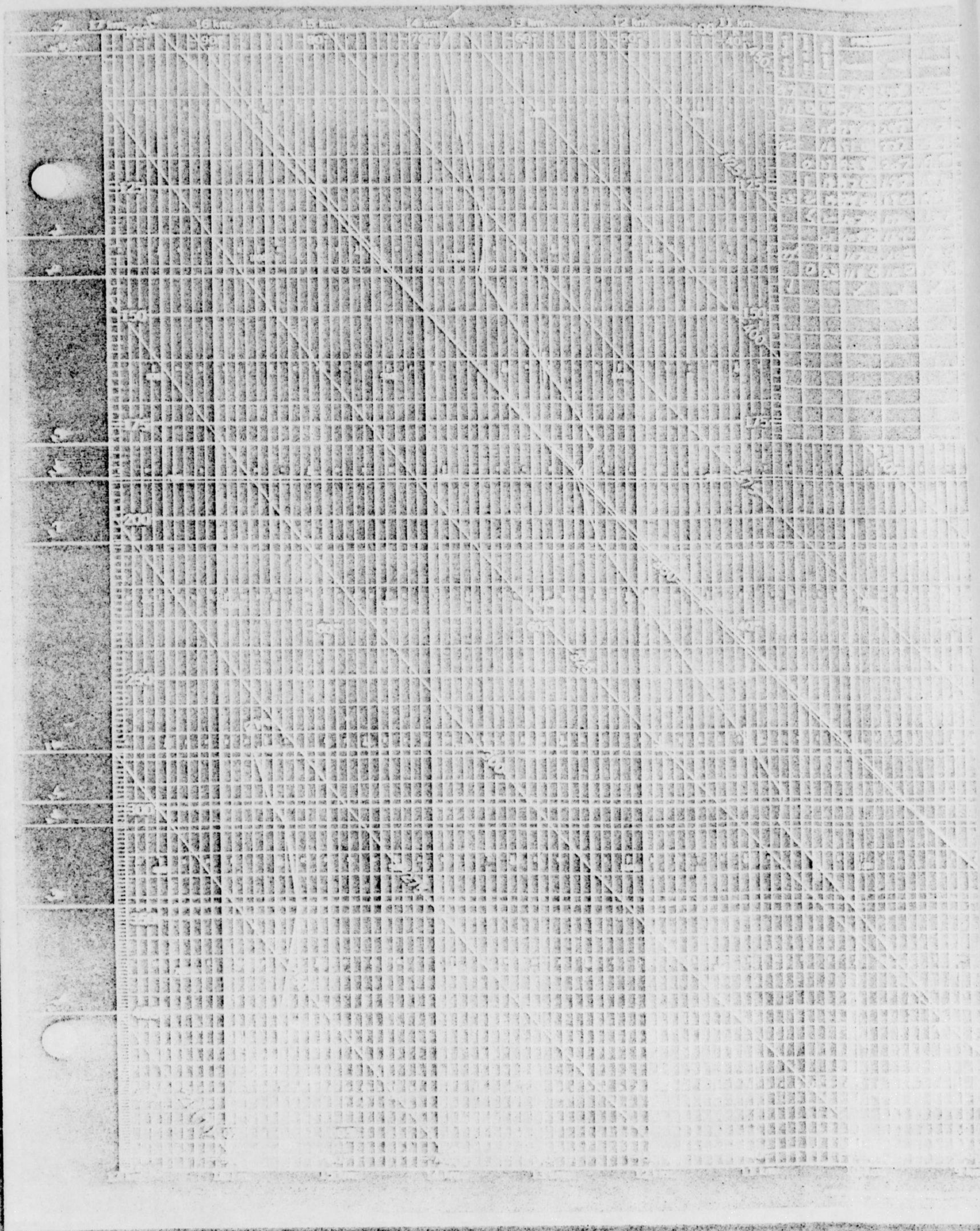
Line Style	Mixing Ratio
Solid line	1.0
Dashed line	0.9
Dotted line	0.8

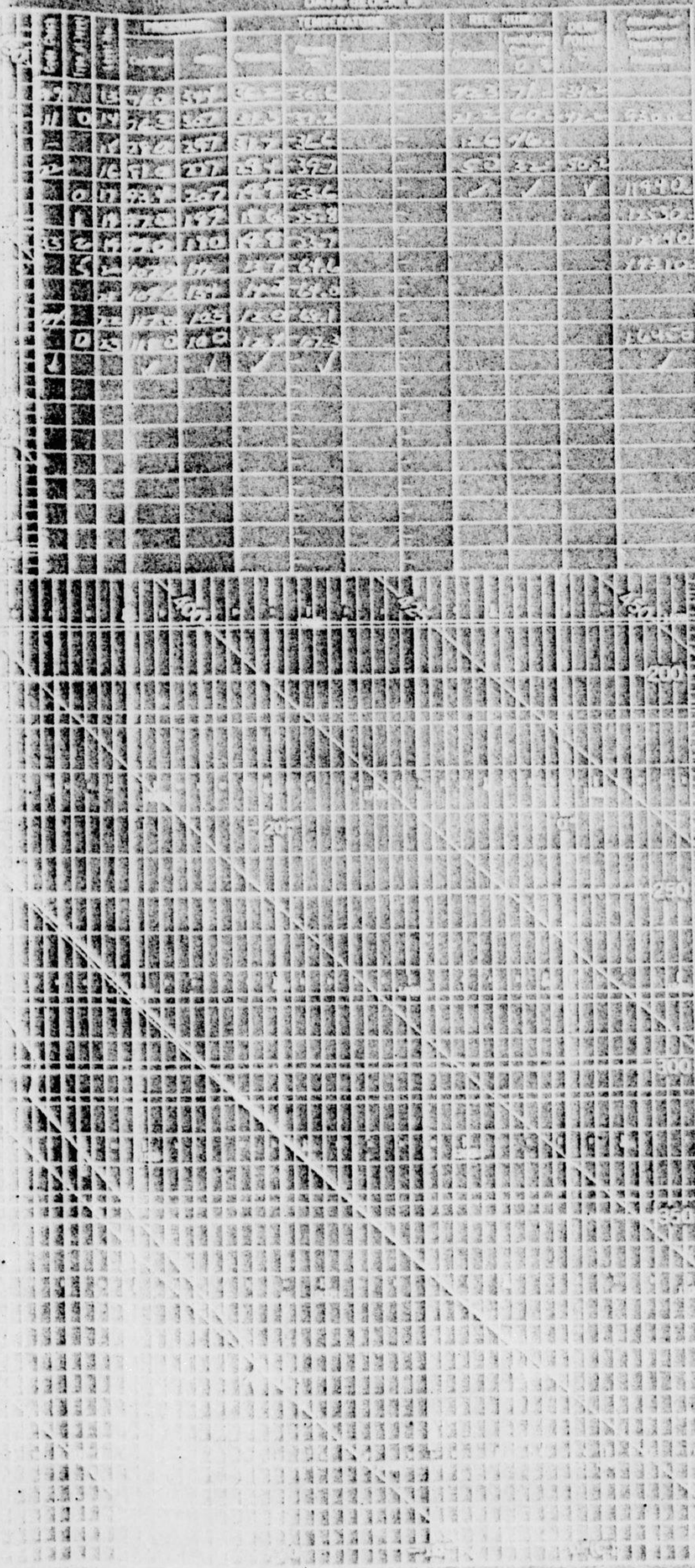
Table 5: Conversion factors for wind speed.

Wind Speed	Direction
10 mph	090°
20 mph	180°
30 mph	270°

Table 6: Conversion factors for time and date.

Time	Date
10:00 AM	10/10/25
2:00 PM	10/10/25
6:00 PM	10/10/25





1964

1577	2917	65
1578	X	X
1579	231	10

PROFESSIONAL

2017	2017	2017
2017	2017	2017
2017	2017	2017

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200



1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1862. The letter is signed by Abraham Lincoln and is addressed to the Senate and House of Representatives. The letter discusses the state of the Union and the progress of the war against the Confederacy. It also mentions the President's efforts to maintain the Union and his commitment to the principles of liberty and justice for all.

2. The second part of the document is a report from the Secretary of the War Department, dated January 10, 1862. The report is signed by Edwin M. Stanton and is addressed to the President. The report discusses the military operations of the Union Army and the progress of the war. It also mentions the Secretary's efforts to supply the Army and his commitment to the principles of efficiency and economy.

3. The third part of the document is a report from the Secretary of the Navy Department, dated January 10, 1862. The report is signed by Gideon Welles and is addressed to the President. The report discusses the operations of the Union Navy and the progress of the war. It also mentions the Secretary's efforts to supply the Navy and his commitment to the principles of efficiency and economy.

4. The fourth part of the document is a report from the Secretary of the Treasury Department, dated January 10, 1862. The report is signed by Salmon P. Chase and is addressed to the President. The report discusses the financial operations of the Union and the progress of the war. It also mentions the Secretary's efforts to manage the government's finances and his commitment to the principles of honesty and integrity.

5. The fifth part of the document is a report from the Secretary of the Interior Department, dated January 10, 1862. The report is signed by Caleb B. Smith and is addressed to the President. The report discusses the operations of the Union Interior Department and the progress of the war. It also mentions the Secretary's efforts to manage the government's land and resources and his commitment to the principles of efficiency and economy.

6. The sixth part of the document is a report from the Secretary of the War Department, dated January 10, 1862. The report is signed by Edwin M. Stanton and is addressed to the President. The report discusses the military operations of the Union Army and the progress of the war. It also mentions the Secretary's efforts to supply the Army and his commitment to the principles of efficiency and economy.

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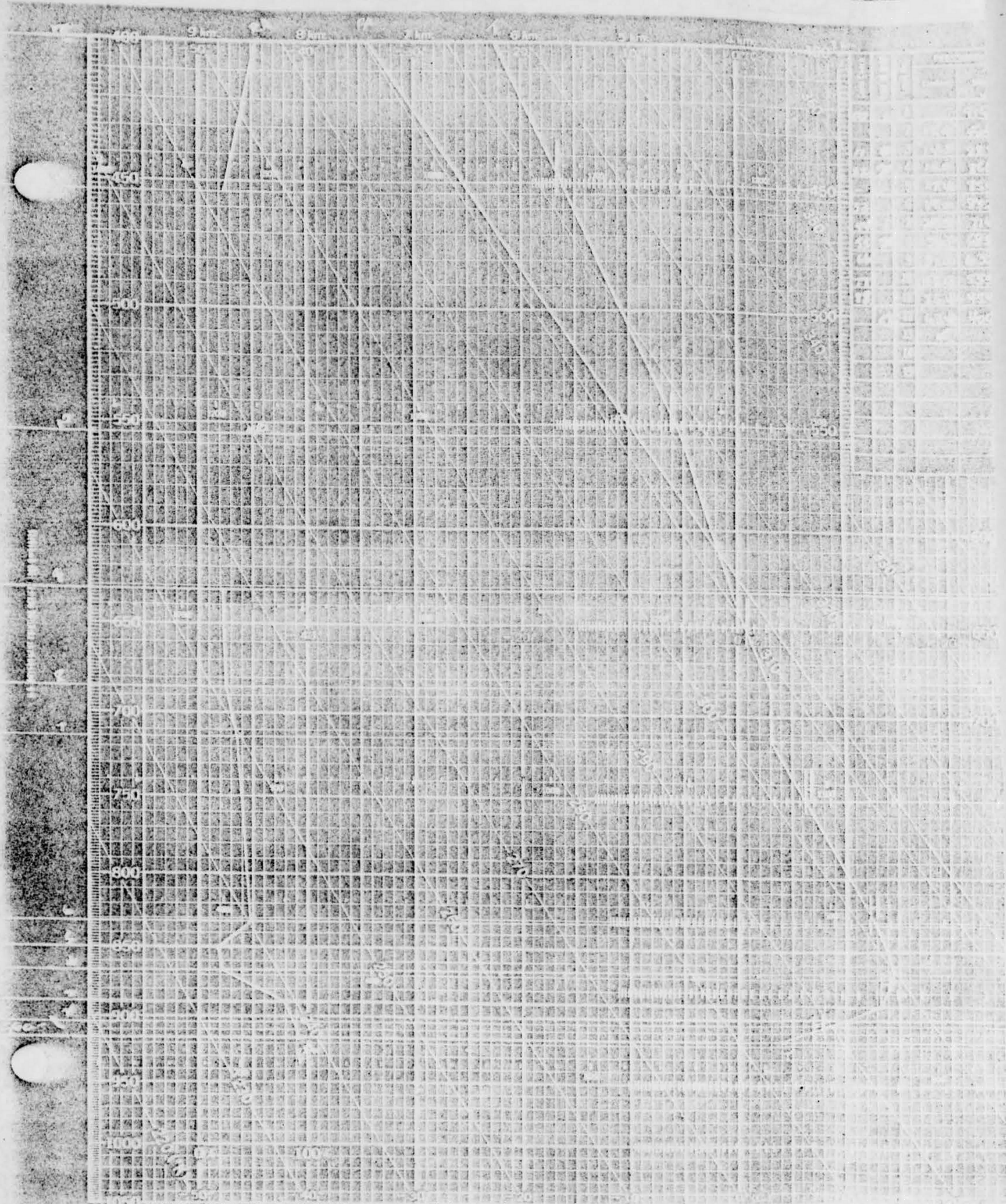
Good weather for the Missis-
sippi River. The water is
low. The river is in the
state of the river. The river
is in the state of the river.
The river is in the state of
the river. The river is in the
state of the river. The river
is in the state of the river.

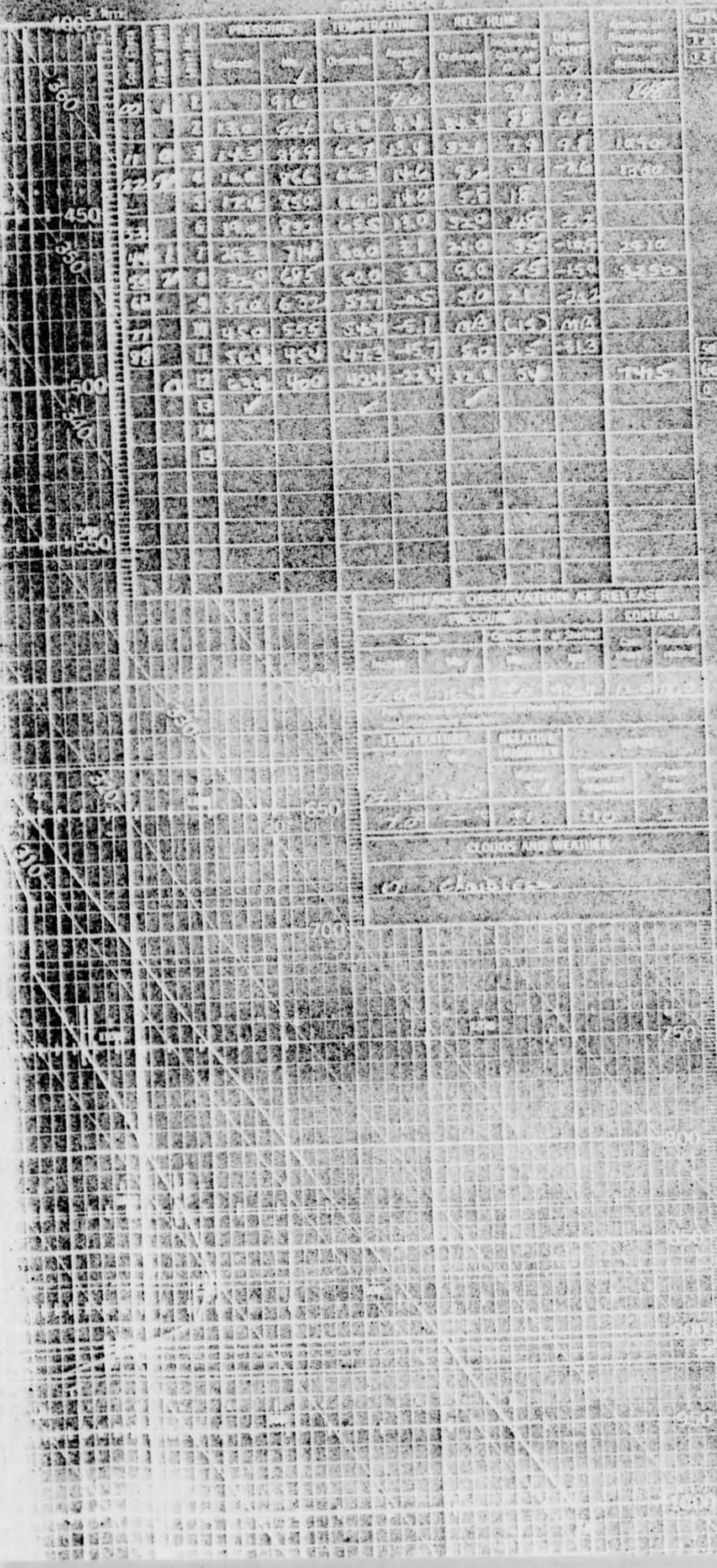
Figure 1 consists of four micrographs arranged in a 2x2 grid. The top row shows the morphology of poly(2-vinylpyridine) (P2VP) in a 10% toluene solution at 25°C. The bottom row shows the morphology at 40°C. The left column shows the morphology after 10 minutes, and the right column shows it after 30 minutes. The images show a transition from a relatively uniform, fine-grained morphology to a more coarsened, phase-separated morphology as temperature increases and time progresses.

HONG KONG & SOUTH CHINA

[illegible]

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.





U.S. DEPARTMENT OF COMMERCE
NAVY DEPARTMENT
ADIABATIC CHART

BASELINE DATA

Pressure (mb)	Temperature (°C)	Density (g/cm³)
1000	15.0	1.225
500	-56.5	0.481
100	-56.5	0.481

RELATIVE HUMIDITY

Pressure (mb)	Temperature (°C)	Relative Humidity (%)
1000	15.0	100
500	-56.5	100
100	-56.5	100

NOTED MESSAGE FOR THE CHART

1. The chart is for use in the U.S. Navy and U.S. Marine Corps.

2. The chart is for use in the U.S. Army and U.S. Air Force.

3. The chart is for use in the U.S. Coast Guard and U.S. Customs Service.

4. The chart is for use in the U.S. Department of Commerce and U.S. Department of the Interior.

5. The chart is for use in the U.S. Department of Education and U.S. Department of Health, Education and Welfare.

6. The chart is for use in the U.S. Department of Justice and U.S. Department of Labor.

7. The chart is for use in the U.S. Department of State and U.S. Department of Transportation.

8. The chart is for use in the U.S. Department of the Treasury and U.S. Department of Veterans Affairs.

9. The chart is for use in the U.S. Department of the Environment and U.S. Department of Housing and Urban Development.

10. The chart is for use in the U.S. Department of the Interior and U.S. Department of the Navy.

LEGEND FOR CONSTANT PRESSURE

Pressure (mb)	Temperature (°C)	Density (g/cm³)
1000	15.0	1.225
500	-56.5	0.481
100	-56.5	0.481

LEGEND FOR PLOTTED CURVE

1. The curve is for use in the U.S. Navy and U.S. Marine Corps.

2. The curve is for use in the U.S. Army and U.S. Air Force.

3. The curve is for use in the U.S. Coast Guard and U.S. Customs Service.

4. The curve is for use in the U.S. Department of Commerce and U.S. Department of the Interior.

5. The curve is for use in the U.S. Department of Education and U.S. Department of Health, Education and Welfare.

6. The curve is for use in the U.S. Department of Justice and U.S. Department of Labor.

7. The curve is for use in the U.S. Department of State and U.S. Department of Transportation.

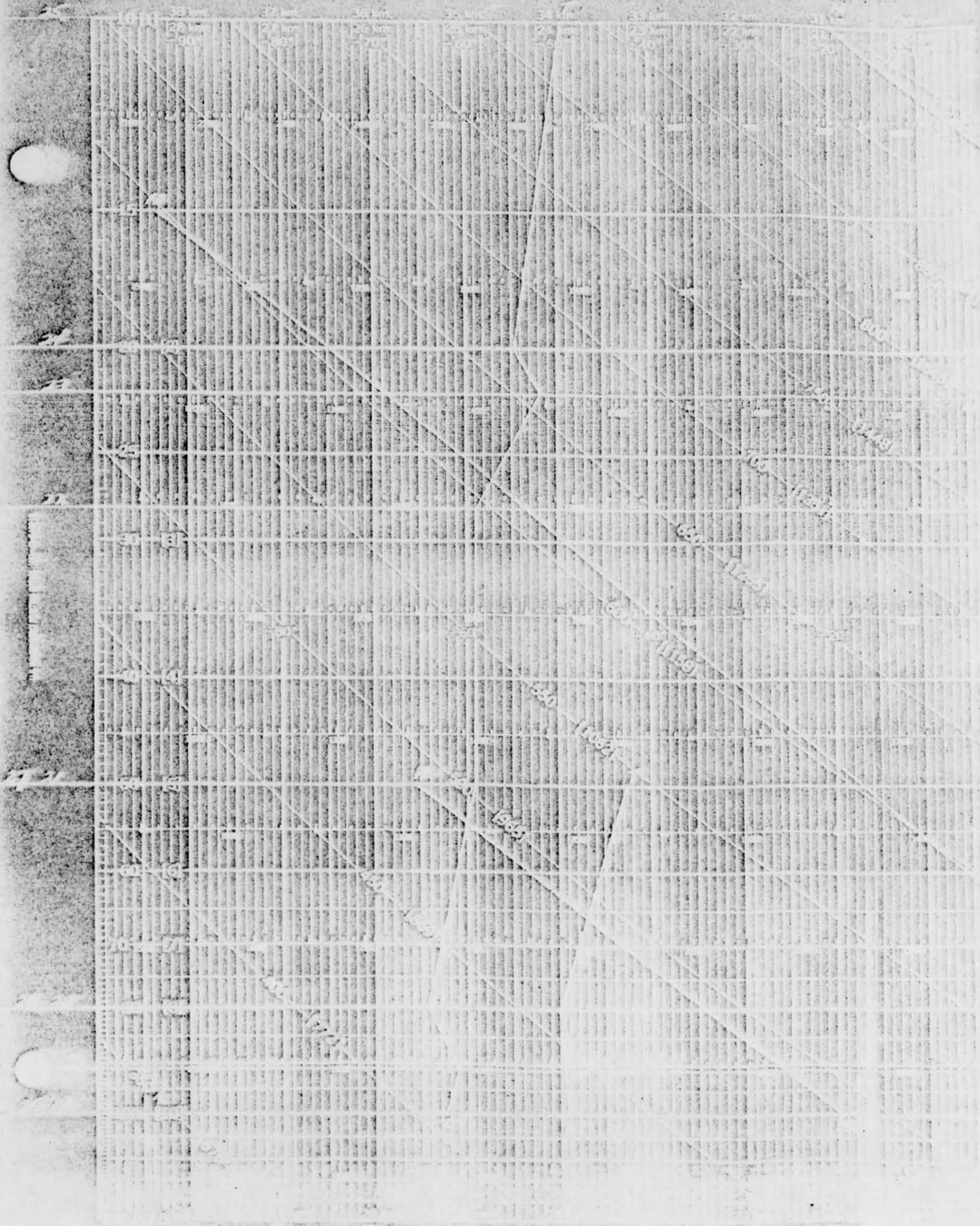
8. The curve is for use in the U.S. Department of the Treasury and U.S. Department of Veterans Affairs.

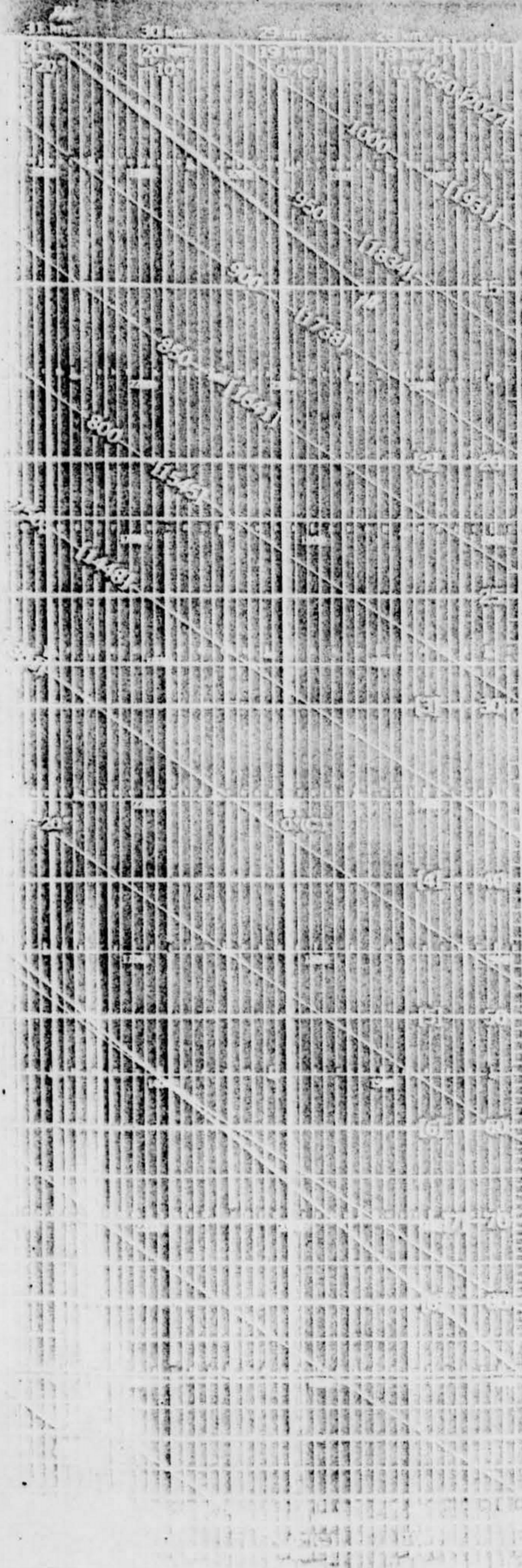
9. The curve is for use in the U.S. Department of the Environment and U.S. Department of Housing and Urban Development.

10. The curve is for use in the U.S. Department of the Interior and U.S. Department of the Navy.

DATA FOR PLOTTED CURVE

Pressure (mb)	Temperature (°C)	Density (g/cm³)
1000	15.0	1.225
500	-56.5	0.481
100	-56.5	0.481





CONVERSION TABLE

1 atm	1.01325 bar
1 bar	0.98692 atm

WEIGHTS AND MEASURES

1 lb	0.45359 kg
1 kg	2.20462 lb

WEIGHTS AND MEASURES

1 ft	0.3048 m
1 m	3.28084 ft

U.S. DEPARTMENT OF COMMERCE WEATHER BUREAU ADIABATIC CHART

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1.3

1.2	1.25	1.3
1.2	1.25	1.3

1.4
1.45
1.5

1.4	1.45	1.5
1.4	1.45	1.5

1.6
1.65
1.7

1.6	1.65	1.7
1.6	1.65	1.7

1.8
1.85
1.9

1.8	1.85	1.9
1.8	1.85	1.9

2.0
2.05
2.1

2.0	2.05	2.1
2.0	2.05	2.1

2.2
2.25
2.3

2.2	2.25	2.3
2.2	2.25	2.3

2.4
2.45
2.5

2.4	2.45	2.5
2.4	2.45	2.5

2.6
2.65
2.7

2.6	2.65	2.7
2.6	2.65	2.7

2.8
2.85
2.9

2.8	2.85	2.9
2.8	2.85	2.9

3.0
3.05
3.1

3.0	3.05	3.1
3.0	3.05	3.1

Pressure (atm)	Temperature (°C)	Specific Volume (cm³/g)	Relative Humidity (%)	Wet-Bulb Temperature (°C)	Dew-Point Temperature (°C)
100	0	0.1	100	0	0
100	10	0.1	100	10	10
100	20	0.1	100	20	20
100	30	0.1	100	30	30
100	40	0.1	100	40	40
100	50	0.1	100	50	50
100	60	0.1	100	60	60
100	70	0.1	100	70	70
100	80	0.1	100	80	80
100	90	0.1	100	90	90
100	100	0.1	100	100	100
10	0	1.0	100	0	0
10	10	1.0	100	10	10
10	20	1.0	100	20	20
10	30	1.0	100	30	30
10	40	1.0	100	40	40
10	50	1.0	100	50	50
10	60	1.0	100	60	60
10	70	1.0	100	70	70
10	80	1.0	100	80	80
10	90	1.0	100	90	90
10	100	1.0	100	100	100
1	0	10.0	100	0	0
1	10	10.0	100	10	10
1	20	10.0	100	20	20
1	30	10.0	100	30	30
1	40	10.0	100	40	40
1	50	10.0	100	50	50
1	60	10.0	100	60	60
1	70	10.0	100	70	70
1	80	10.0	100	80	80
1	90	10.0	100	90	90
1	100	10.0	100	100	100

REMARKS

FORM FOR CORRECTION OF DATA

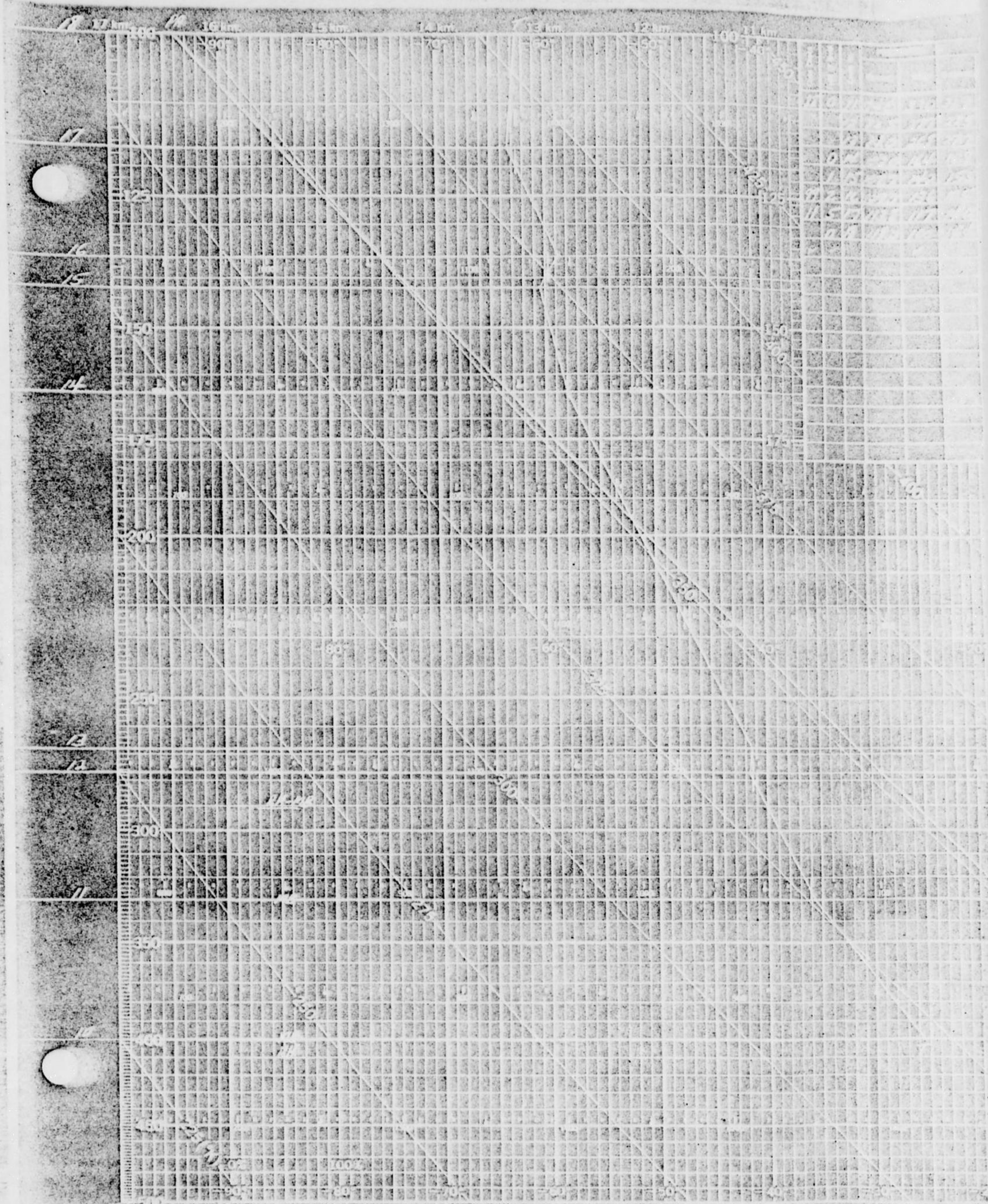
Correction	Value
Pressure	_____
Temperature	_____
Specific Volume	_____
Relative Humidity	_____
Wet-Bulb Temperature	_____
Dew-Point Temperature	_____

UNITED STATES WEATHER BUREAU

UNITED STATES WEATHER BUREAU

1	2	3	4
1	2	3	4

UNITED STATES WEATHER BUREAU



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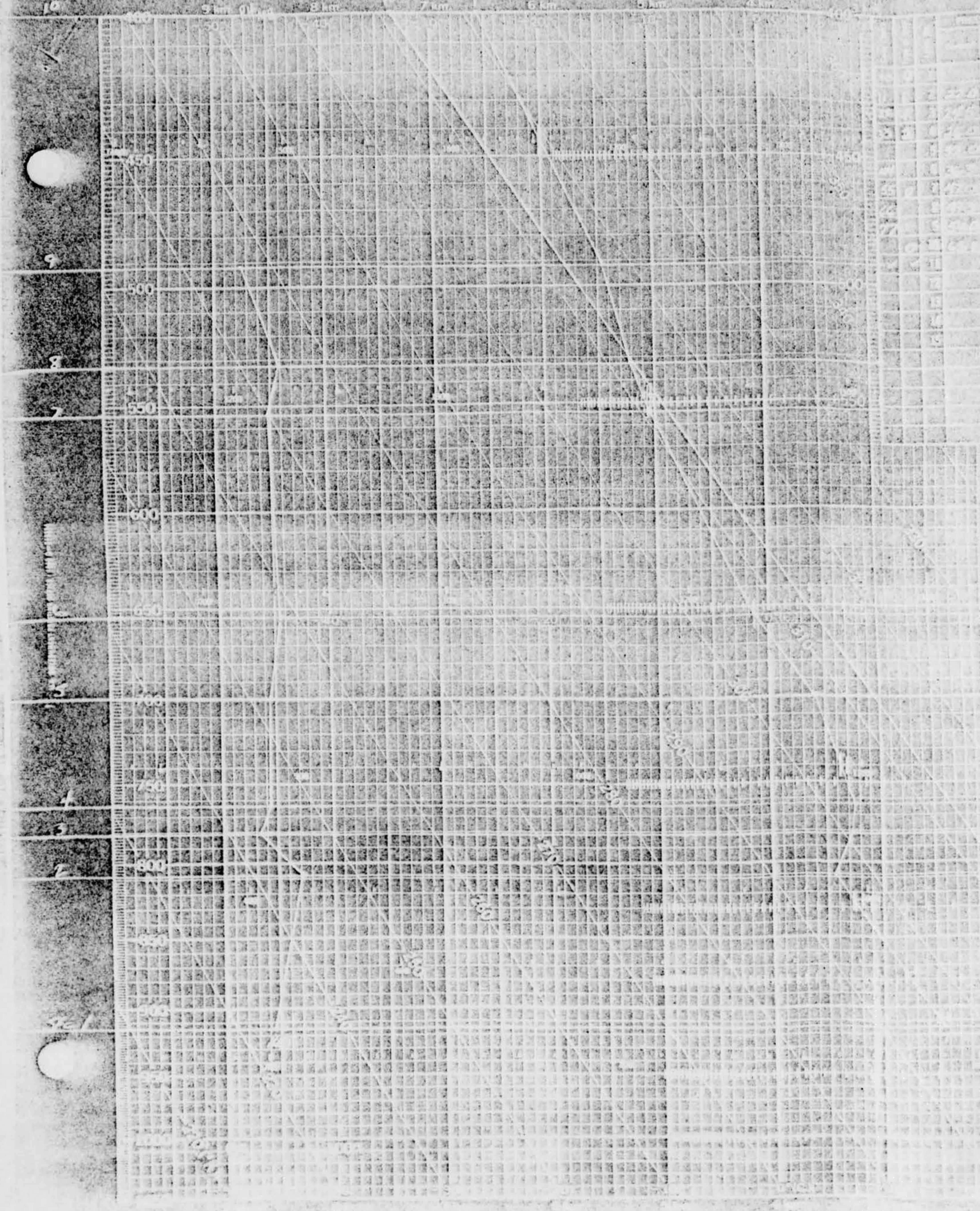
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25 OCT 63

cl & dyn

HEADQUARTERS
821ST STRATEGIC AEROSPACE DIVISION
UNITED STATES AIR FORCE
ELLSWORTH AIR FORCE BASE, SOUTH DAKOTA



REPLY TO
ATTN OF: BDOBO

9 DEC 1983

SUBJECT: Civilian Report of UFO

TO: HQ USAF
Wash DC 20330

FTD W/P AFB OHIO

Attached is a report of an Unidentified Flying Object by a civilian pilot.

FOR THE COMMANDER:

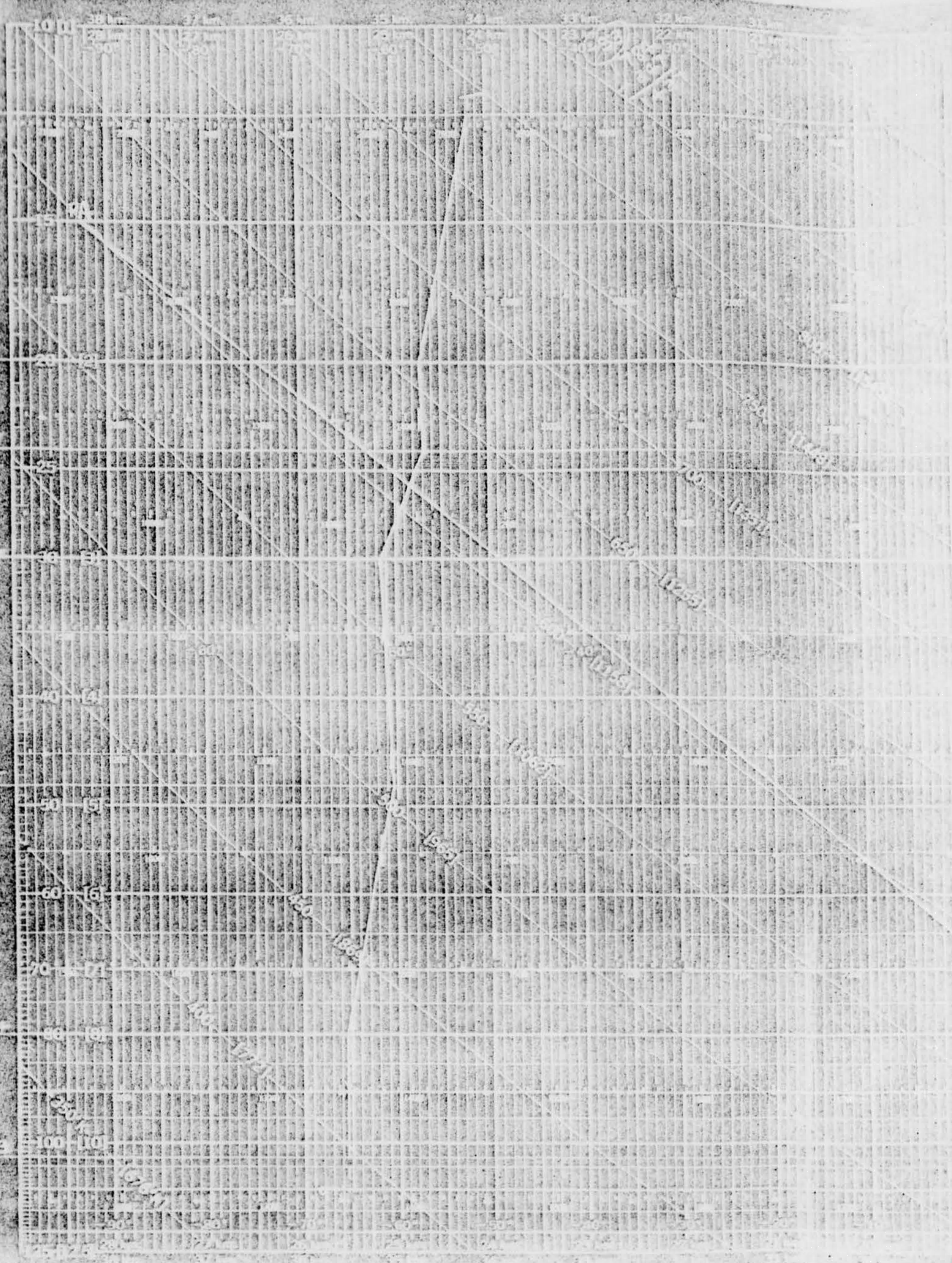
CLIFFORD D. COBLE
Major, USAF
Base Operations Officer

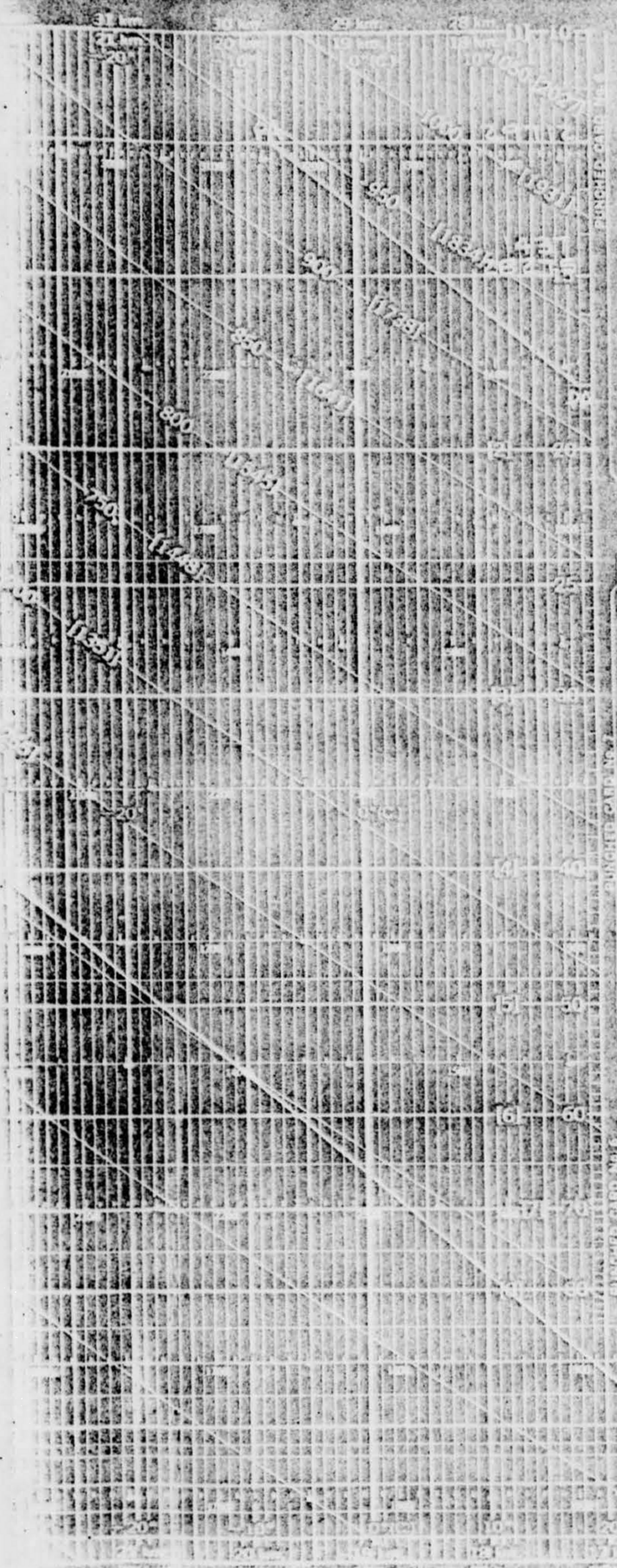
1 Atch
Report of UFO

ADAPTIC GEAR

1997

1990





U.S. DEPARTMENT OF COMMERCE BUREAU OF MARINE ENGINEERING ADIABATIC CHART

TABLE 1

Pressure (lb./sq. in.)	Temperature (°F.)	Specific Volume (cu. ft./lb.)	Enthalpy (Btu./lb.)	Entropy (Btu./lb.-°F.)
100	20	0.016	10.0	0.000
100	40	0.016	10.0	0.000
100	60	0.016	10.0	0.000
100	80	0.016	10.0	0.000
100	100	0.016	10.0	0.000
100	120	0.016	10.0	0.000
80	20	0.020	10.0	0.000
80	40	0.020	10.0	0.000
80	60	0.020	10.0	0.000
80	80	0.020	10.0	0.000
80	100	0.020	10.0	0.000
80	120	0.020	10.0	0.000
60	20	0.025	10.0	0.000
60	40	0.025	10.0	0.000
60	60	0.025	10.0	0.000
60	80	0.025	10.0	0.000
60	100	0.025	10.0	0.000
60	120	0.025	10.0	0.000
40	20	0.032	10.0	0.000
40	40	0.032	10.0	0.000
40	60	0.032	10.0	0.000
40	80	0.032	10.0	0.000
40	100	0.032	10.0	0.000
40	120	0.032	10.0	0.000
20	20	0.040	10.0	0.000
20	40	0.040	10.0	0.000
20	60	0.040	10.0	0.000
20	80	0.040	10.0	0.000
20	100	0.040	10.0	0.000
20	120	0.040	10.0	0.000

TABLE 2

Pressure (lb./sq. in.)	Temperature (°F.)	Specific Volume (cu. ft./lb.)	Enthalpy (Btu./lb.)	Entropy (Btu./lb.-°F.)
100	20	0.016	10.0	0.000
100	40	0.016	10.0	0.000
100	60	0.016	10.0	0.000
100	80	0.016	10.0	0.000
100	100	0.016	10.0	0.000
100	120	0.016	10.0	0.000
80	20	0.020	10.0	0.000
80	40	0.020	10.0	0.000
80	60	0.020	10.0	0.000
80	80	0.020	10.0	0.000
80	100	0.020	10.0	0.000
80	120	0.020	10.0	0.000
60	20	0.025	10.0	0.000
60	40	0.025	10.0	0.000
60	60	0.025	10.0	0.000
60	80	0.025	10.0	0.000
60	100	0.025	10.0	0.000
60	120	0.025	10.0	0.000
40	20	0.032	10.0	0.000
40	40	0.032	10.0	0.000
40	60	0.032	10.0	0.000
40	80	0.032	10.0	0.000
40	100	0.032	10.0	0.000
40	120	0.032	10.0	0.000
20	20	0.040	10.0	0.000
20	40	0.040	10.0	0.000
20	60	0.040	10.0	0.000
20	80	0.040	10.0	0.000
20	100	0.040	10.0	0.000
20	120	0.040	10.0	0.000

REMARKS

LEGEND FOR CONSTANT PRESSURE LINES

LEGEND FOR CONSTANT TEMPERATURE LINES

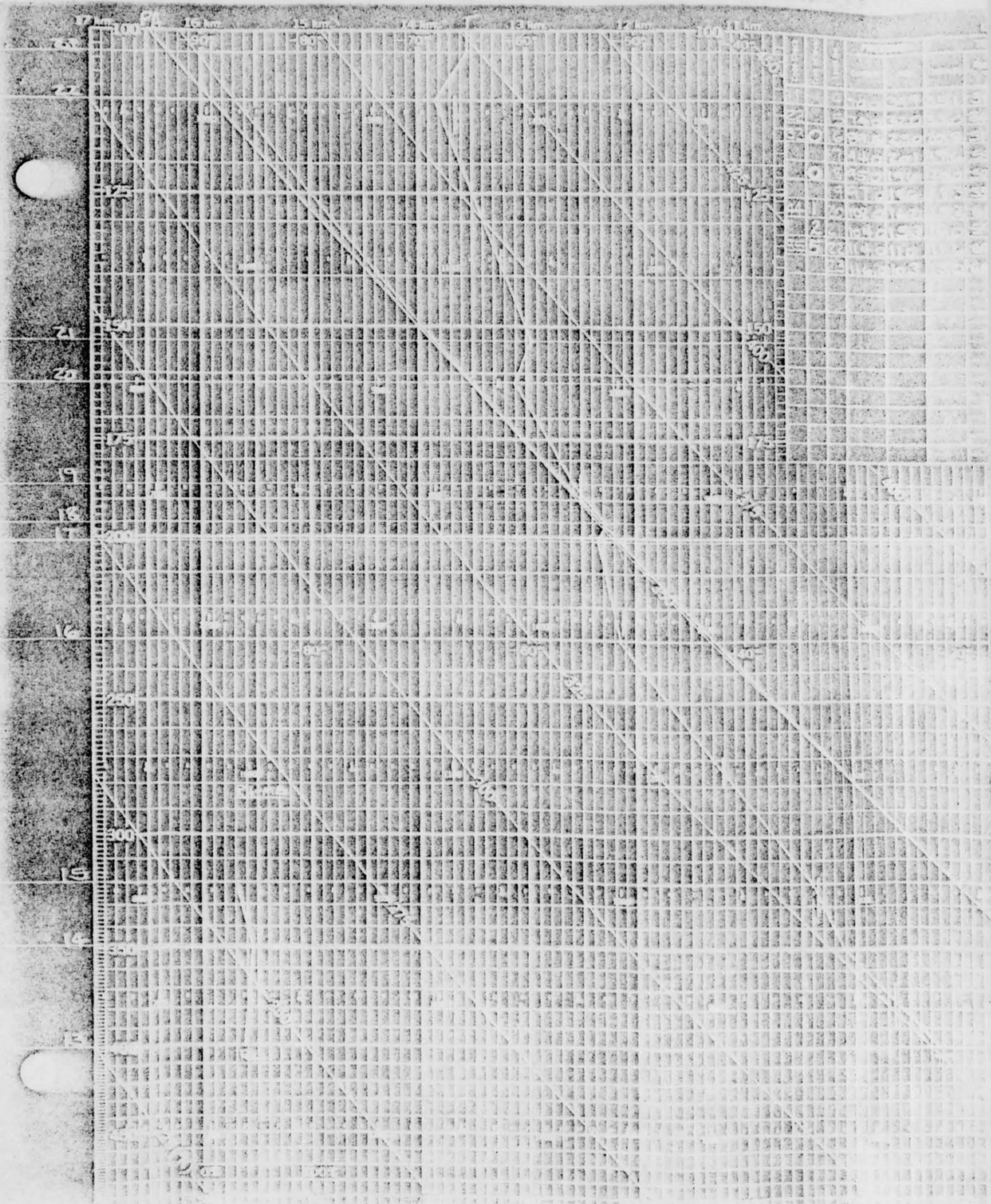
LEGEND FOR CONSTANT SPECIFIC VOLUME LINES

LEGEND FOR CONSTANT ENTHALPY LINES

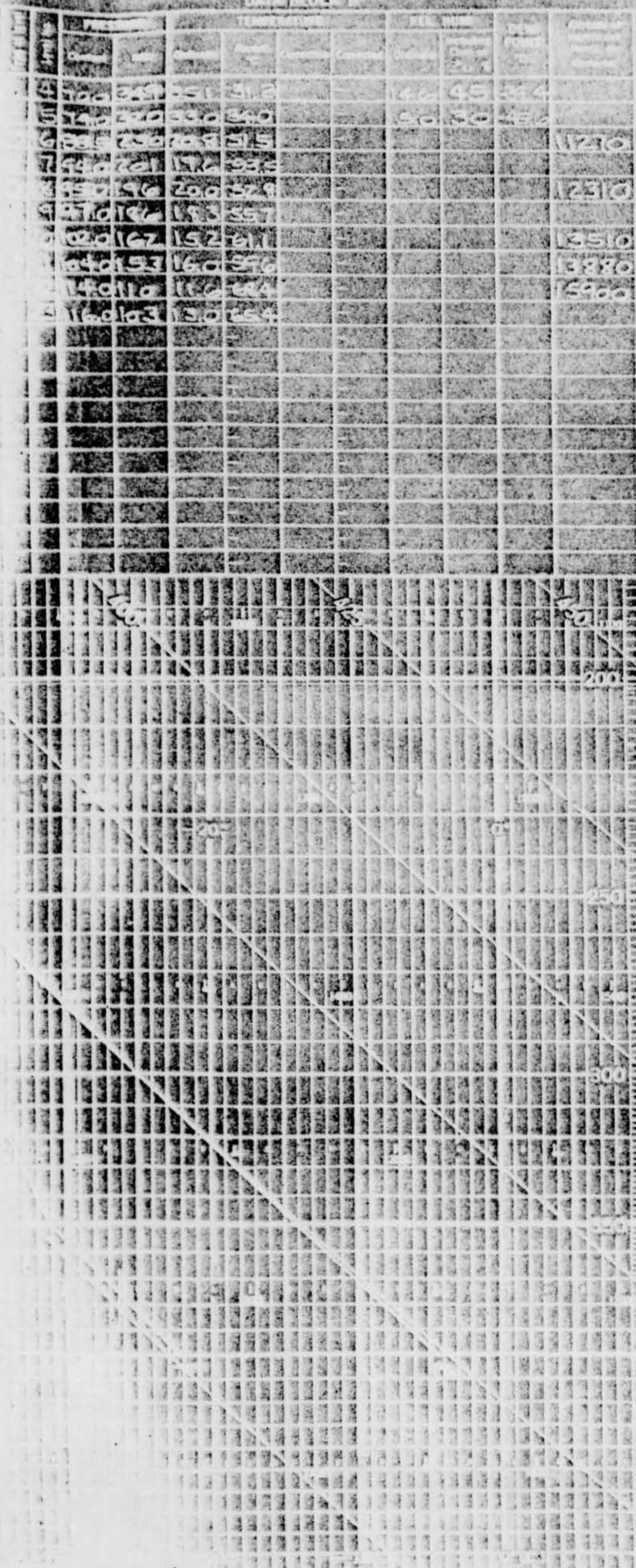
LEGEND FOR CONSTANT ENTROPY LINES

QUANTITY NEEDED (POUNDS PER HOUR)

1.74



U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
ADIABATIC CHART



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Figure 1 displays a sequence of 16 grayscale images arranged in a 4x4 grid, illustrating the degradation of a document page. The images show the original document (top-left) and subsequent frames where the document is increasingly obscured by noise and blurring, representing the degradation process.

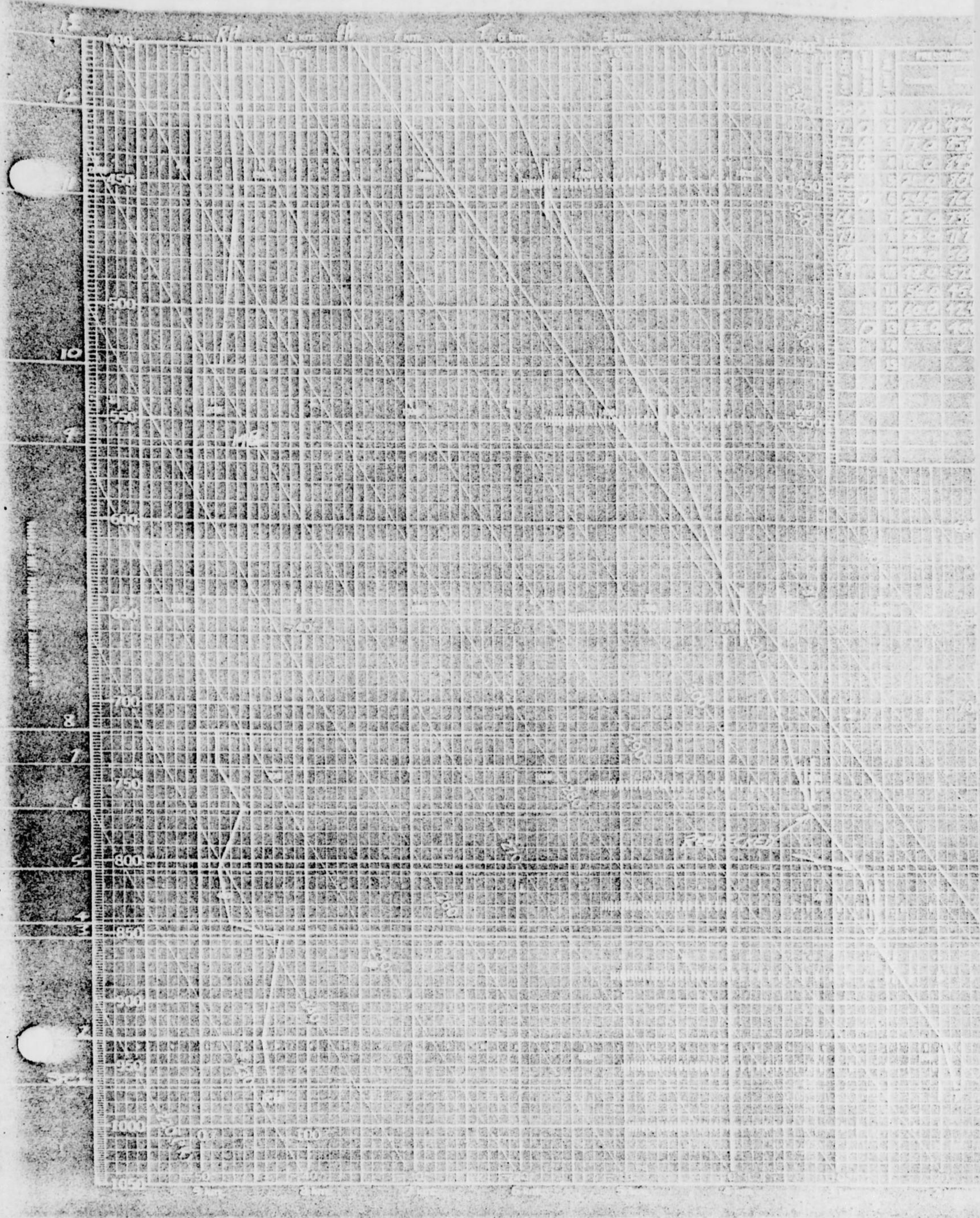
[illegible]

100-443887-100

710124

Figure 1 displays a 4x5 grid of 20 grayscale images. The first row shows the original handwritten digit '2' and its corresponding Fourier transform. The second row shows the original image with different contrast levels. The third row shows the original image with different noise levels. The fourth row shows the original image with different blurring levels.

100



ADAPTIC CHART

ADAPTIC CHART

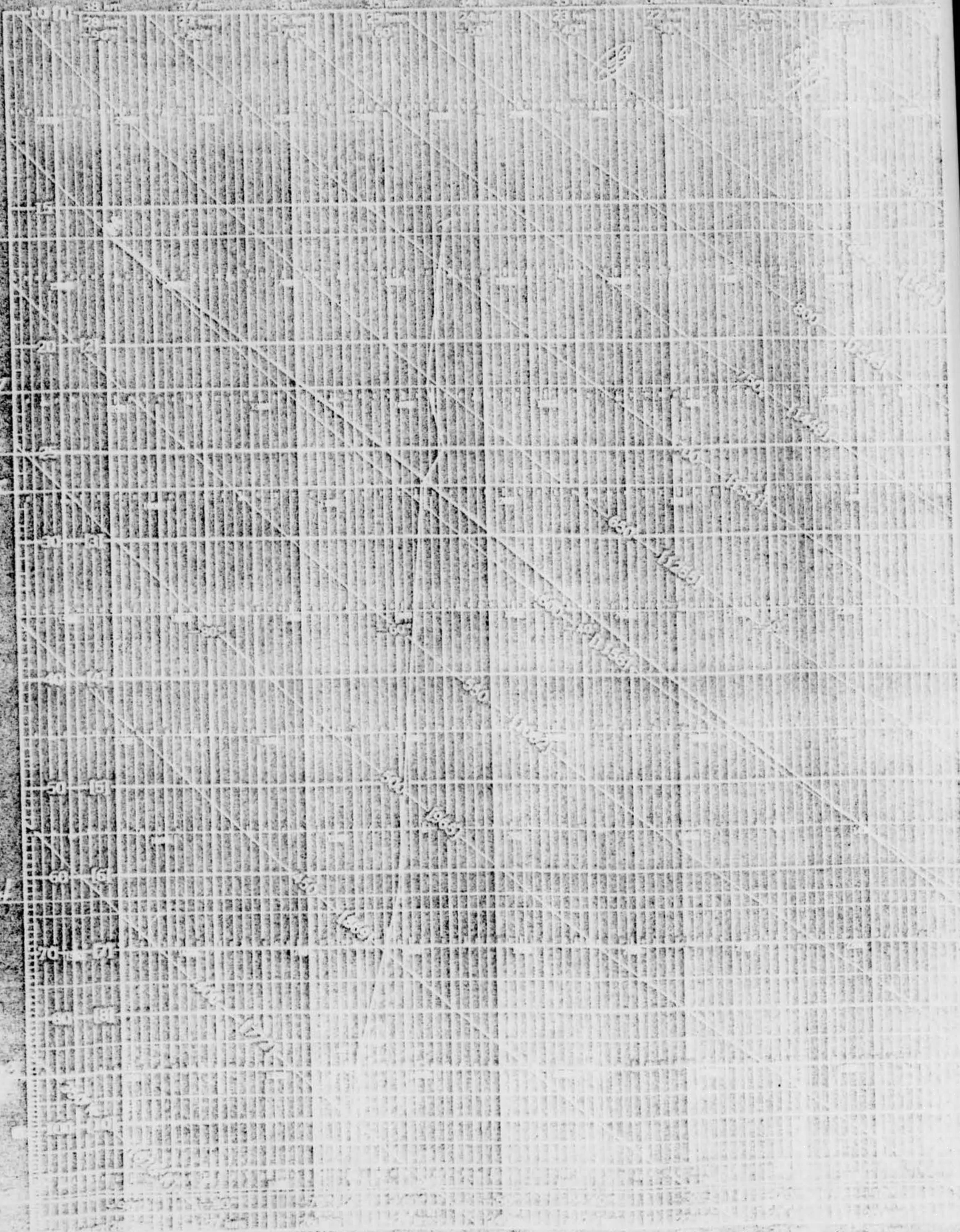
[illegible]

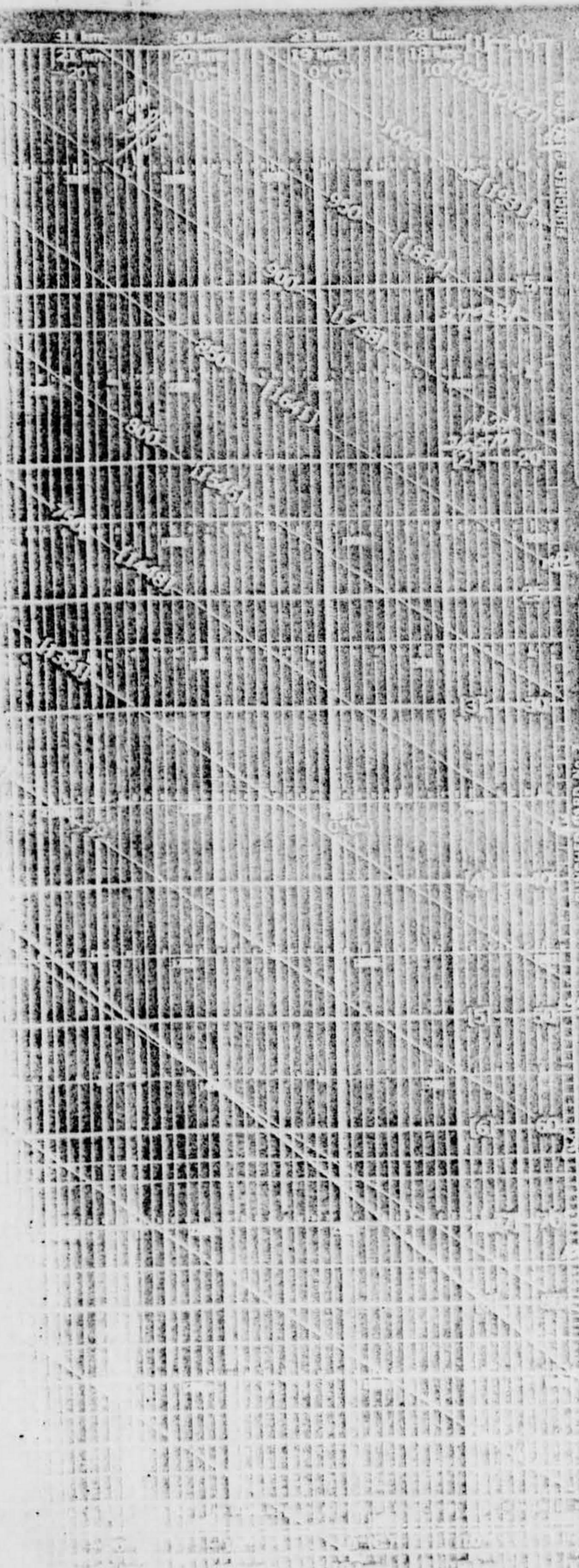
1990

WPA
FIELDSTAFF

[illegible]

1990





U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU
ADIABATIC CHART

WIND	TEMP.	REL. HUM.	WET-BULB	MIXING RATIO	WET-BULB WIND COR.
10	30	100	28	10	0.5
20	30	100	26	20	0.5
30	30	100	24	30	0.5
40	30	100	22	40	0.5
50	30	100	20	50	0.5
60	30	100	18	60	0.5
70	30	100	16	70	0.5
80	30	100	14	80	0.5
90	30	100	12	90	0.5
100	30	100	10	100	0.5
110	30	100	8	110	0.5
120	30	100	6	120	0.5
130	30	100	4	130	0.5
140	30	100	2	140	0.5
150	30	100	0	150	0.5
160	30	100	-2	160	0.5
170	30	100	-4	170	0.5
180	30	100	-6	180	0.5
190	30	100	-8	190	0.5
200	30	100	-10	200	0.5
210	30	100	-12	210	0.5
220	30	100	-14	220	0.5
230	30	100	-16	230	0.5
240	30	100	-18	240	0.5
250	30	100	-20	250	0.5
260	30	100	-22	260	0.5
270	30	100	-24	270	0.5
280	30	100	-26	280	0.5
290	30	100	-28	290	0.5
300	30	100	-30	300	0.5
310	30	100	-32	310	0.5
320	30	100	-34	320	0.5
330	30	100	-36	330	0.5
340	30	100	-38	340	0.5
350	30	100	-40	350	0.5
360	30	100	-42	360	0.5
370	30	100	-44	370	0.5
380	30	100	-46	380	0.5
390	30	100	-48	390	0.5
400	30	100	-50	400	0.5
410	30	100	-52	410	0.5
420	30	100	-54	420	0.5
430	30	100	-56	430	0.5
440	30	100	-58	440	0.5
450	30	100	-60	450	0.5
460	30	100	-62	460	0.5
470	30	100	-64	470	0.5
480	30	100	-66	480	0.5
490	30	100	-68	490	0.5
500	30	100	-70	500	0.5
510	30	100	-72	510	0.5
520	30	100	-74	520	0.5
530	30	100	-76	530	0.5
540	30	100	-78	540	0.5
550	30	100	-80	550	0.5
560	30	100	-82	560	0.5
570	30	100	-84	570	0.5
580	30	100	-86	580	0.5
590	30	100	-88	590	0.5
600	30	100	-90	600	0.5
610	30	100	-92	610	0.5
620	30	100	-94	620	0.5
630	30	100	-96	630	0.5
640	30	100	-98	640	0.5
650	30	100	-100	650	0.5
660	30	100	-102	660	0.5
670	30	100	-104	670	0.5
680	30	100	-106	680	0.5
690	30	100	-108	690	0.5
700	30	100	-110	700	0.5
710	30	100	-112	710	0.5
720	30	100	-114	720	0.5
730	30	100	-116	730	0.5
740	30	100	-118	740	0.5
750	30	100	-120	750	0.5
760	30	100	-122	760	0.5
770	30	100	-124	770	0.5
780	30	100	-126	780	0.5
790	30	100	-128	790	0.5
800	30	100	-130	800	0.5
810	30	100	-132	810	0.5
820	30	100	-134	820	0.5
830	30	100	-136	830	0.5
840	30	100	-138	840	0.5
850	30	100	-140	850	0.5
860	30	100	-142	860	0.5
870	30	100	-144	870	0.5
880	30	100	-146	880	0.5
890	30	100	-148	890	0.5
900	30	100	-150	900	0.5
910	30	100	-152	910	0.5
920	30	100	-154	920	0.5
930	30	100	-156	930	0.5
940	30	100	-158	940	0.5
950	30	100	-160	950	0.5
960	30	100	-162	960	0.5
970	30	100	-164	970	0.5
980	30	100	-166	980	0.5
990	30	100	-168	990	0.5
1000	30	100	-170	1000	0.5

WIND DIRECTION AND SPEED
TEMPERATURE
RELATIVE HUMIDITY
WET-BULB TEMPERATURE
MIXING RATIO

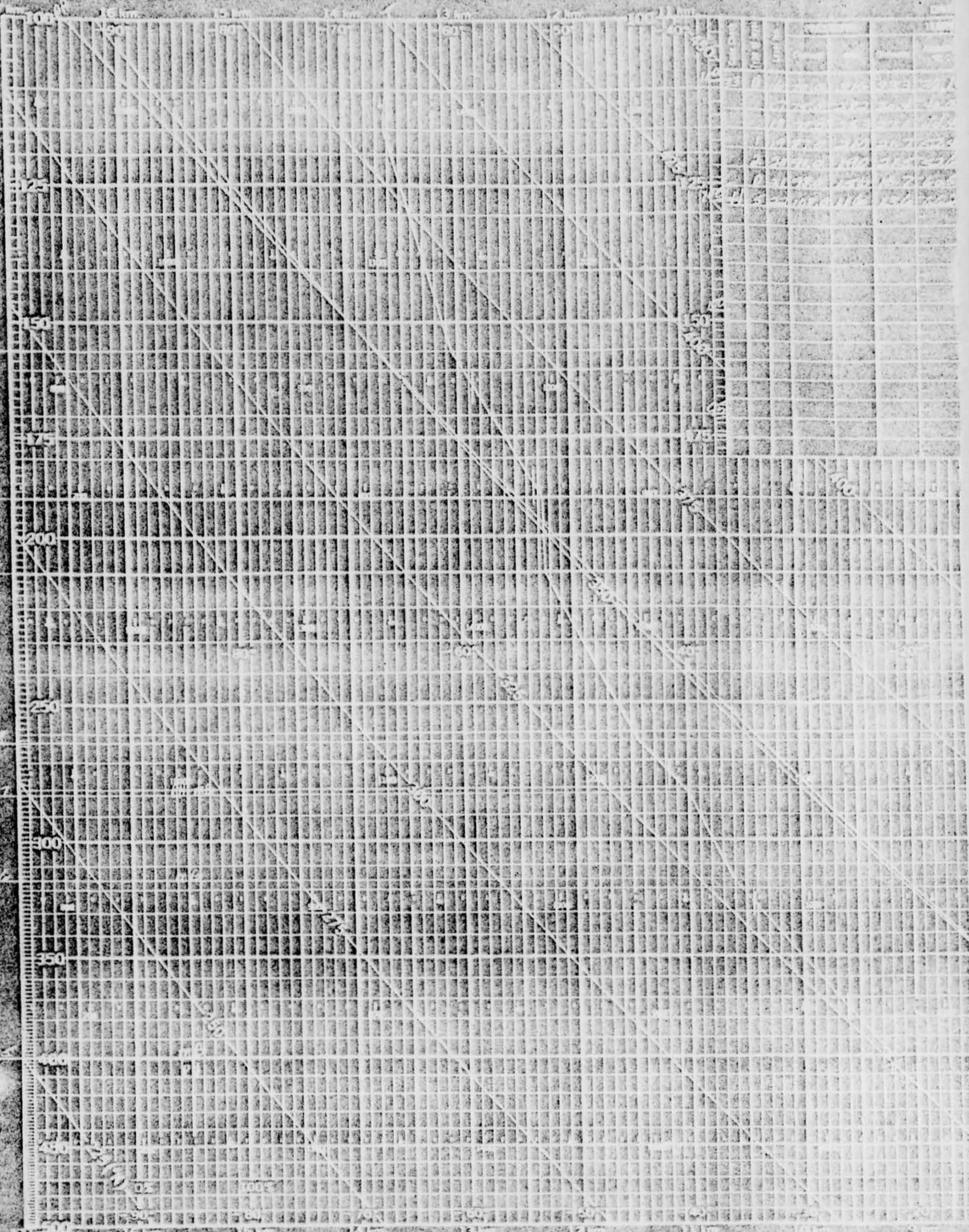
WIND DIRECTION AND SPEED
TEMPERATURE
RELATIVE HUMIDITY
WET-BULB TEMPERATURE
MIXING RATIO

WIND DIRECTION AND SPEED
TEMPERATURE
RELATIVE HUMIDITY
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RELATIVE HUMIDITY
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MIXING RATIO

WIND DIRECTION AND SPEED
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RELATIVE HUMIDITY
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MIXING RATIO

WIND DIRECTION AND SPEED
TEMPERATURE
RELATIVE HUMIDITY
WET-BULB TEMPERATURE
MIXING RATIO



FEDERAL AVIATION AGENCY

Flight Service Station

Box 137

Huron, South Dakota

November 27, 1963

Dear Mr. [REDACTED]

I wish to acknowledge your letter, dated November 5, 1963, of sighting an unidentified flying object, while in flight to Mitchell.

Your well written description of the sighting has been forwarded to the proper military office for handling.

If I may be of further assistance to you, please do not hesitate to write.

Sincerely yours,

Billy D. Templeton
Chief, Flight Service Station

cc:
CE-520
RCA-afb

U.S. DEPARTMENT OF COMMERCE
NAVY BUREAU
ADIABATIC CHART

1. Initial Conditions	
Pressure	14.7
Temperature	70
Volume	1
2. Final Conditions	
Pressure	
Temperature	
Volume	
3. Process	
Adiabatic Index	1.4
Process	Adiabatic
4. Results	
Final Pressure	
Final Temperature	
Final Volume	

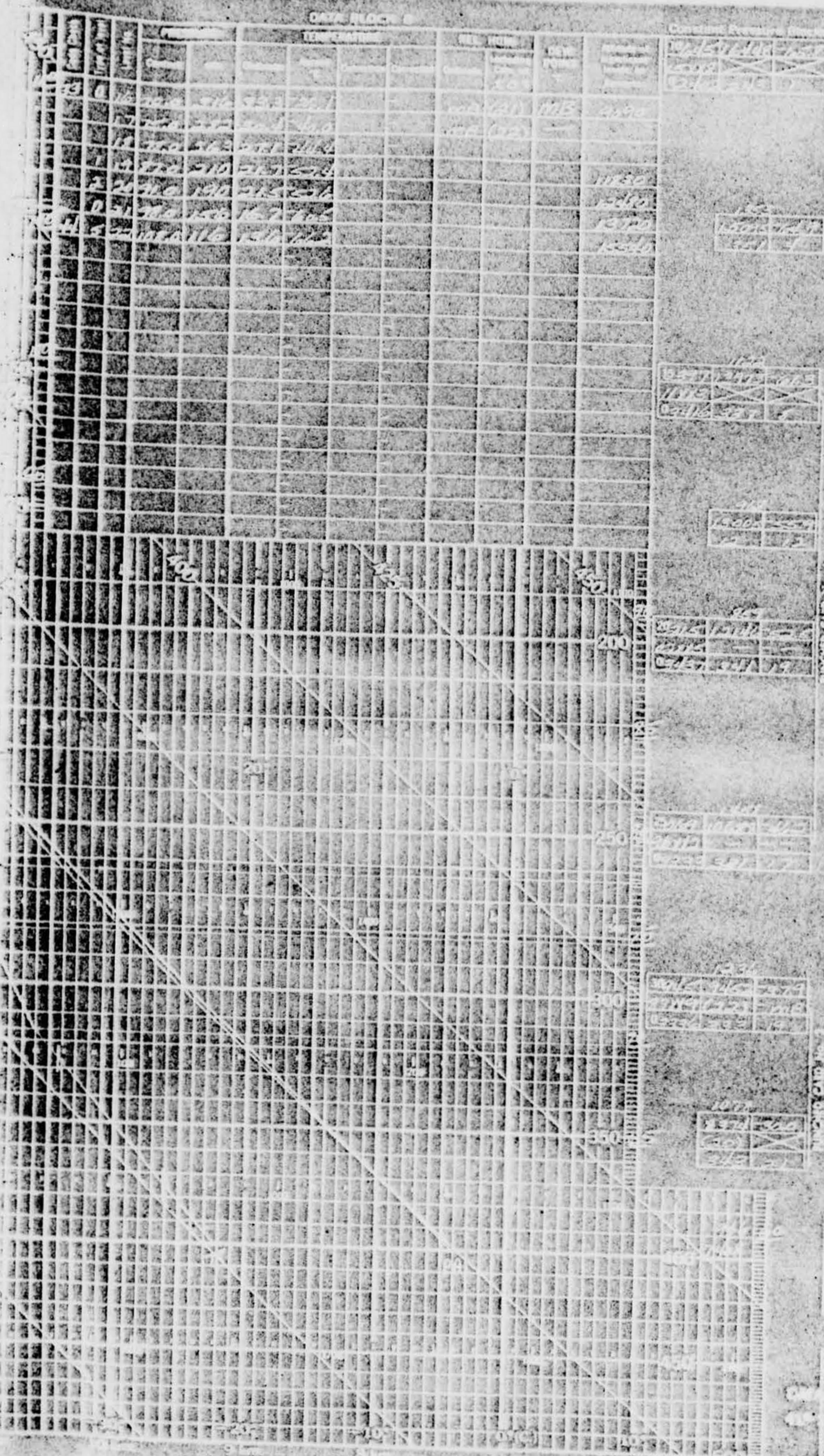
5. Work Done	
Work Done	
6. Heat Transfer	
Heat Transfer	
7. Efficiency	
Efficiency	

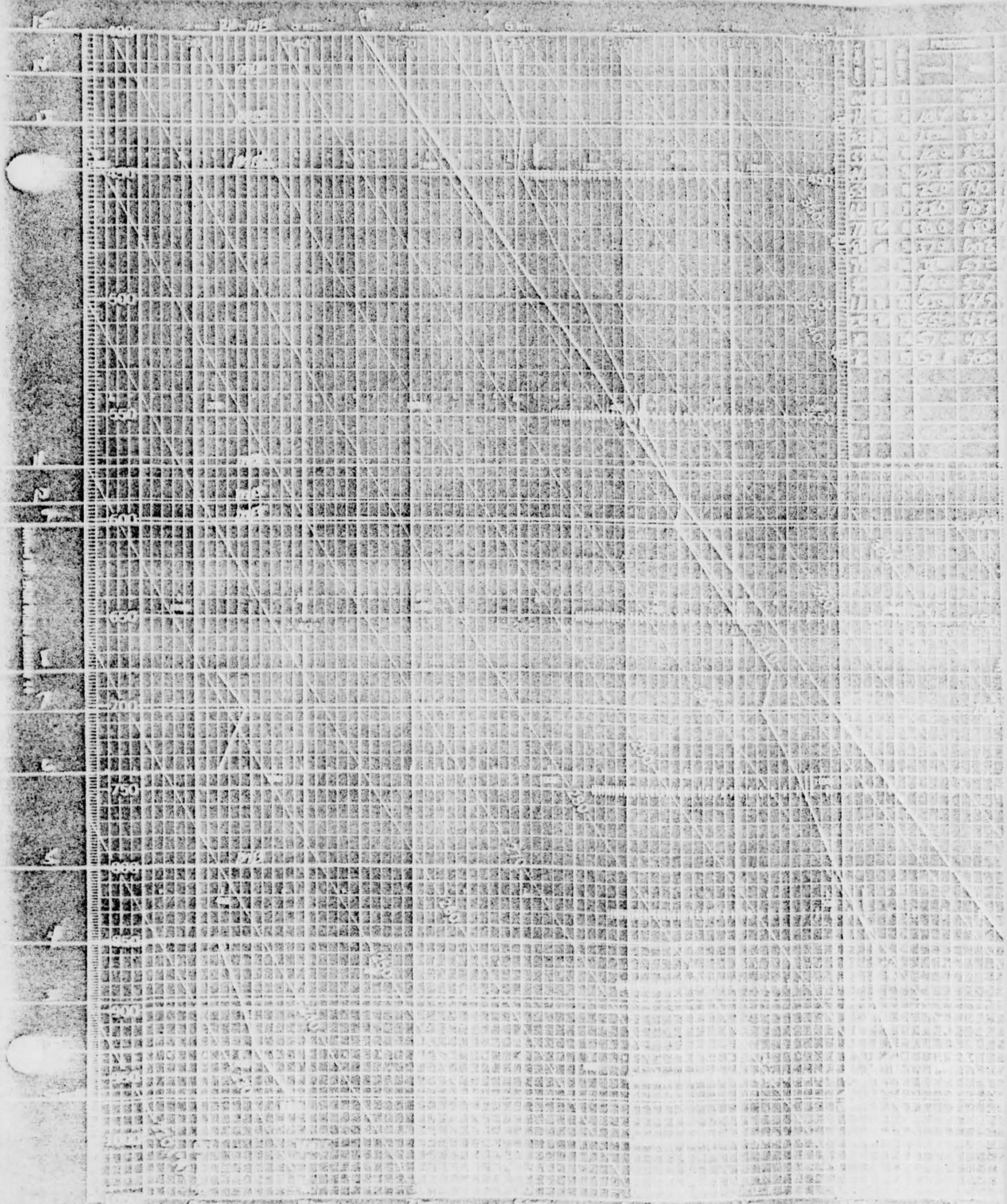
8. Legend for Constant Pressure Lines	
Pressure	
Temperature	
Volume	

9. Legend for Adiabatic Curves	
Adiabatic Index	
Process	

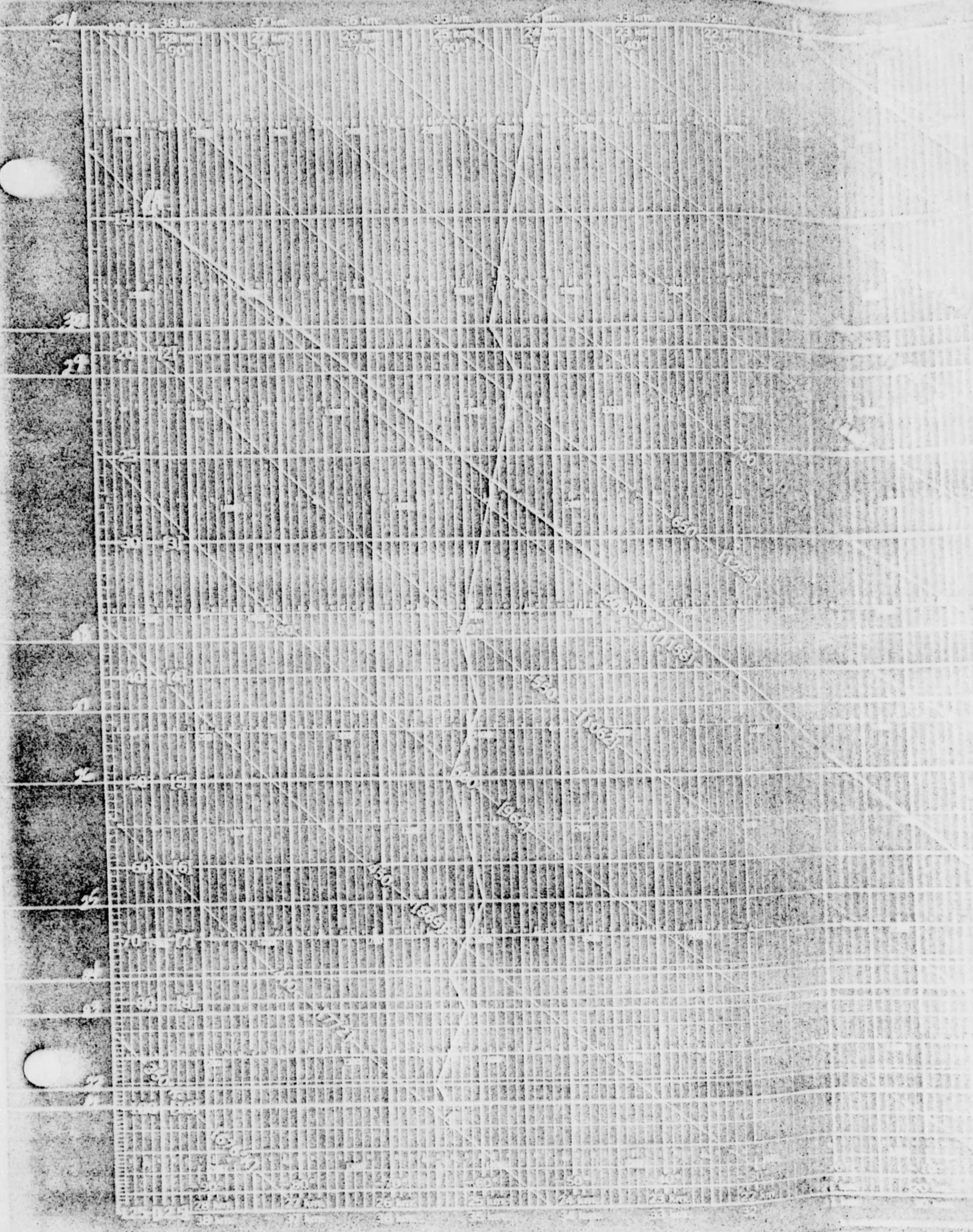
10. Date and Time	
Date	
Time	

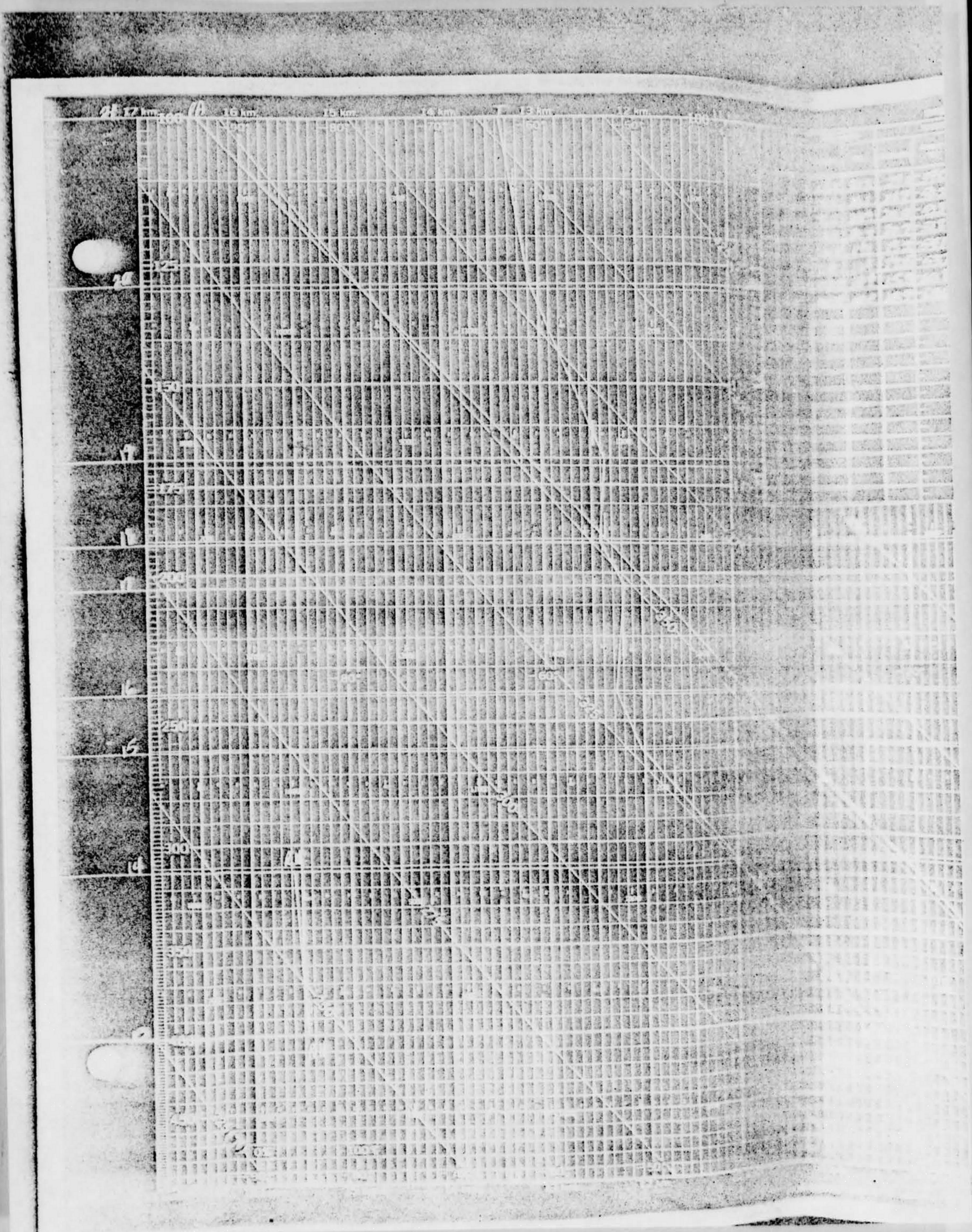
11. Name of Officer	
Name	

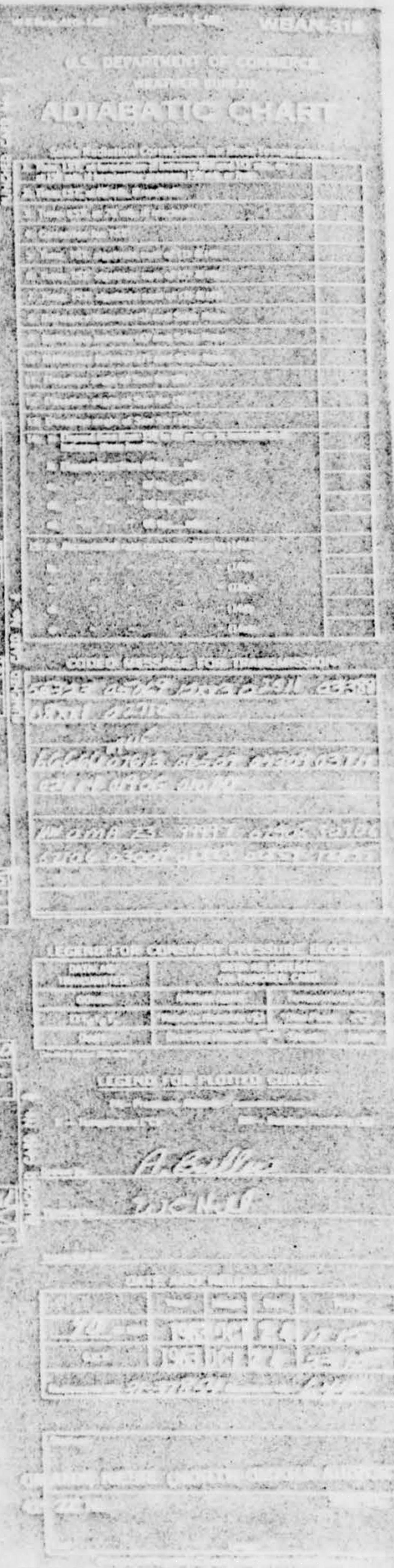
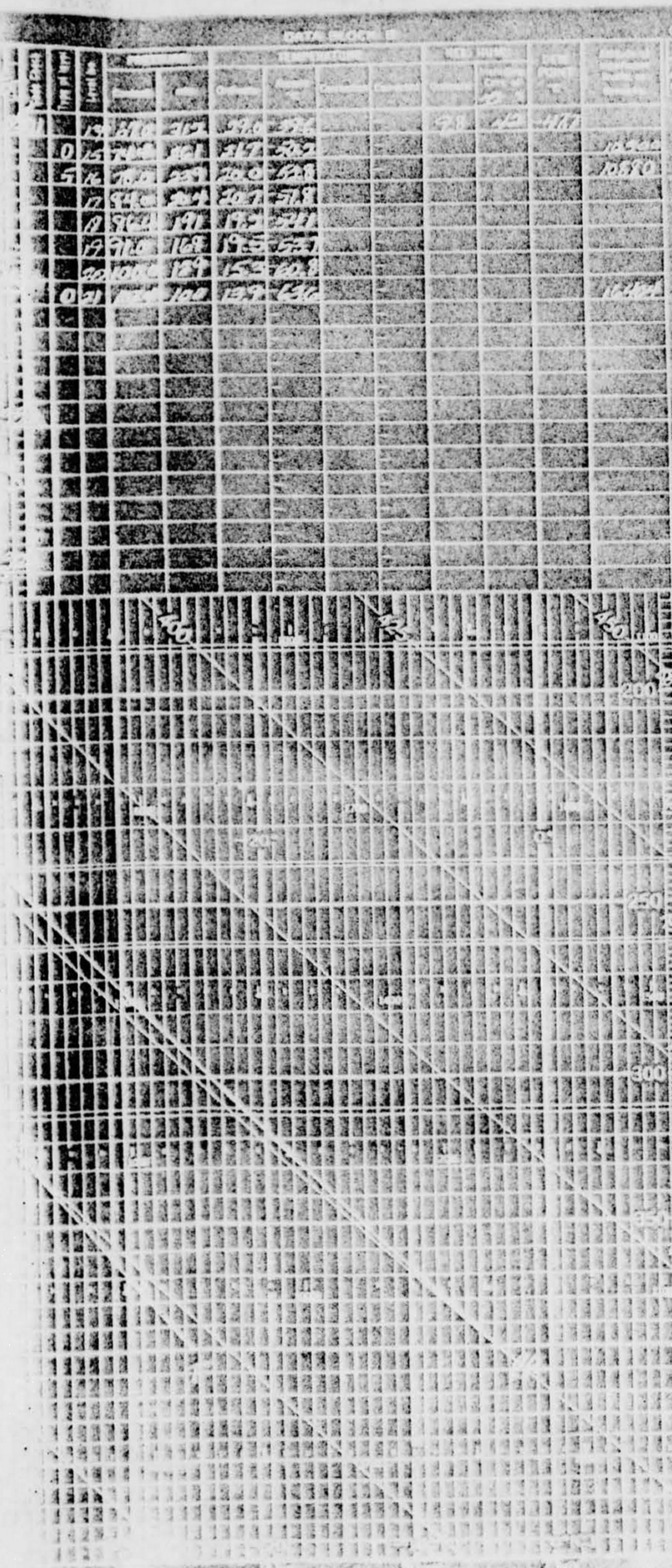


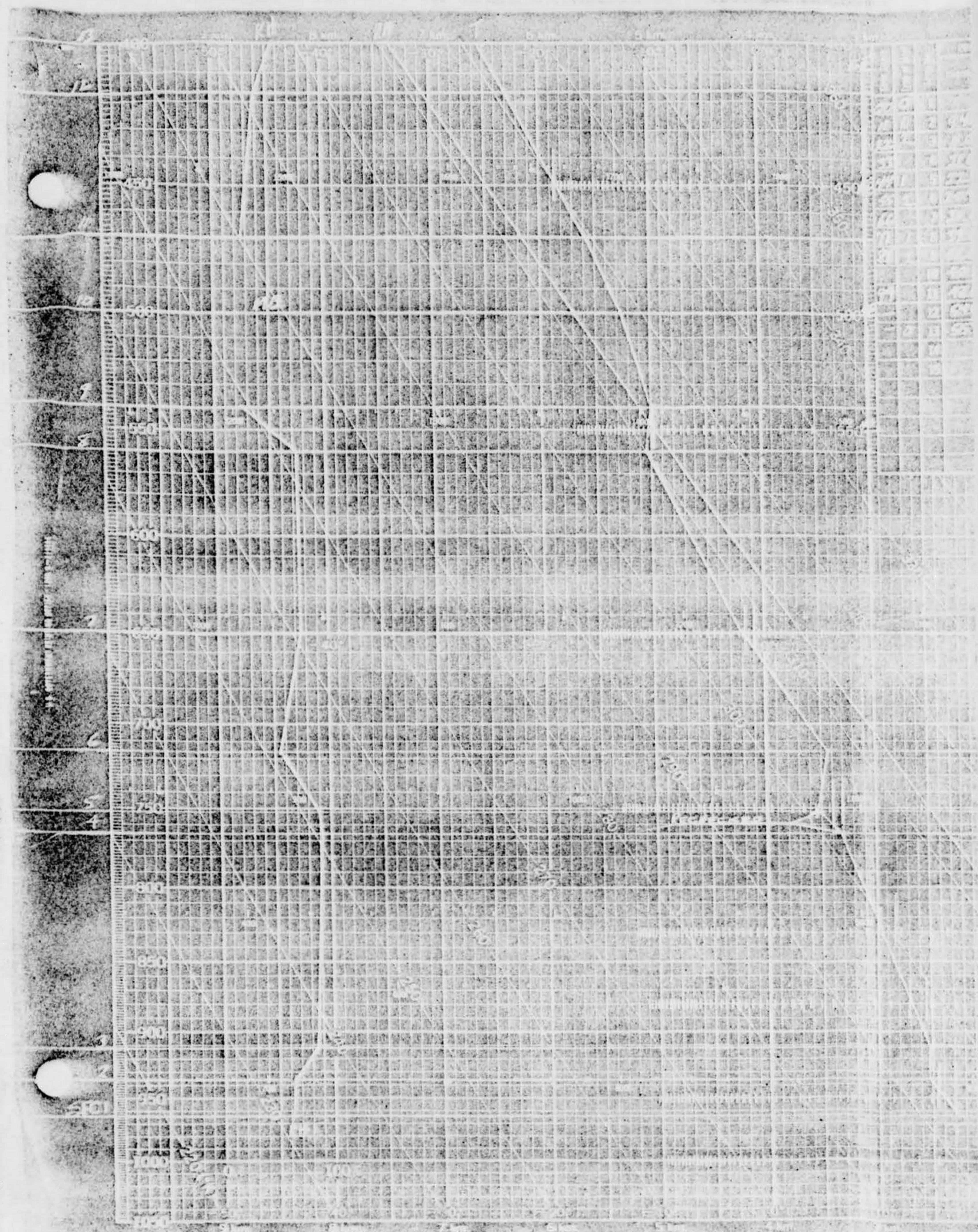


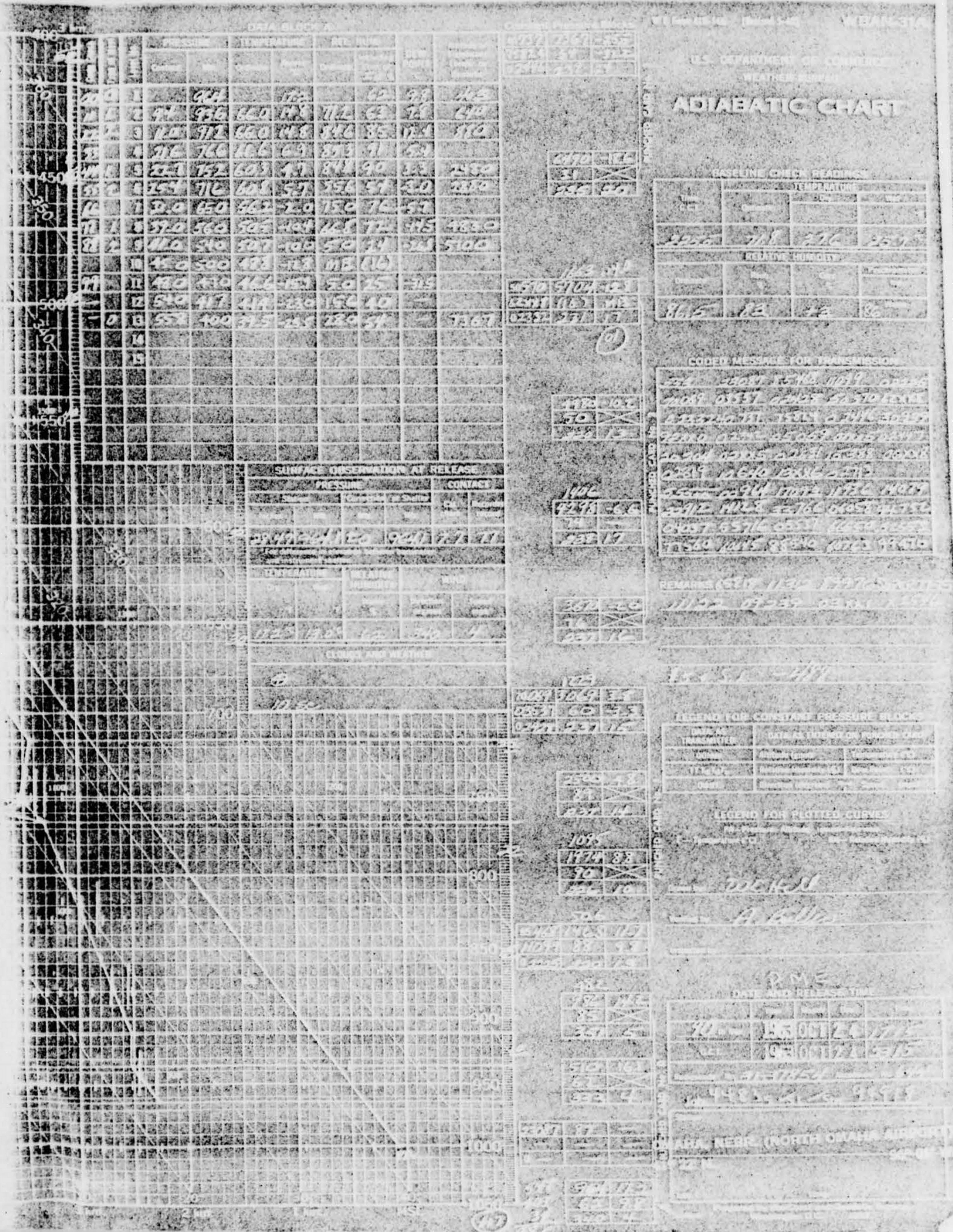
[illegible]











ADIABATIC CHART

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

BASELINE CHART READINGS

Pressure	Temperature	Relative Humidity	Wet-Bulb Temperature
1010	70	80	60
1000	70	75	58
990	70	70	56
980	70	65	54
970	70	60	52
960	70	55	50
950	70	50	48
940	70	45	46
930	70	40	44
920	70	35	42
910	70	30	40
900	70	25	38
890	70	20	36
880	70	15	34
870	70	10	32
860	70	5	30
850	70	0	28

CODED MESSAGE FOR TRANSMISSION

1010 70 80 60
1000 70 75 58
990 70 70 56
980 70 65 54
970 70 60 52
960 70 55 50
950 70 50 48
940 70 45 46
930 70 40 44
920 70 35 42
910 70 30 40
900 70 25 38
890 70 20 36
880 70 15 34
870 70 10 32
860 70 5 30
850 70 0 28

Pressure	Temperature	Relative Humidity	Wet-Bulb Temperature
1010	70	80	60
1000	70	75	58
990	70	70	56
980	70	65	54
970	70	60	52
960	70	55	50
950	70	50	48
940	70	45	46
930	70	40	44
920	70	35	42
910	70	30	40
900	70	25	38
890	70	20	36
880	70	15	34
870	70	10	32
860	70	5	30
850	70	0	28

LEGEND FOR SKEWED CURVES

1010 70 80 60
1000 70 75 58
990 70 70 56
980 70 65 54
970 70 60 52
960 70 55 50
950 70 50 48
940 70 45 46
930 70 40 44
920 70 35 42
910 70 30 40
900 70 25 38
890 70 20 36
880 70 15 34
870 70 10 32
860 70 5 30
850 70 0 28

Pressure	Temperature	Relative Humidity	Wet-Bulb Temperature
1010	70	80	60
1000	70	75	58
990	70	70	56
980	70	65	54
970	70	60	52
960	70	55	50
950	70	50	48
940	70	45	46
930	70	40	44
920	70	35	42
910	70	30	40
900	70	25	38
890	70	20	36
880	70	15	34
870	70	10	32
860	70	5	30
850	70	0	28

1010 70 80 60
1000 70 75 58
990 70 70 56
980 70 65 54
970 70 60 52
960 70 55 50
950 70 50 48
940 70 45 46
930 70 40 44
920 70 35 42
910 70 30 40
900 70 25 38
890 70 20 36
880 70 15 34
870 70 10 32
860 70 5 30
850 70 0 28

BA
2
C
24P
1

Rotat
Rotat
Rotat
Flash

F-1
FI-1

Obstr
Obstr
(No
Group
From

Moor
Isogr

Restr



U S. PROHIBITED, RESTRICTED, CAUTION, AND WARNING AREAS
ON WORLD AERONAUTICAL CHART 307

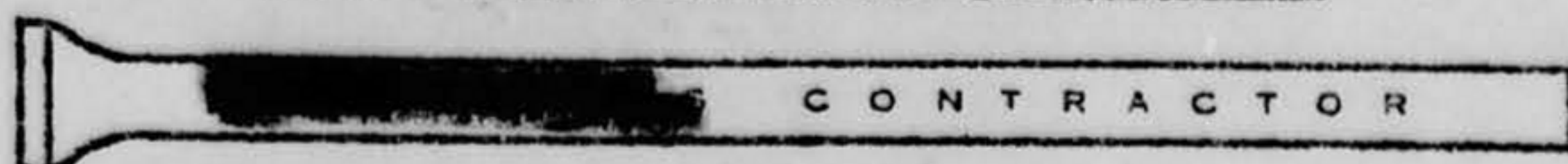
NO.	NAME	ACTIVITY	CONTROLLING AGENCY	ALTITUDE	TIME
C-201	Lincoln	Acrobatics	NAS Lincoln, Nebr.	2,700-28,000	Days
C-486	Mankato	Acrobatics	NAS Minneapolis, Minn.	6,000-40,000	Days VFR

Altitude given in feet. P - Prohibited R - Restricted C - Caution W - Warning 6-15-55
Unauthorized flight is not permitted within a Prohibited Area, or within a Restricted Area during the time of use and between the altitudes noted
in the tabulation (Authorization may be granted by the controlling agency or by Executive Order of the President).
Flight within Caution Areas is not restricted, but pilots are advised to exercise extreme caution.

TELEPHONE



POMPANO BEACH, FLORIDA



NOVEMBER 5, 1963

FLIGHT INFORMATION CENTER
CIVIL AERONAUTICS ADMINISTRATION
HURON, SOUTH DAKOTA

GENTLEMEN:

YOU MIGHT BE INTERESTED IN A MOST UNUSUAL SIGHTING THAT OCCURRED IN YOUR AREA DURING THE LATE AFTERNOON OF OCTOBER 25, 1963, DURING THE COURSE OF A VFR FLIGHT PLAN FILED BY BONANZA [REDACTED] BETWEEN ST. LOUIS AND MITCHELL.

THE AIRCRAFT WAS CRUISING AT A TRUE AIRSPEED OF 170 MPH AT AN ALTITUDE OF 6500 FEET ON A HEADING OF 310 MAGNETIC. THE SKY CONDITION WAS CLEAR WITH WINDS FROM THE SOUTHWEST AT APPROXIMATELY 15 KNOTS. AT APPROXIMATELY 1845, WHAT APPEARED TO BE AN UNUSUAL CLOUD WAS SIGHTED BEARING SOUTH. THIS OBJECT SEEMED TO BE SOMEWHERE NORTH OF THE TYNDALL INTERSECTION.

IT FIRST WAS NOTICED AS A DARK, SHARPLY DEFINED MASS, WHICH APPEARED TO BE SLIGHTLY ABOVE OUR ALTITUDE. AT FIRST STUDY IT WAS JUDGED TO BE A LARGE TANKER MAKING DROGUE CONTACT, SINCE THERE WAS A SMALL OBJECT BEHIND IT. IT APPEARED TO BE PARALLELING OUR COURSE. IT THEN BEGAN TO GROW LARGER. ALTHOUGH THE OUTLINES WERE EXTREMELY SHARP AND CONSCISE, IT DID NOT HAVE AN IDENTIFIABLE AIRCRAFT SHAPE.

WE TURNED TOWARDS THE OBJECT. A LACK OF RELATIVE MOVEMENT INDICATED IT WAS NOT AN AIRCRAFT, PROBABLY A CLOUD. HOWEVER, THE SMALL ADJACENT SPECK BEGAN TO GROW LARGER AND THE MAIN OBJECT BEGAN TO SHRINK IN SIZE AND THE WHOLE MASS APPEARED TO RECEDE. AT THIS POINT WE TURNED BACK TO OUR ORIGINAL COURSE TOWARDS MITCHELL. AT THAT TIME THE SINGLE REMAINING MASS DISINTEGRATED INTO APPROXIMATELY 10 TO 20 SMALL OBJECTS AND THE WHOLE GROUP DISAPPEARED WITH THE EXCEPTION OF ONE PRONOUNCED DOT, WHICH LOOKED VERY MUCH LIKE AN AIRCRAFT FROM THE REAR. THIS DOT BECAME PROGRESSIVELY SMALLER AND WE DISCONTINUED OUR WATCH.

AERONAUTICAL SYMBOLS

AERODROMES

Aerodromes with facilities

LAND

WATER



Civil



Joint Civil and Military



Military

Aerodromes with emergency or no facilities

LAND

WATER



Landing Area



Sheltered Anchorage

AERODROME DATA AND LANDING FACILITIES INFORMATION

LAND

WATER

BARGERSVILLE
908 L H 41
Airport of entry
GCA ILS DF
278 119.5 118.1
126.18 257.8

009 Elevation in feet
L Minimum lighting
H Hard surfaced runway
41 Length of longest runway
in hundreds of feet

00 Elevation in feet
L Minimum lighting
S Normal sheltered take-off area
62 Length of longest runway
in hundreds of feet

NAS ANACOSTIA
00 L S 62
2870

The facility code character is replaced by a dash if specific information is not available or if the facility itself is not available.

GCA ILS

DF

278 119.5 118.1 126.18 257.8

Controlled approach systems.

Direction finding station.

Control tower transmitting frequencies

Low or medium tower frequency shown first, followed in order by primary VHF local control, VHF approach control, and VHF and UHF military frequencies

AIR NAVIGATION LIGHTS

Rotating Light ----- *

Rotating Light (With flashing code lights) ----- *

Rotating Light (With course lights and site number) ----- 12 *

Flashing Light ----- Fl *

Flashing Light (With code) ----- Fl *

Lightship ----- *

Marine Light ----- Occ WRG

F—Fixed

Q—Quick Flashing

Occ—Occulting

Gr—Group

W—White

B—Blue

SEC—Sector

Fl—Flashing

Q—Interrupted Quick Flashing

Alt—Alternating

R—Red

G—Green

(U)—Unwatched

sec—Second

Marine lights are white unless colors are indicated; alternating lights are red and white unless otherwise indicated

MISCELLANEOUS

Obstruction, less than 500 feet above ground ----- 1219

Obstruction, 500 feet or higher above ground ----- 1219

(Numerals indicate elevation above sea level of top)

Group Obstruction -----

Prominent Transmission Line -----

Mooring Mast -----

Isogonic Line ----- 4°E -----

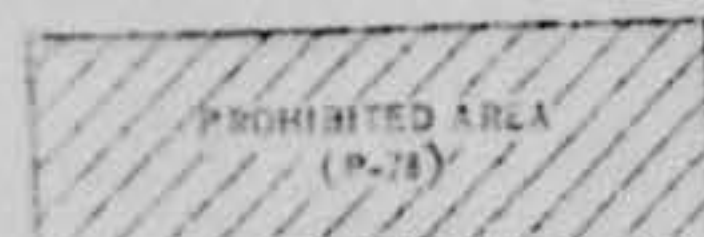
Values for 1955

Reporting Point (Compulsory) -----

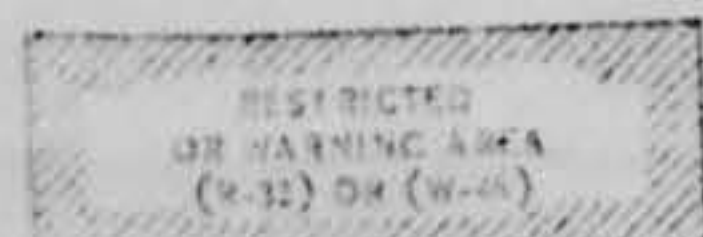
Reporting Point (Non-compulsory) -----

Ocean Station Vessel (Normal position) -----

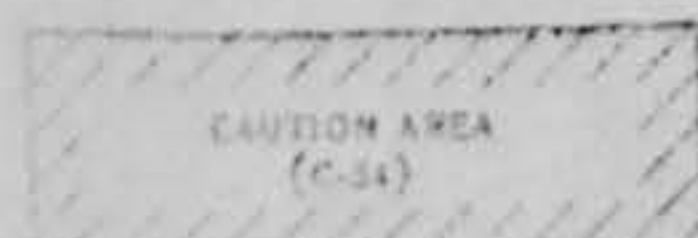
International Boundary -----
(Closed to passage of aircraft
except through air corridor)



Prohibited Area — Flight of aircraft prohibited except by specific authority of using agency

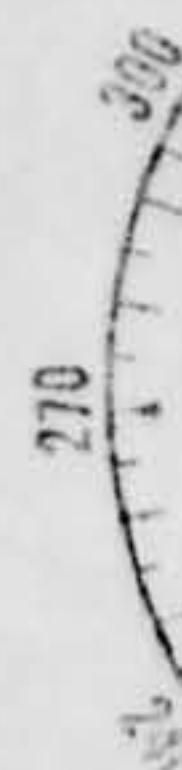


Restricted or Warning Area — Invisible hazards to air navigation



Caution Area — Visible hazards to air navigation

VHF C



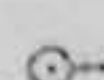
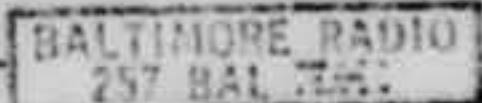
AERONAUTICAL SYMBOLS

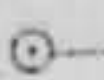
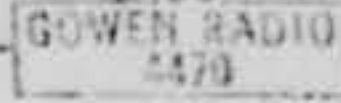
RADIO FACILITIES

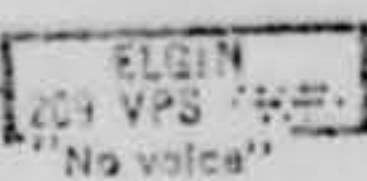
All radio facility data are printed in blue with the exception of certain LF/MF facilities such as tower frequencies, radio ranges and associated airways, which are printed in magenta.

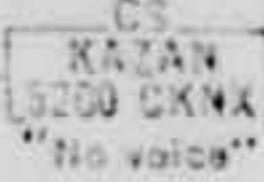
Methods of indicating specific voice and CW calls are shown below

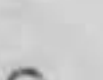
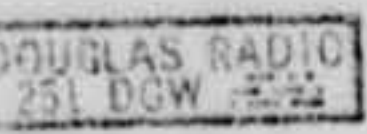
Use of the word "Radio" within the box indicates voice facilities.

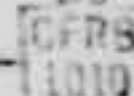
Radio Range (With voice)  

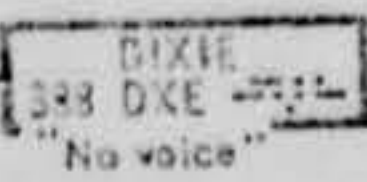
Radio Communication Station (With voice)  

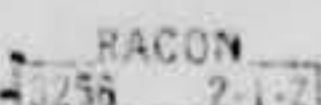
Radio Range (Without voice)  

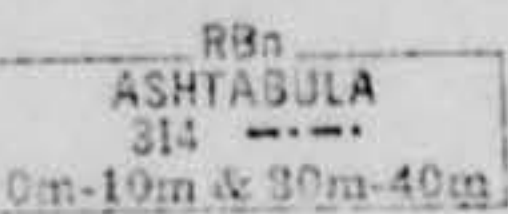
Radio Communication Station (Without voice)  

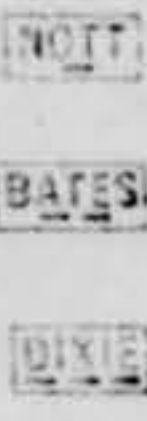
Nondirectional Radiobeacon (With voice)  

Radio Broadcasting Station  

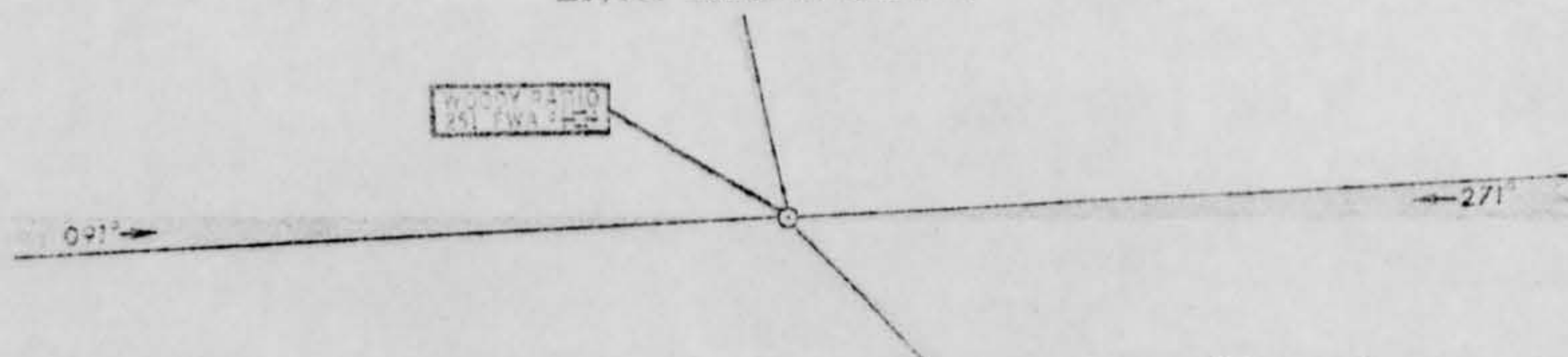
Nondirectional Radiobeacon (Without voice)  

Radar Beacon (Racon)  

Marine Radiobeacon (Without voice)  

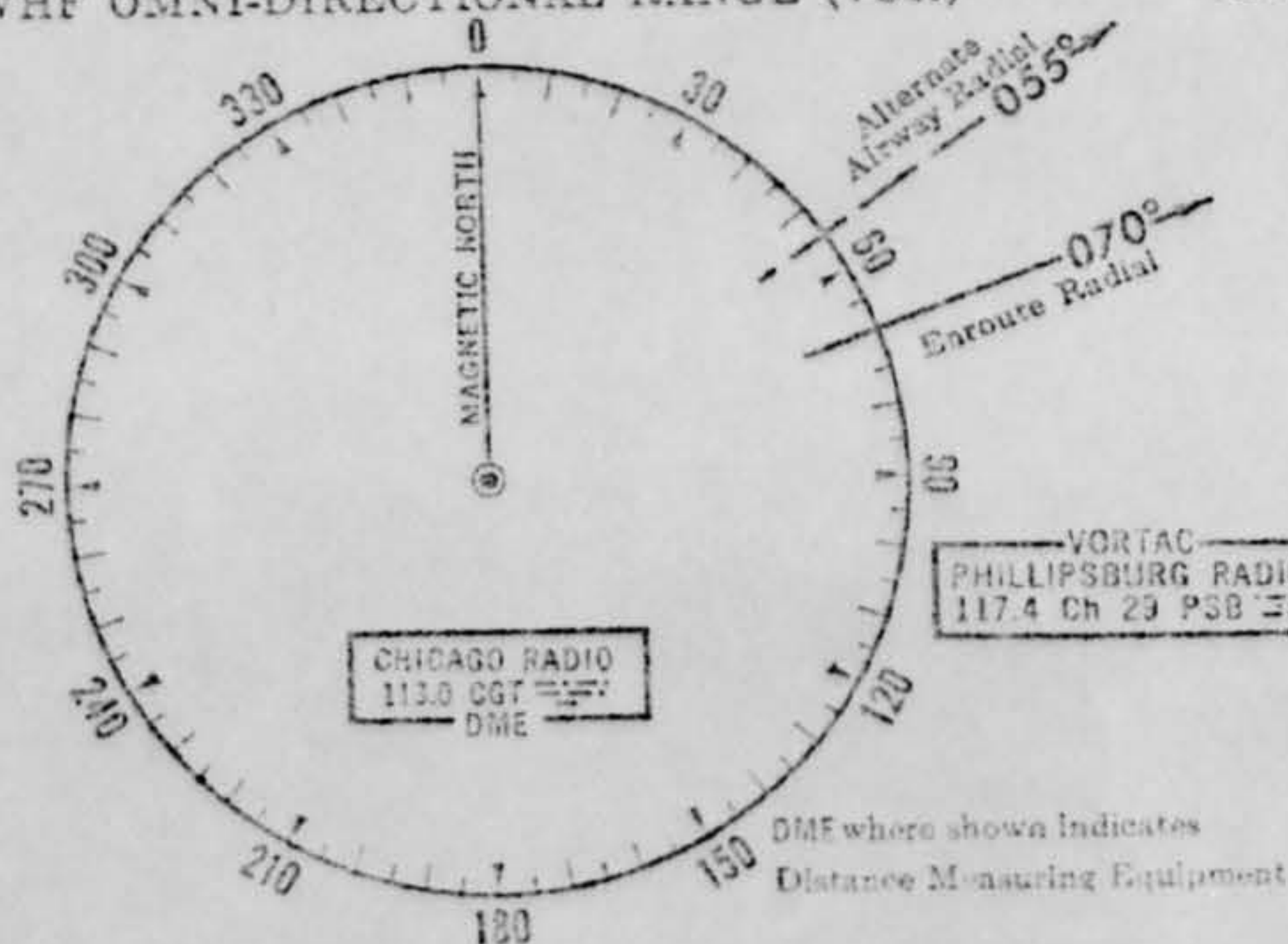
Radio Fan Marker Beacons  

LF/MF AURAL RANGE



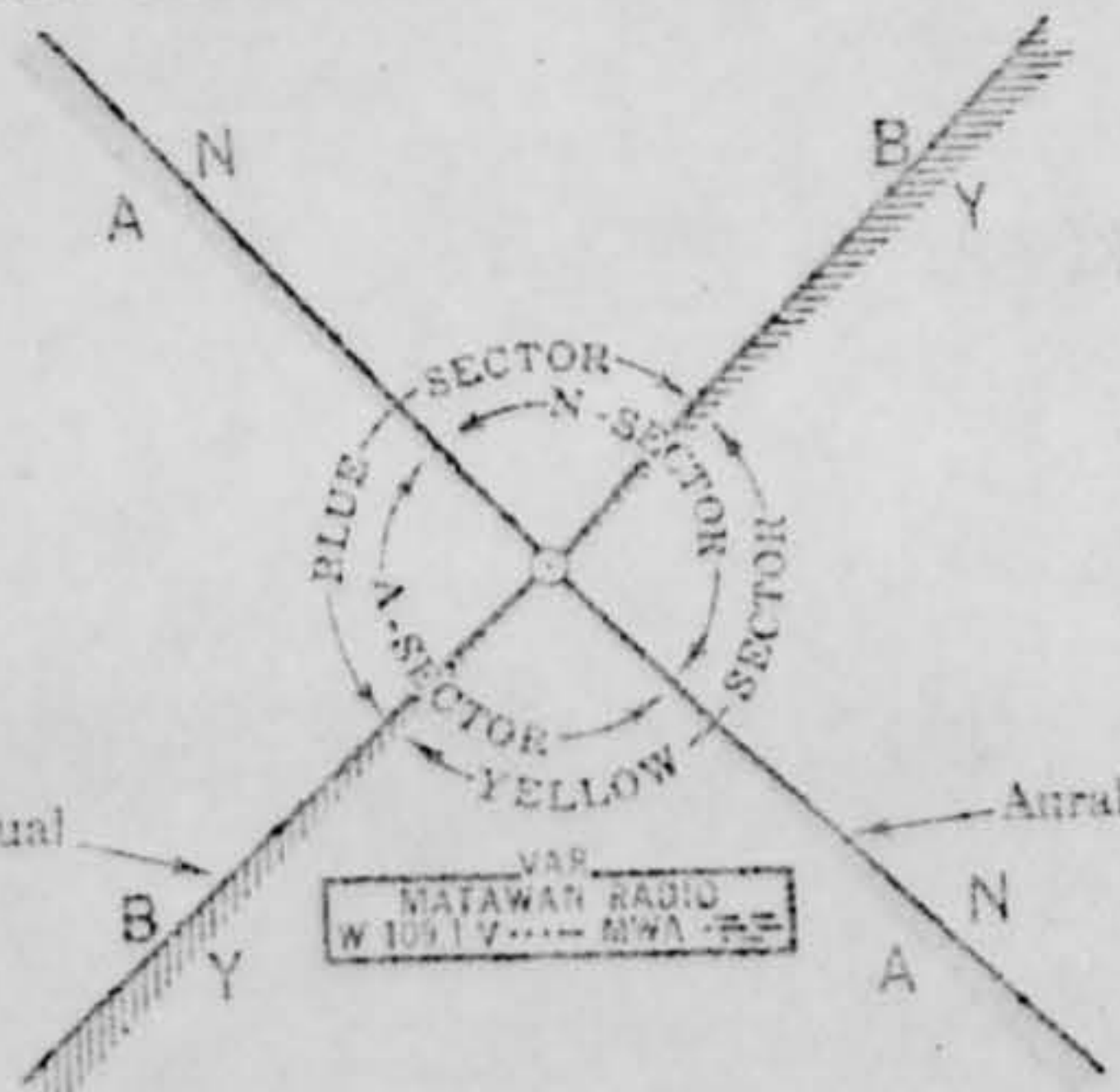
The heavy line indicates the "N" quadrant. The bearings shown are magnetic and the magnetic variation at the position of the ground station is used for computing them.

VHF OMNI-DIRECTIONAL RANGE (VOR)



Bearings are magnetic from the station. Radius of circle is 15 nautical miles.

VHF FOUR COURSE VISUAL-AURAL RANGE (VAR)



Letter preceding frequency in box indicates channel identification.

AIR TRAFFIC CONTROL

Blue tint where shown indicates controlled airspace

(Within continental U.S. all airspace at and above 21000 feet MSL except prohibited and restricted areas is controlled, and blue tint indicates only controlled airspace below 21000 feet)

Controlled Civil Airway

Civil airways within continental U.S. effective only below 27000 feet MSL

Uncontrolled Civil Airway

Metropolitan

Large City

Cities

Small City

Large Town

Towns & Villages

Contours

Levees or Embankments
Bluffs, Cliffs

Swamps & Marshes

Tidal Flats
(Exposed at low tide)

Dangerous Obstructions

Rocks Awaft

Shoals
(Exposed at low tide)

Springs

Wells & Ponds

Reefs, Corals
(Awash at low tide)

Landmarks
(Numerals in box)
Oil Tanks
Oil Fields
Dams

Elevations
(In feet)

Mines and Quarries

Mountains

Lookout Stations

Coast Guard Stations

Pipe Lines

Power Lines

Strips of Land

TOPOGRAPHICAL SYMBOLS

CITIES AND TOWNS

Metropolitan Areas	NEW YORK	
Large Cities	RICHMOND	
Cities	ARLINGTON	
Small Cities	Freehold	
Large Towns	Corville	
Towns & Villages	Arcola	

HIGHWAYS AND ROADS

Dual Lane and Super Highways	
Primary Roads	
Secondary Roads	
Trails	
U. S. Road Markers	
National, State or Provincial Road Markers	
Road Names	ALASKA HIGHWAY

RELIEF FEATURES

Contours	- Reliable - Approximate - Depression	
Levees or Eskers		
Hachures		
Bluffs, Cliffs & Escarpments		

HYDROGRAPHIC FEATURES

Swamps & Marshes.....		Perennial.....	
Tidal Flats (Exposed at low tide).....		Intermittent.....	
Danger Line.....		Probable or Unsurveyed.....	
Rocks Awash.....		Braided.....	
Shoals..... (Exposed at low tide)		Intermittent Lakes (blue stipple).....	
Springs.....		Drainage Ditches.....	
Wells & Water Holes.....		Canals { In use.....	
Reefs, Coral & Rocky Ledges (Awash at low tide).....		Abandoned.....	
		Dry Lake Beds (brown stipple).....	
		Sand Deposits in river bed.....	
		Dry Washes (brown stipple).....	
		Glaciers and Ice Caps.....	

CULTURAL AND MISCELLANEOUS

Landmarks (with appropriate note) (Numerals indicate elevation above sea level of top)	- Factory - Stack 875'	
Oil Tanks		
Oil Fields		
Dams		
Elevations (In feet)	- Highest on chart - Highest on chart is devoid of tint - Highest in a general area - Spot	1115 1085 950
Mines and Quarries		
Mountain Passes		
Lookout Stations (Elevation is base of tower)	75 (Site) 1025 (Elev)	
Coast Guard Stations	CG 79	
Pipe Lines	PIPE LINE	
Race Tracks or Stadiums	RT	
Stranded Wrecks		
Boundaries	- International - State & Provincial	
Railroads	- Abandoned or Under Construction - Single Track - Multiple Track - Sidings & Spurs - Overpass - Underpass	
Bridges	- Railroad - Highway	
Tunnels	- Railroad - Highway	

DATA PROCESSING DIVISION
CLIMATIC CENTER, USAF
Air Weather Service (MATS)
Asheville, North Carolina

REF ID:
ATTN OF: 00070

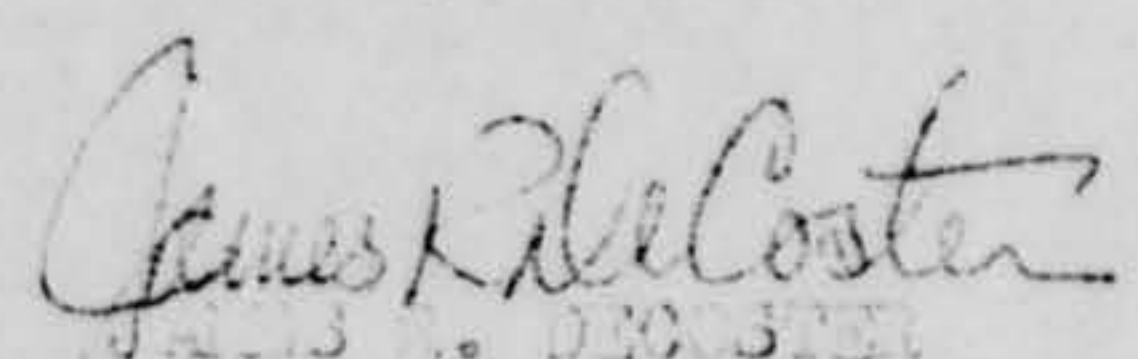
SUBJECT: Upper Air Data for Sioux City Area

30 Jan 1964

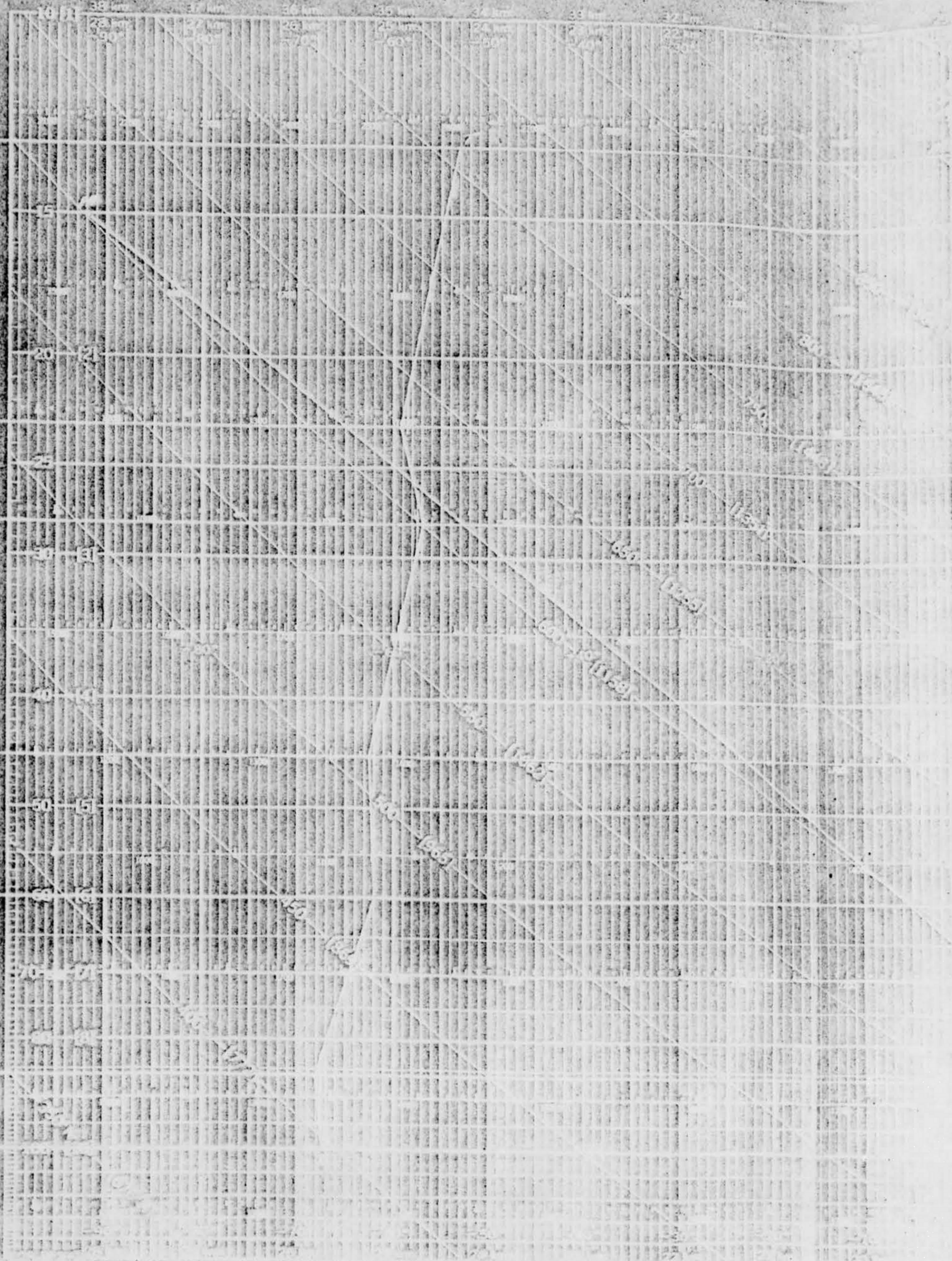
TO: Aerospace Technical Intelligence Center/TDE
Foreign Data Division (Sgt. Wood)
Wright-Patterson AFB, Ohio

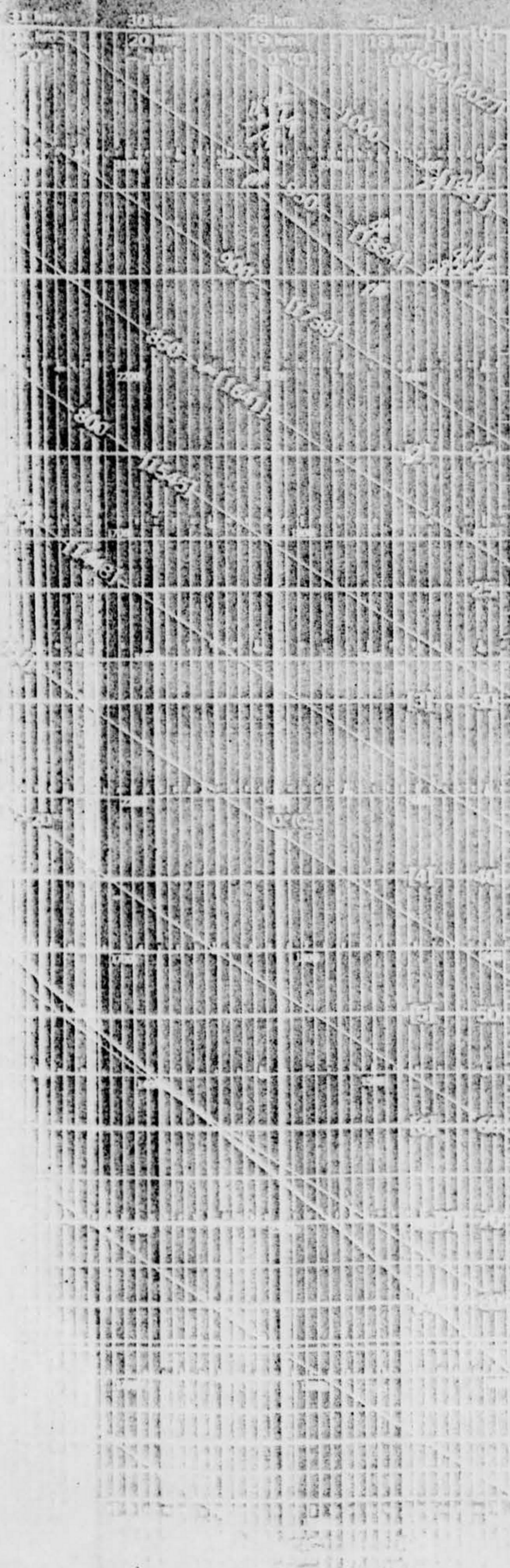
1. Reference: Your telephone conversation with Mr. Worley of this Division at 1115 EST on 28 January 1964.
2. Upper air data are not recorded at Sioux City, Iowa. However, we are sending a photocopy of the WEA-31 forms recorded on 25 October 1963 at Omaha, Nebraska, approximately 75 miles south of Sioux City. Similar data for North Platte, Nebraska, are also included to provide additional coverage for the area.

FOR THE DIRECTOR


JAMES M. DECOSTER
Chief, Data Processing Division

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Photocopies as stated





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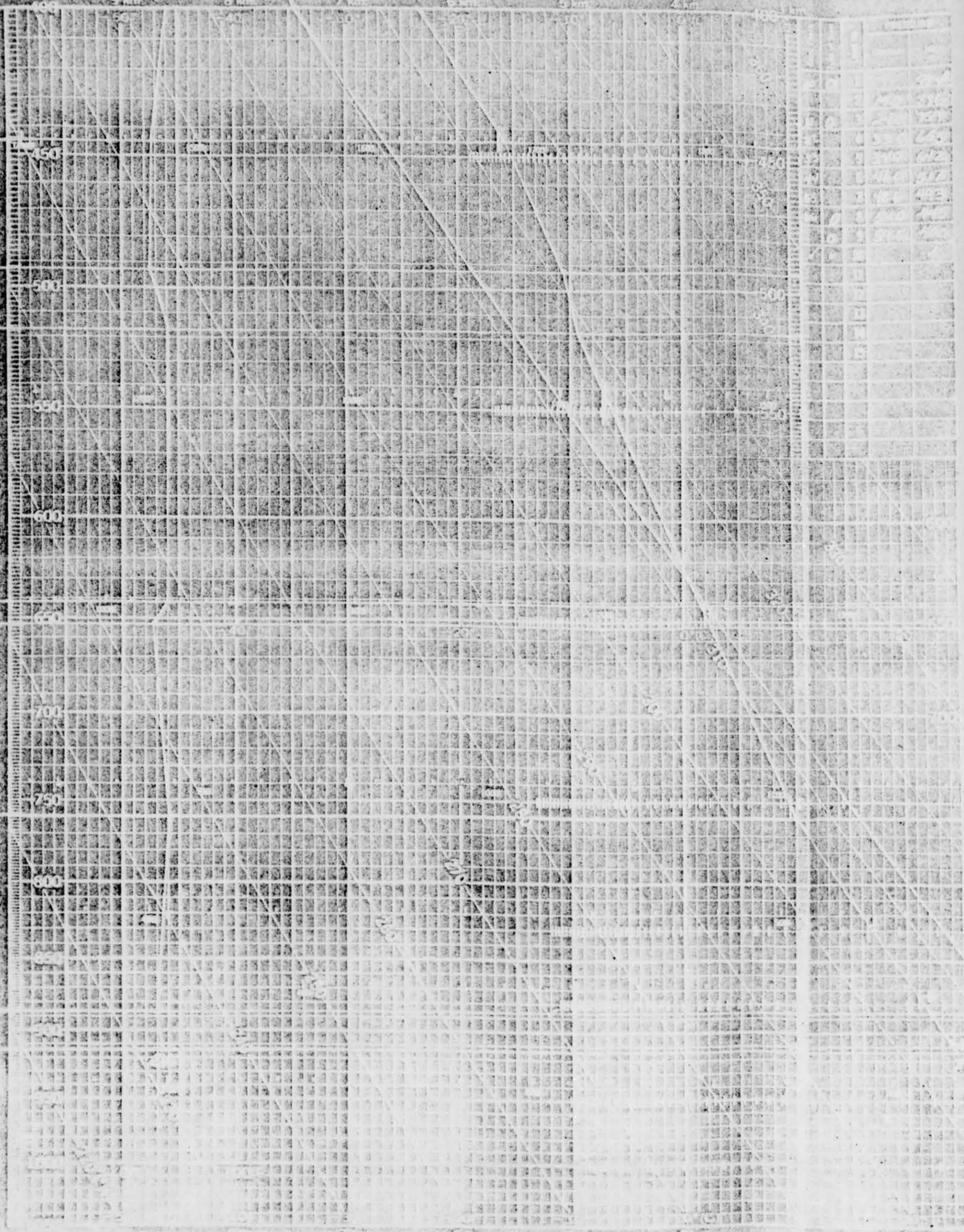
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1. The first step in the process of the development of a new product is the identification of a market need. This is often done through market research, which can be conducted in a variety of ways, including surveys, focus groups, and interviews with potential customers.	2. Once a market need has been identified, the next step is to develop a concept for the new product. This involves creating a detailed description of the product, including its features, benefits, and target market. The concept is then presented to a group of potential customers for feedback.	3. The third step in the process is to develop a prototype of the new product. This is a physical model of the product that is used to test the concept and to gather feedback from potential customers. The prototype is often made from a material that is easy to work with, such as clay or wood.
4. The fourth step in the process is to conduct a feasibility study. This is a study that is designed to determine whether the new product is viable in the market. It involves a detailed analysis of the product's costs, potential sales, and competition.	5. The fifth step in the process is to develop a business plan for the new product. This is a document that outlines the company's strategy for the new product, including its marketing, sales, and financial goals. The business plan is then used to secure funding for the product's development.	6. The sixth step in the process is to manufacture the new product. This involves the production of the product in a factory or workshop. The manufacturing process is often a complex one, involving many different steps and the use of specialized equipment.
7. The seventh step in the process is to distribute the new product. This involves getting the product into the hands of potential customers. This can be done through a variety of channels, including retail stores, online sales, and direct sales to customers.	8. The eighth step in the process is to monitor the product's performance in the market. This involves tracking sales, customer feedback, and other key performance indicators. The information gathered is then used to make adjustments to the product and its marketing strategy.	9. The final step in the process is to evaluate the success of the new product. This is done by comparing the product's performance to the company's original goals. If the product is successful, the company may decide to produce more of it. If it is not successful, the company may decide to discontinue it.

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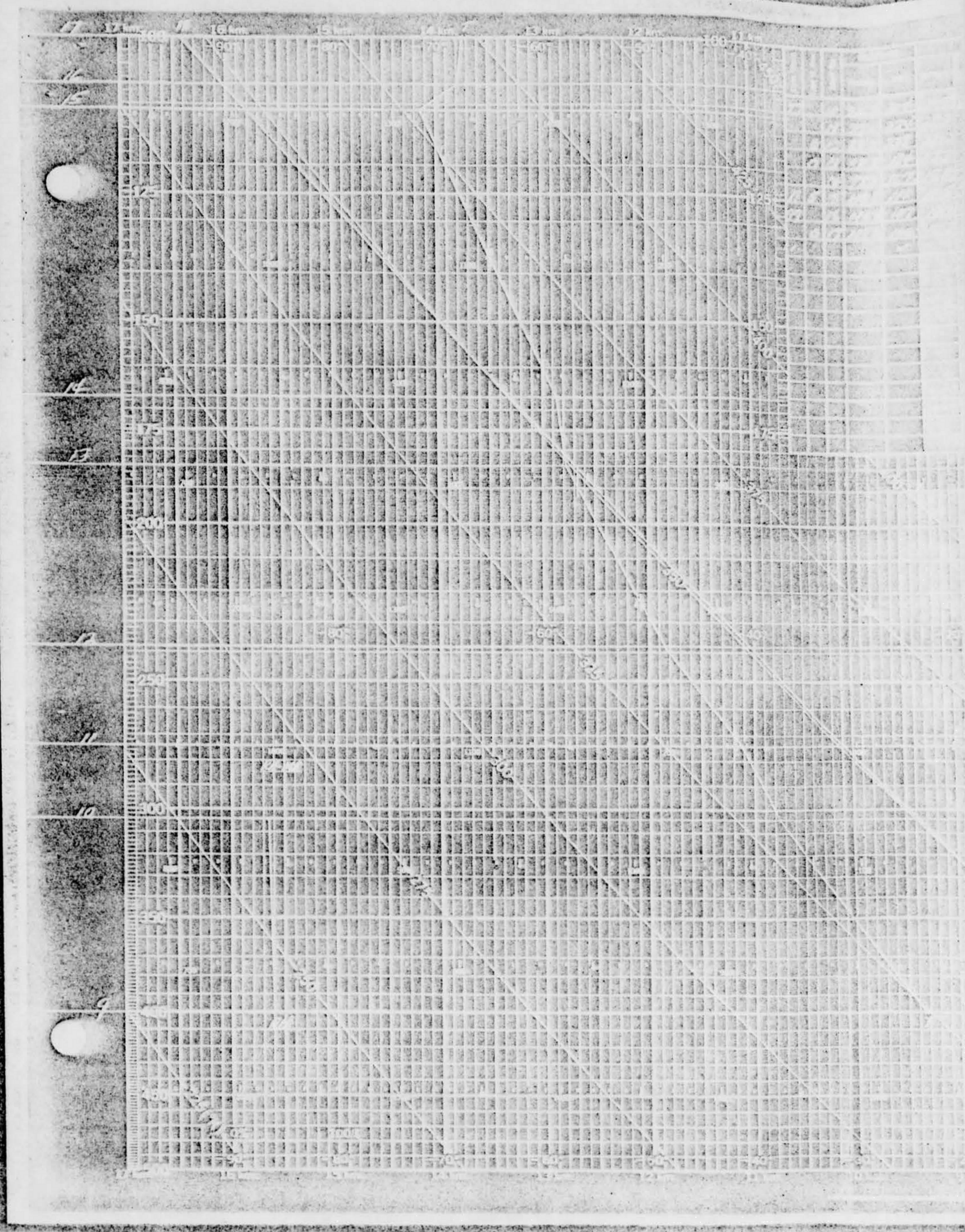
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BASIN CHIEF (1900-1901)

UNITED STATES GOVERNMENT

1991-1992

RECEIVED



U.S. DEPARTMENT OF COMMERCE
NAVY DEPARTMENT
ADIAEATIC CHART

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NOVEMBER 5, 1963

AT APPROXIMATELY 1900 WE DISCOVERED THAT THE SHAPE WAS RETURNING AND WE IMMEDIATELY TURNED TOWARDS IT ON A HEADING OF 180. AT THIS TIME THE SUN WAS OVER THE HORIZON BUT THERE WAS CONSIDERABLE LIGHT IN THE SKY AND THE OBJECT WAS CLEARLY BACK-LIGHTED AND THUS SHARPLY ETCHED AGAINST THE SKY.

AT THAT TIME THE RANGE WAS IMPOSSIBLE TO ASSUME. THE OBJECT LOOKED LIKE A 707 MIGHT APPEAR IN A DISTANCE OF TWO MILES, HEAD ON. AT THAT DISTANCE THE INCREASE IN SIZE STOPPED. A SMALL DOT APPEARED TO THE EAST SIDE OF THE MASS. THE DOT BEGAN TO GROW IN SIZE AND THE MAIN MASS BEGAN TO SHRINK. FINALLY THE TWO OBJECTS HAD COMPLETELY CHANGED POSITIONS, THE DOT WAS AS LARGE AS THE ORIGINAL MASS AND THE ORIGINAL MASS WAS GONE. WE CONTINUED ON THIS HEADING TOWARDS THE OBJECT UNTIL 1915. SINCE THE RANGE THEN APPEARED TO BE OPENING AND IT WAS FAST BECOMING DARK, WE DISCONTINUED THE CHASE AND RETURNED TO MITCHELL, LANDING AT APPROXIMATELY 1940.

MY OWN EXPERIENCE AS A RESERVE MILITARY JET PILOT AND THAT OF THE PILOT [REDACTED], LEFT US WITH NO CONCLUSIONS. IT WAS QUITE OBVIOUSLY WAS NO AIRCRAFT, SINCE AIRCRAFT DO NOT CHANGE SHAPE AND SIZE. FURTHER, THE RELATIVE MOVEMENT DID NOT FIT AN AIRCRAFTS COURSE. ALTHOUGH IT RESEMBLED A CLOUD OF SMOKE THAT COULD HAVE BEEN CAUSED BY ALTITUDE GUNNERY, THE RAPID CHANGE OF SIZE, DISAPPEARANCE AND REAPPEARANCE AND OUR INABILITY TO CLOSE THE RANGE CONSISTENTLY WOULD SEEM TO RULE OUT ANY CONDENSATION. AN EXTREMELY DENSE FLIGHT OF BIRDS COULD HAVE ACCOUNTED FOR THE UNUSUAL MOVEMENTS OF THE SHAPES, BUT AT OUR SPEED WE WOULD HAVE CLOSED ON SUCH A FLOCK.

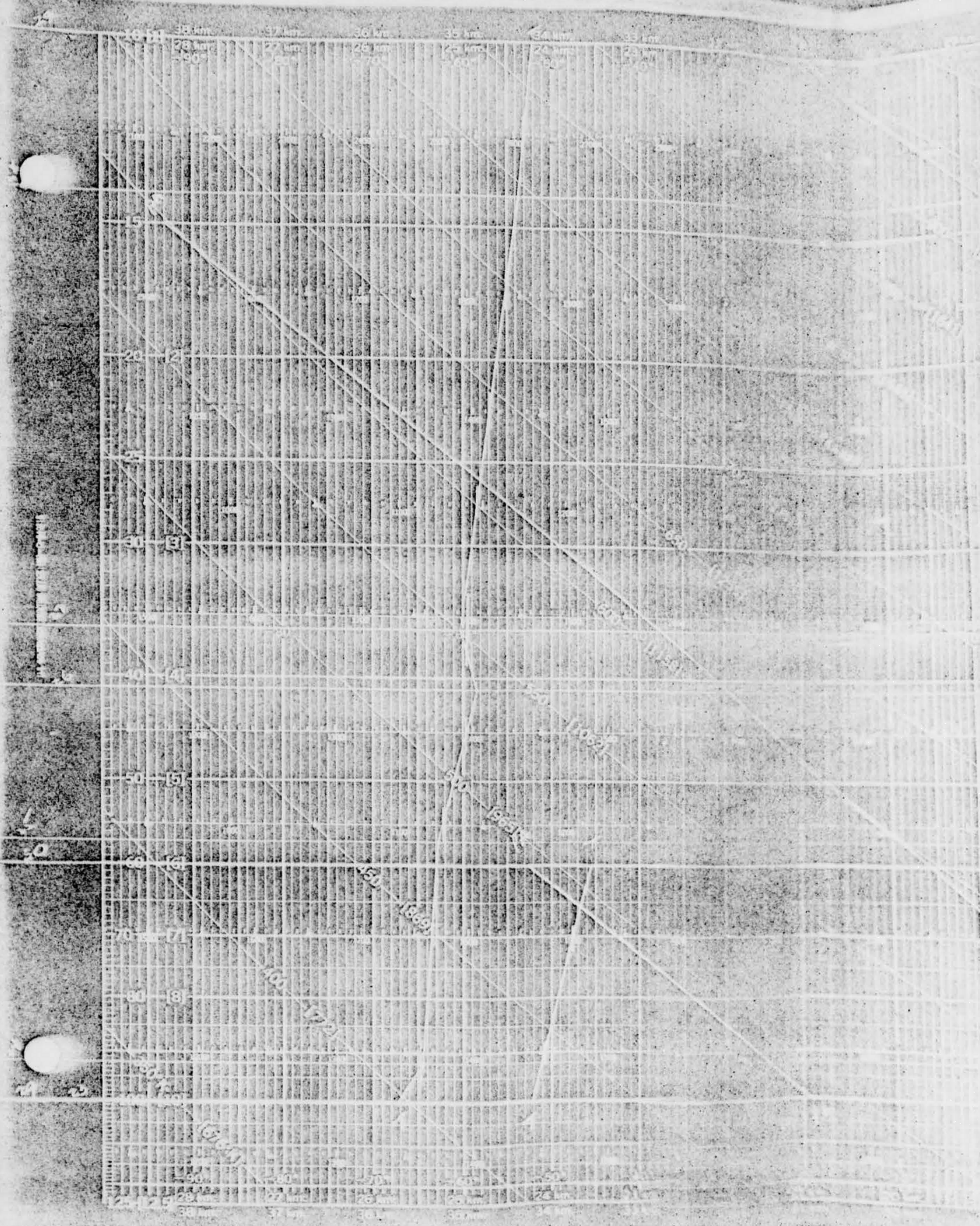
AFTER A GREAT DEAL OF DISCUSSION, WE WERE FORCED TO CONCEDE THAT IT WAS SIMPLY AN UNIDENTIFIED FLYING OBJECT.

IF THERE IS ANY FURTHER INFORMATION WE CAN ADD, PLEASE FEEL FREE TO CONTACT ME AT THE ABOVE ADDRESS OR MR. [REDACTED] SPARTA, ILLINOIS.

RESPECTFULLY,

[REDACTED SIGNATURE]

RCR/R



SIOUX CITY, IOWA

25 OCT 63, CASE INCLUDES

18 ADIABATIC CHARTS

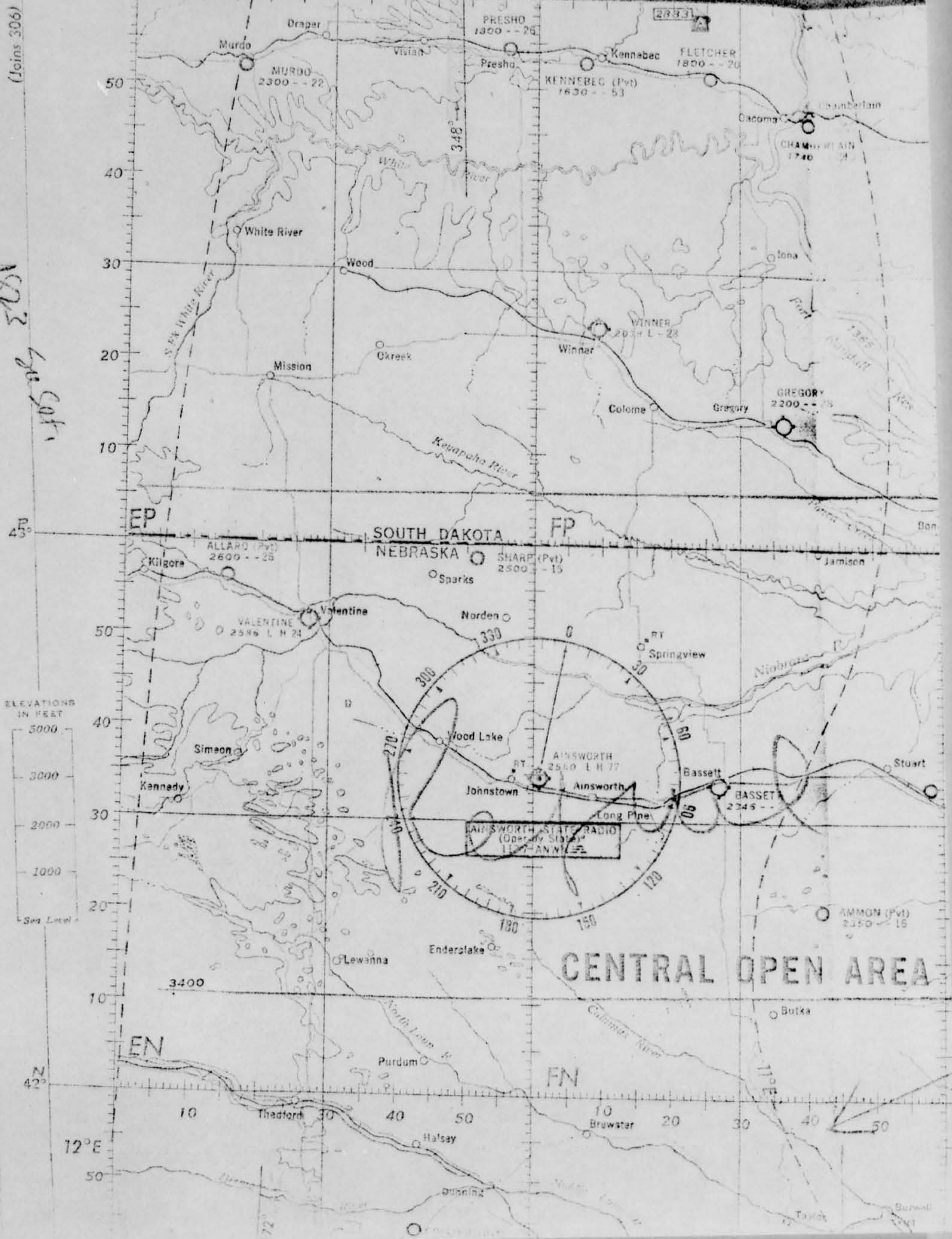
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ONE AERONAUTICAL CHART

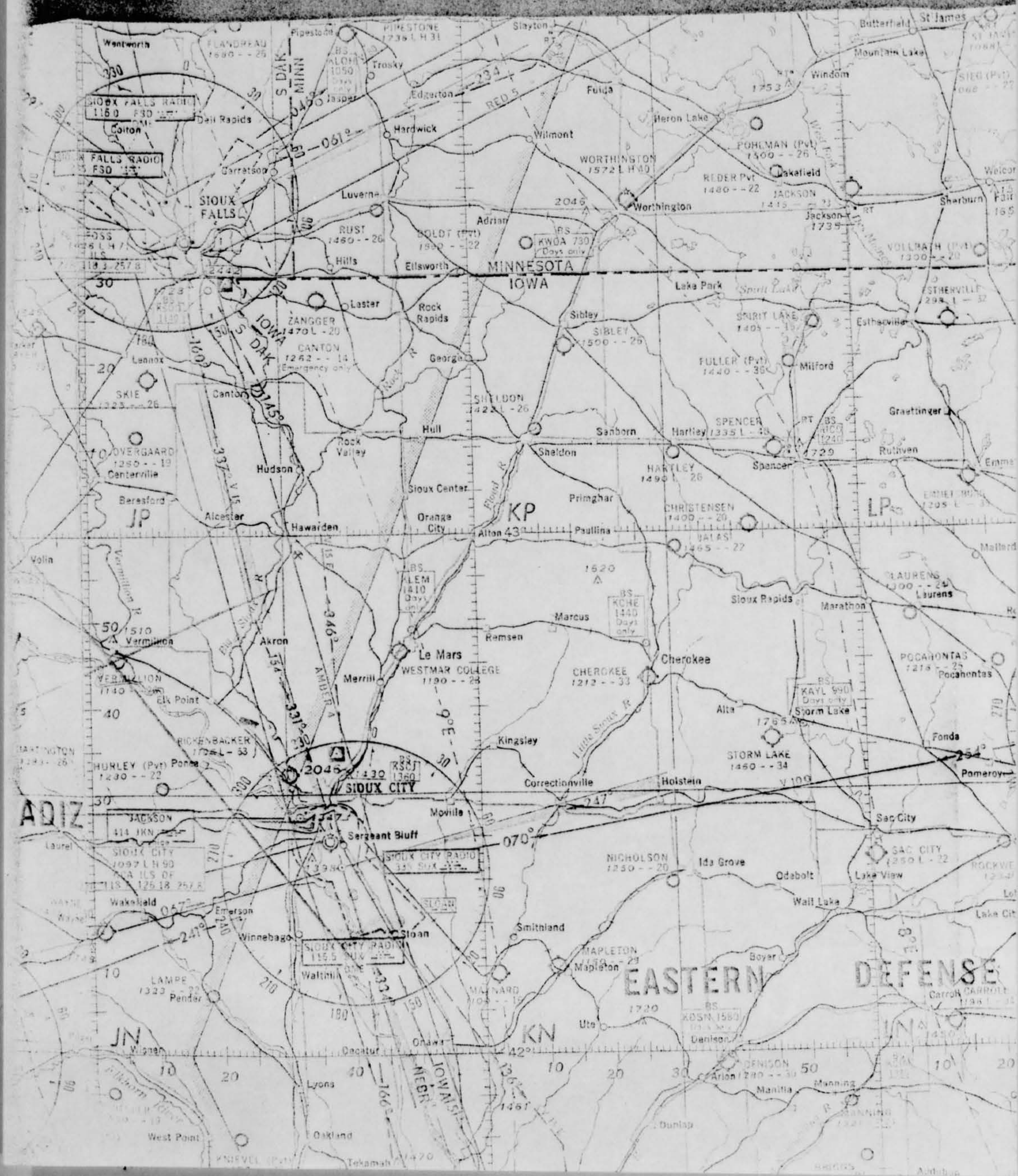
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1843 1844





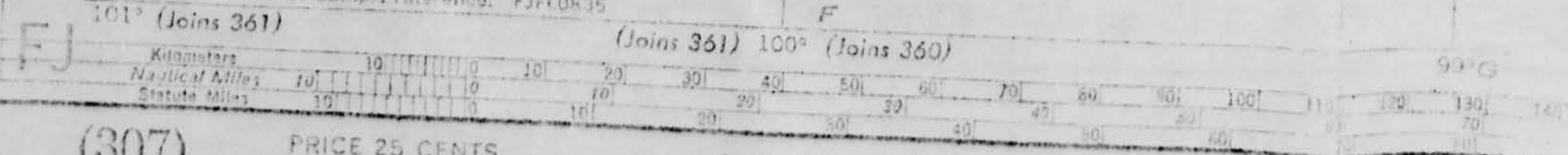






TO REFERENCE BY THE GEOREF (SHOWN IN BLUE) TO MINUTES
(Select nearest intersection south and west of point)

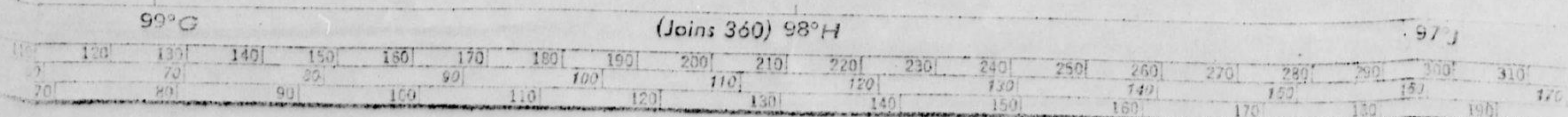
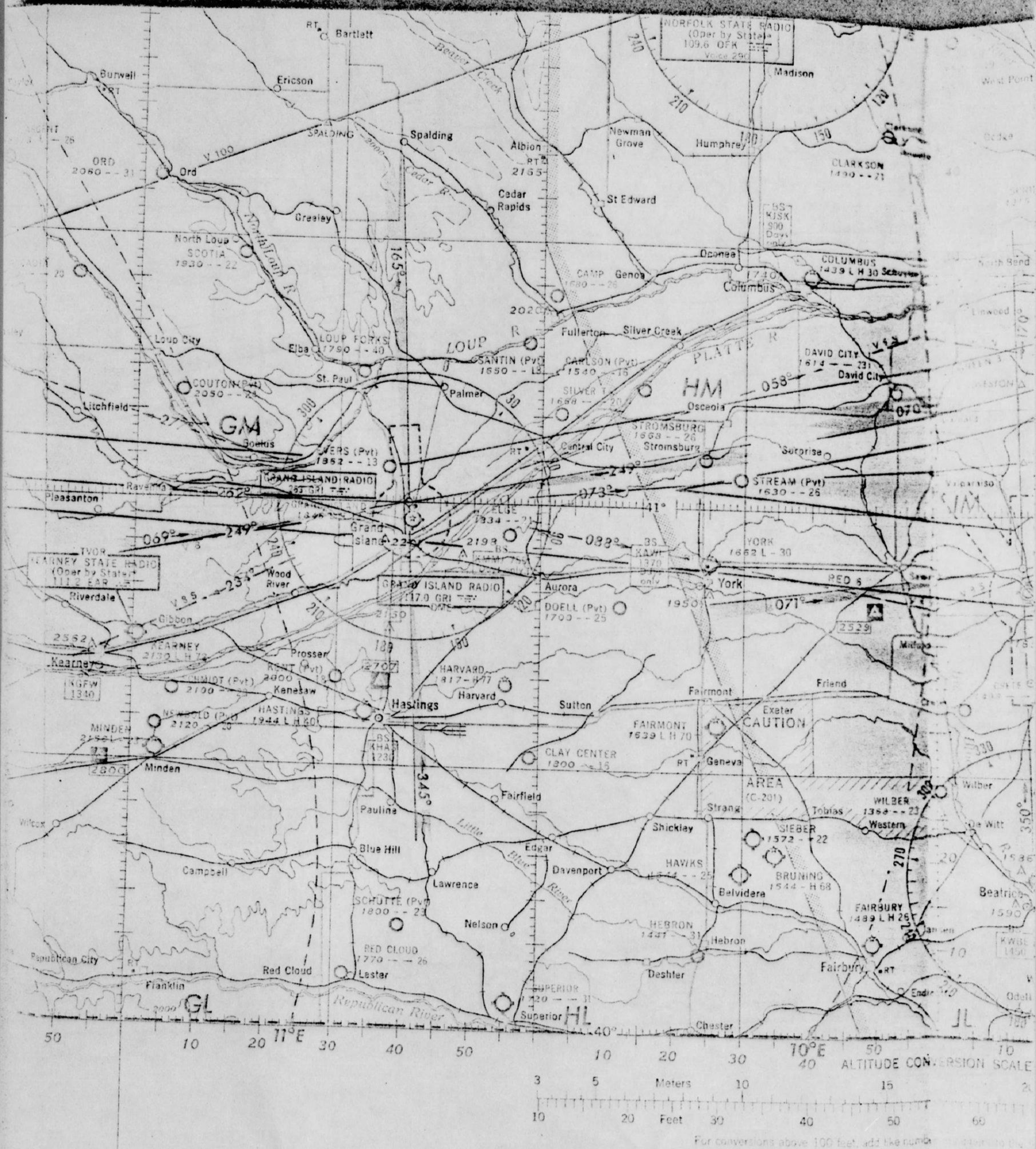
- Sample Point: ELWOOD
1. FJ identifies basic 15' quadrangle
 2. FL identifies 1" quadrangle
 3. 08 identifies Georef minute of longitude
 4. 35 identifies Georef minute of latitude
 5. Sample reference: FJFL0835



(307)

PRICE 25 CENTS

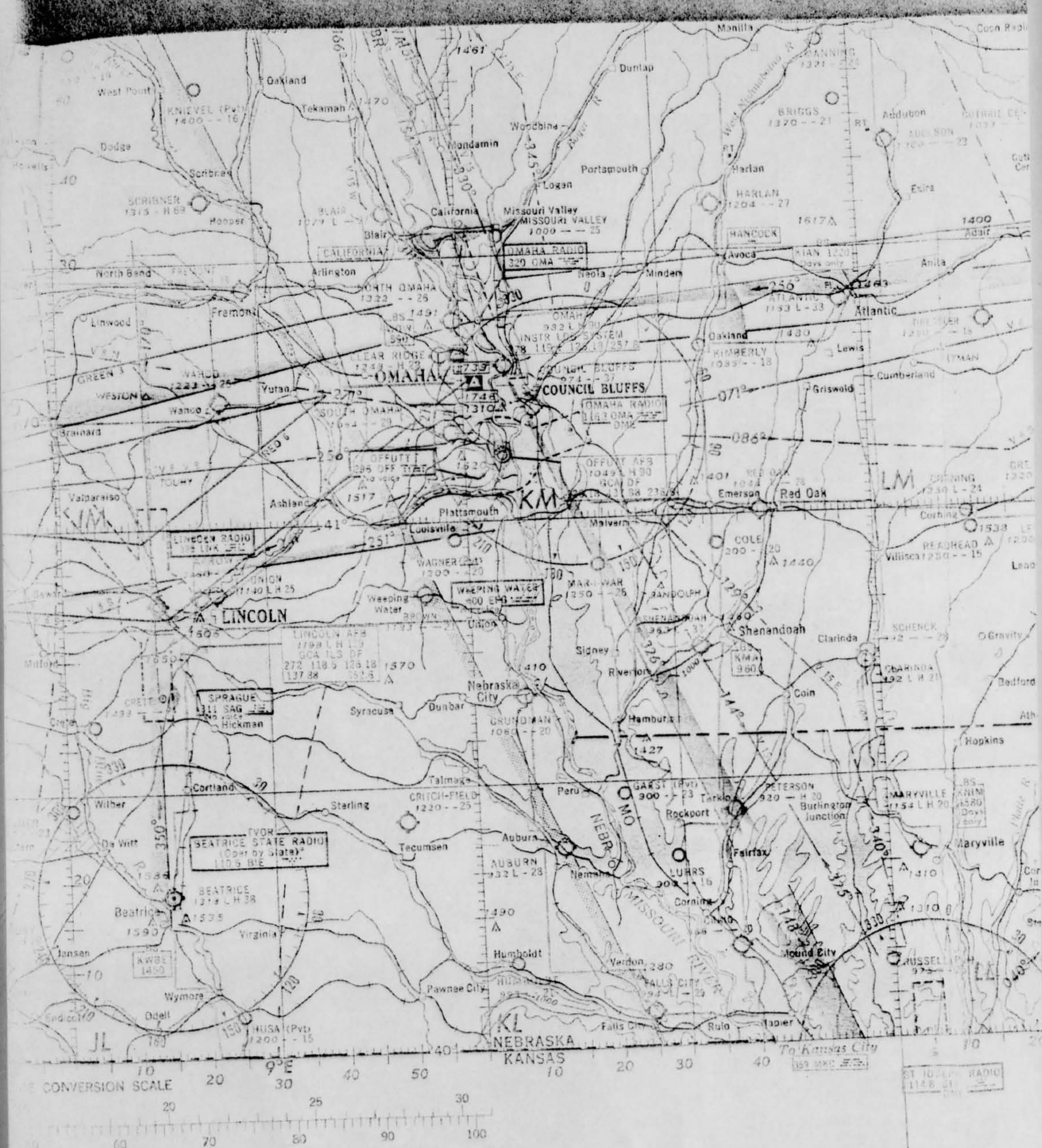
Principal Sources: U. S. Geological Survey, U. S. Army Corps of Engineers, U. S. Air Force, U. S. Dept. of Agriculture, Civil Aeronautics Administration, and the U. S. Coast and Geodetic Survey.



Compiled and printed at Washington, D. C. by the U. S. Coast and Geodetic Survey
under authority of the Secretary of Commerce
FEBRUARY 1945 Revised OCTOBER 1957 BASE NO 4

See legend on back of chart for vertical
limits of civil airways and control areas

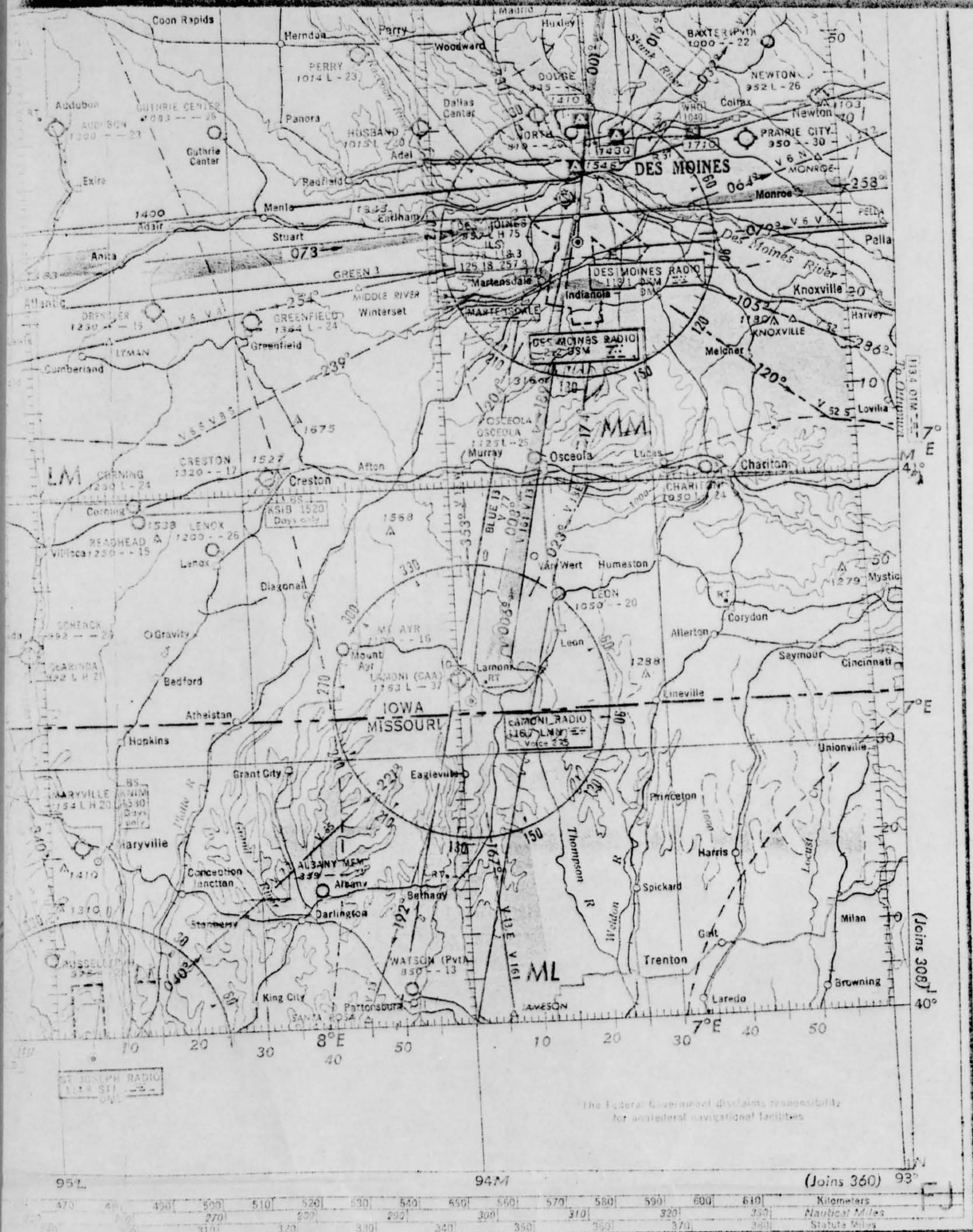




NOTE: It is requested that users of this chart indicate corrections and additions which come to their attention and notify THE DIRECTOR, U.S. COAST AND GEODETIC SURVEY, WASHINGTON 25, D.C.

SCALE 1:1,000,000
GEOREF 1256

500 feet or higher above ground
Less than 500 feet above ground
Under construction, position and elevation unverified



26TH EDITION Aeronautical information on this chart includes data received through Dec 5, 1957. Consult appropriate NOTAMS and Radio Facility Charts for supplemental data and current information. Next edition is scheduled in approximately six months.

PLATTE RIVER (307)
UNITED STATES
U.S. AIR FORCE EDITION

Report

U.F.O. SIGHTING

DATE: October 25, 1963

TIME: Approximately 10 minutes before sunset.

LOCATION: Ten miles N-Nw of the Sioux City airport
on course for Mitchell, South Dakota.

ALTITUDE: 5,000 feet.

AIRCRAFT: Single engine Bonanza - [REDACTED]

PILOT: [REDACTED] - 43
[REDACTED]
Sparta, Illinois
Private pilot since 1936. 3,000 hours plus.

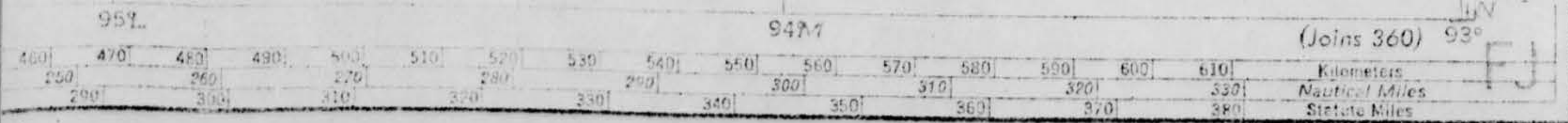
PASSENGERS: [REDACTED] - 43
[REDACTED]
Fommano Beach, Florida
[REDACTED] is a Naval aviator since World
War II, with experience in all types up to
the F9F-7.
[REDACTED], III - 12
[REDACTED]
Sparta, Illinois

VISIBILITY: Excellent.

WEATHER: Clear.

CLOUD COVER: One tiny cloud was visible in the area of
sunset; otherwise, the entire sky was clear.

Initial sighting was by [REDACTED] at the 8 o'clock position,
or a true bearing of about 265° and approximately 3° above the
horizon. The first impression was that of a KC-135 in a re-
fueling operation with a fighter and there appeared to be some
smoke aft the fighter. This was observed for two or three



1:1,000,000
REF 12-55

26 TH EDITION Aeronautical information on this chart includes data received through Dec 5, 1957. Consult appropriate NOTAMS and Radio Facility Charts for supplemental data and current information. Next edition is scheduled in approximately six months.

PLATTE RIVER (307)

UNITED STATES

U.S. AIR FORCE EDITION

1. Aeronautical Charts, Maps and Publications distributed by the Aeronautical Chart and Information Center are indexed or listed in the current edition of the "USAF Catalog of Aeronautical Charts and Aeronautical Information Publications". A Bulletin is also published twice monthly which contains important information such as new editions of charts available, replacement charts, hazardous charts, chart correction notices and other pertinent information pertaining to charts and supply.

2. Requisitioning.

a. Outside Continental United States: USAF activities are to submit requisitions to the appropriate Aeronautical Chart and Information Office located within the applicable theater, in accordance with existing theater directives.

b. Within Continental United States: USAF activities are to submit requisitions to Commanding Officer, Aeronautical Chart and Information Center, 2nd and Arsenal Sts., St. Louis 18, Missouri, Attention: Distribution Division. Requisitions will be submitted on available requisition forms or by letter in quadruplicate. When demand is urgent, service may be used. Requisitions submitted from a Base or Station will bear the signature, or approval by endorsement, of the Operations officer. Requisitions from Air Force, Wing, or Command Headquarters will bear the signature of the appropriate staff officer. Quantities of charts and maps requested are to be such as to assure the maintenance of a thirty (30) day supply at all times, but not to exceed a sixty (60) day supply.

3. USAF Requirements for Special Purpose Maps and Charts:

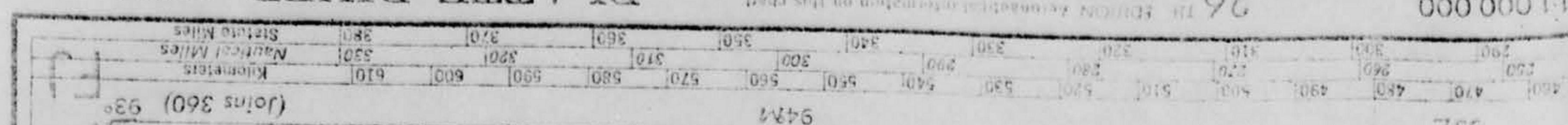
Maps and charts for special purposes, specific missions, and also those maps and charts published by other government agencies which may not be listed in the principal types of aeronautical charts in the current edition of the "USAF Catalog of Aeronautical Charts and Aeronautical Information Publications" should be requested from USAF Aeronautical Chart and Information Center, when the request originates in the United States. For those USAF requests originating outside the continental United States, the applicable theater USAF Aeronautical Chart and Information Office should be contacted. Charts will be furnished, if available, when sufficiently identified in requisitions as to name or number, scale, projection and publisher. If this information is unknown to requestor, a description of the information required on chart or map should be furnished.

4. Obsolete Charts: Aeronautical charts rendered obsolete by printing of a new edition shall be salvaged if not practicable to correct for conformity with new edition. Disposition is to be made in accordance with provisions of AFR 67-3. Disposition of classified charts is to be made in accordance with provisions of AFR 205-1.

RADIO TELEGRAPH CODE AND PHONETIC ALPHABET

INTERNATIONAL (ICAO)

A--ALFA	K--KILLO	U--UNIFORM	0--ZERO
B--BRAVO	L--LIMA	V--VICTOR	1--WUN
C--CHARLIE	M--MIKE	W--WHISKEY	2--TOO
D--DELTA	N--NOVEMBER	X--XRAY	3--TREE
E--ECHO	O--OSCAR	Y--YANKEE	4--FOUR
F--FOXTROT	P--PAPA	Z--ZULU	5--FIVE
G--GOLF	Q--QUEBEC		6--SIX
H--HOTEL	R--ROMEO		7--SEVEN
I--INDIA	S--SIERRA		8--AIT
J--JULIETT	T--TANGO		9--NINE



out the United States.
25. D. C.

MILITARY CHART SUPPLY (Ref: AF Reg. 67-3)

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RADIOTELEGRAPH CODE AND PHONETIC ALPHABET INTERNATIONAL (ICAO)

A—ALFA	K—KILO	U—UNIFORM	0—ZE-RO
B—BRAVO	L—LIMA	V—VICTOR	1—WUN
C—CHARLIE	M—MIKE	W—WHISKEY	2—TOO
D—DELTA	N—NOVEMBER	X—XRAY	3—TREE
E—ECHO	O—OSCAR	Y—YANKEE	4—FOU-er
F—FOXTROT	P—PAPA	Z—ZULU	5—FIFE
G—GOLF	Q—QUEBEC		6—SIX
H—HOTEL	R—ROMEO		7—SEV-en
I—INDIA	S—SIERRA		8—AIT
J—JULIETT	T—TANGO		9—NIN-er

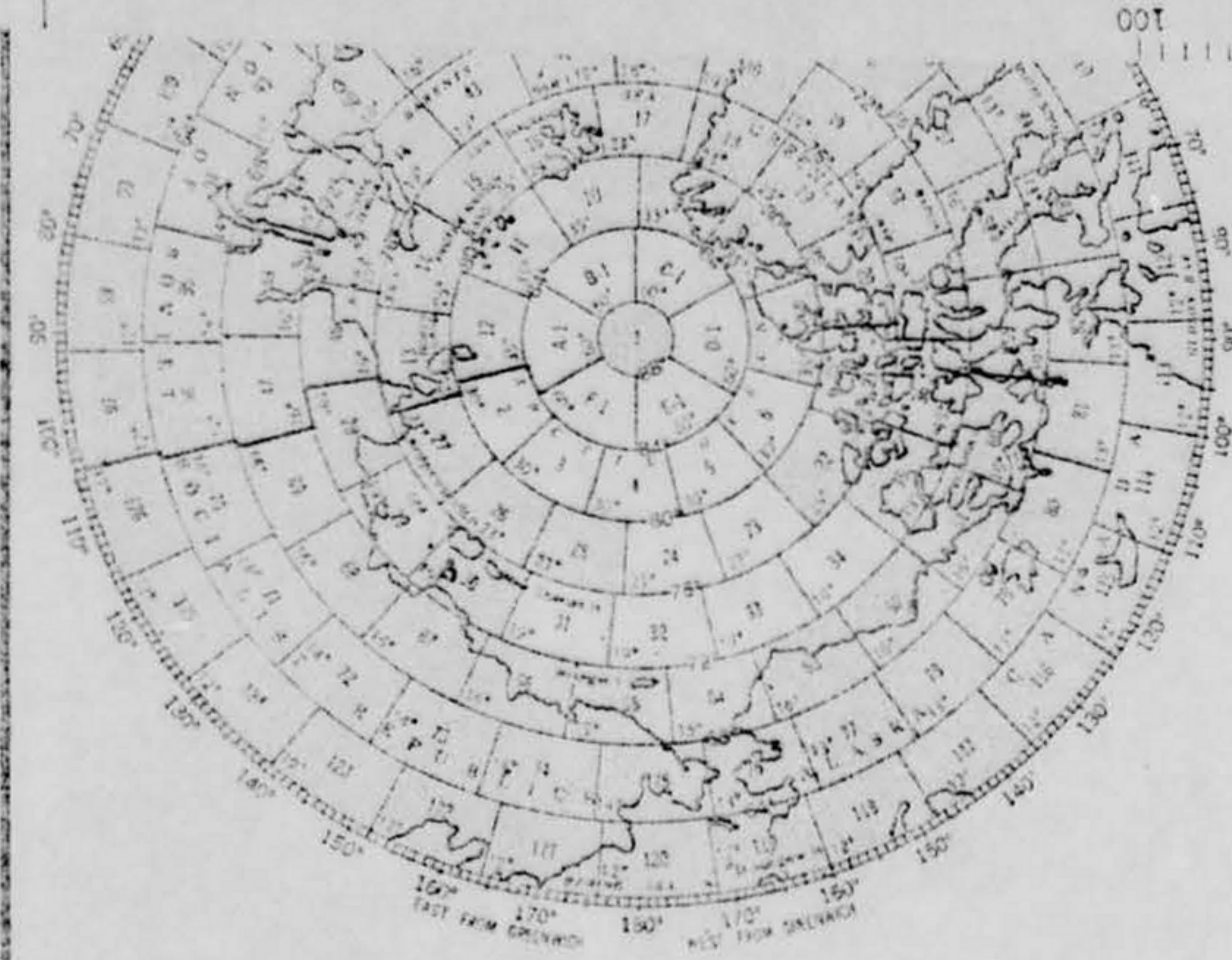


NOTE: It is requested that users of this chart indicate corrections and additions which come to their attention and notify THE DIRECTOR, U.S. COAST AND GEODETIC SURVEY, WASHINGTON 25, D.C.

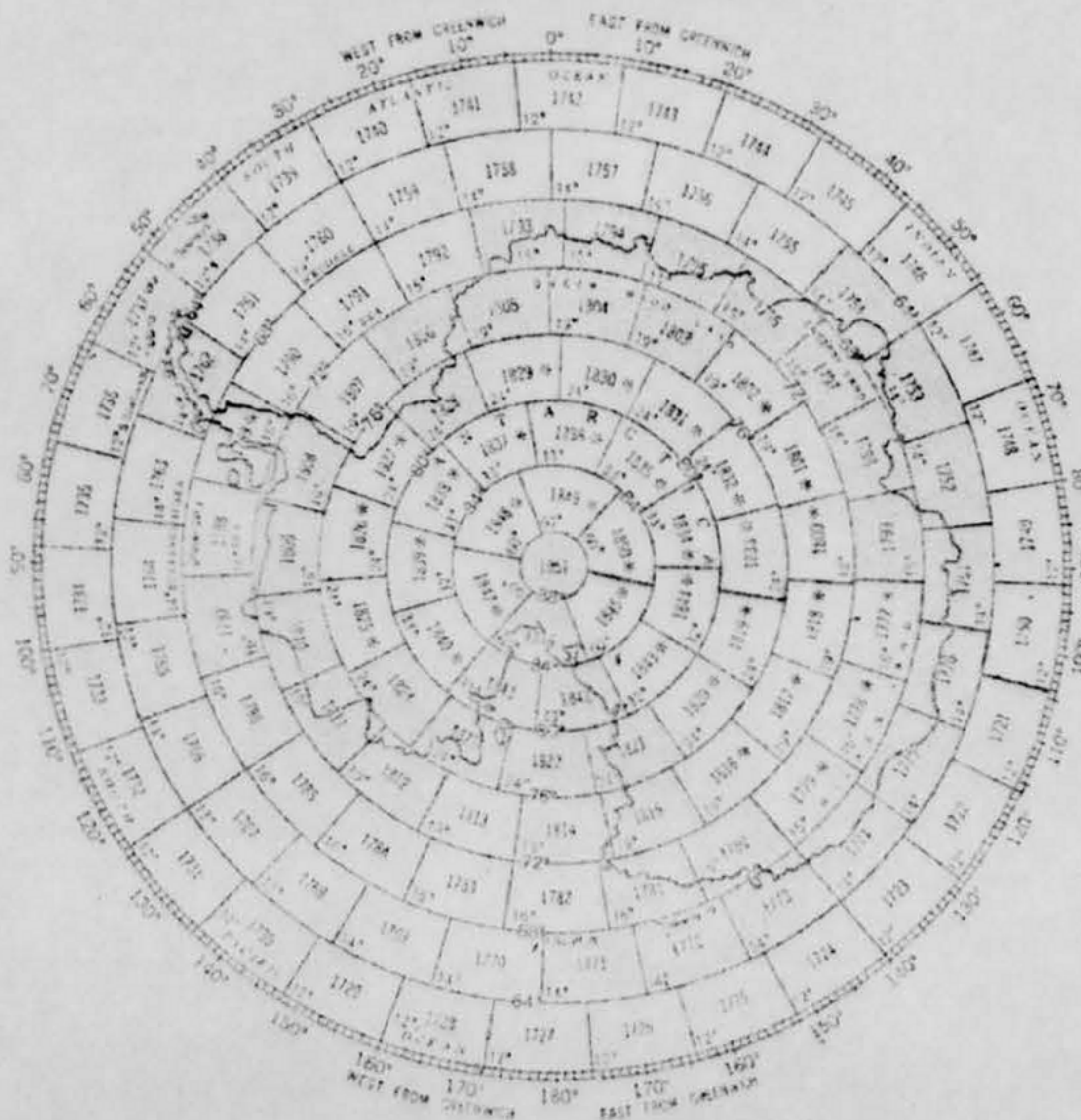
Obstructions:
Under construction, position, etc.
500 feet or higher above ground
Less than 500 feet above ground
Under construction, position, etc.
and elevation unverified

SCALE 1:1,000,000
GEOREF 12 86

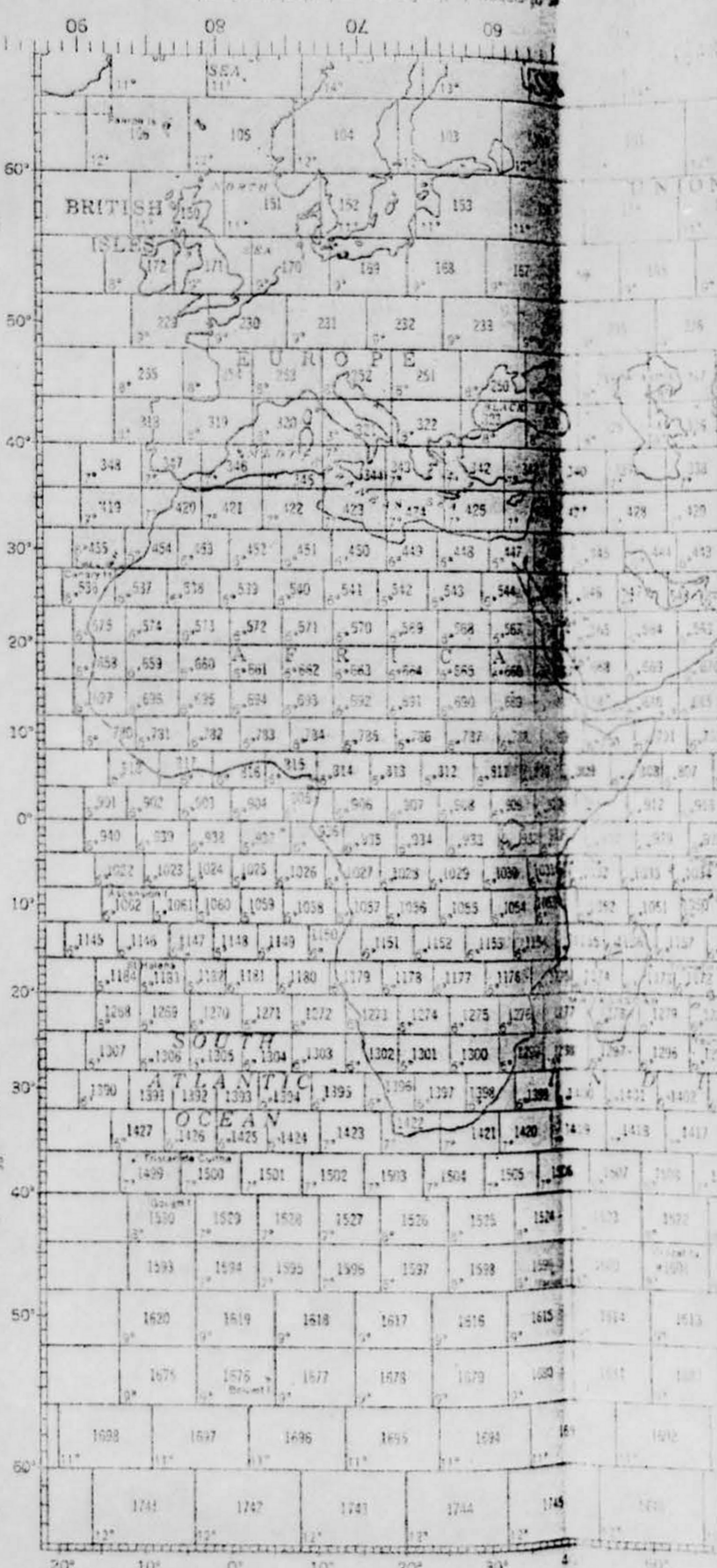
97°J
96° (Joins 360)
95°J
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190



SOUTH POLAR AREA



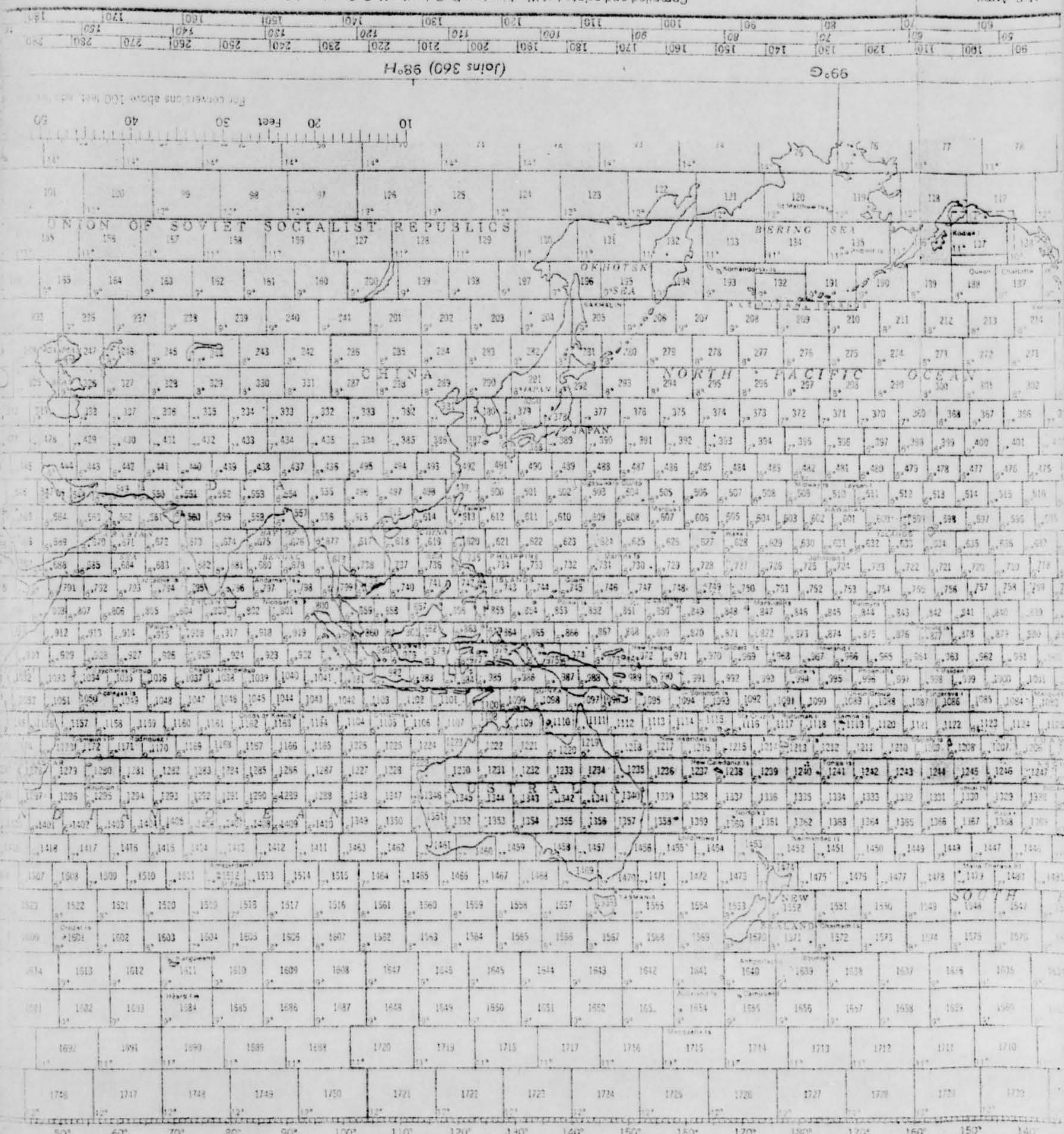
*Indicates that there is not sufficient information available to compile charts in this area at a scale of 1:1,000,000. Requisitions for these charts will be filled with the appropriate Universal Water Chart.



U. S. Army
of Agriculture, Civil
and Geodetic Survey.

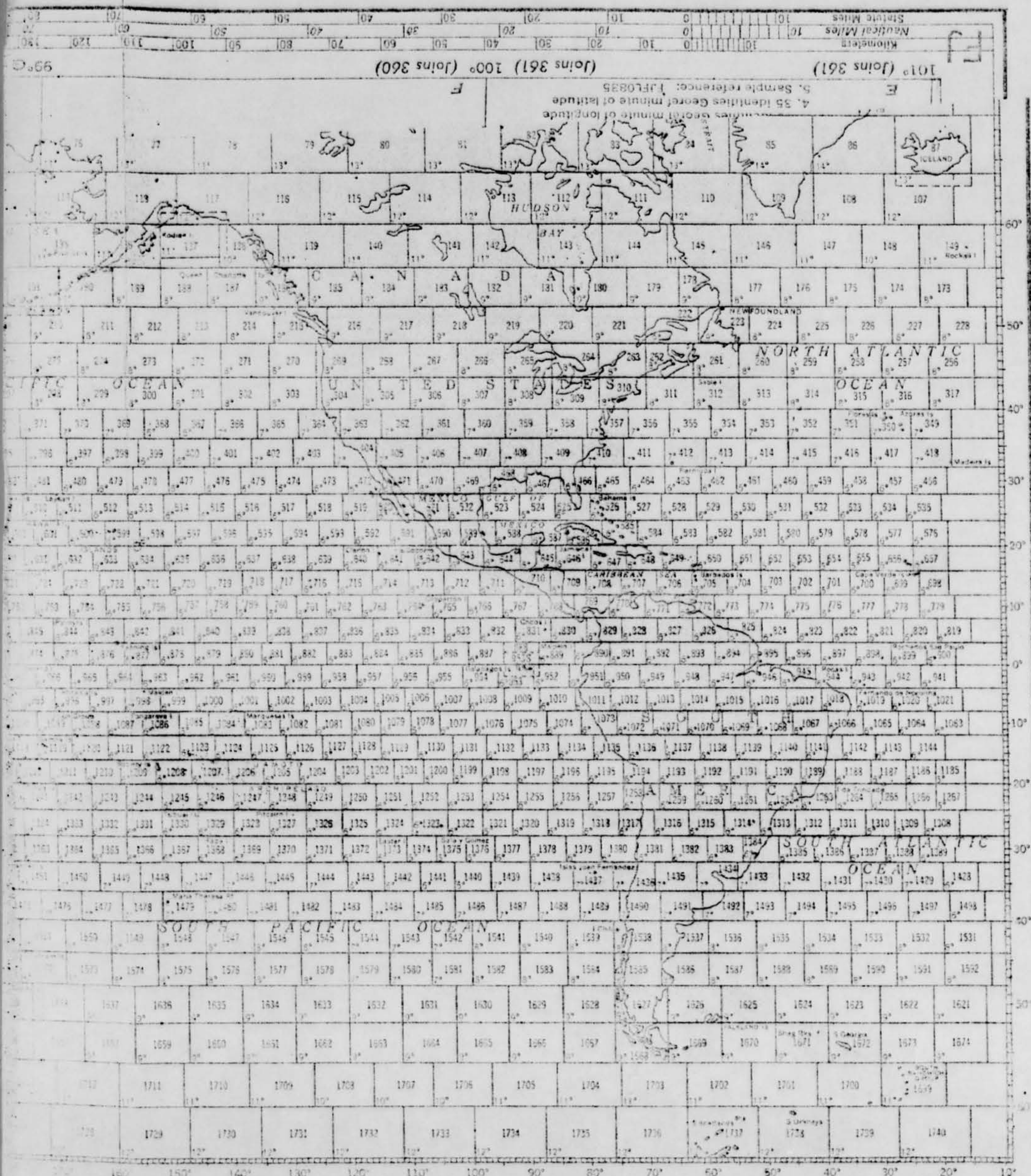
Compiled and printed at Washington, D. C. by the U. S. Coast and Geodetic Survey
under authority of the Secretary of Commerce
Revised OCTOBER 1957
BASE NO. 4

See legend on back of chart for vertical
limits of civil airways and control areas



WORLD AERONAUTICAL CHART INDEX

Scale of Series 1:1,000,000



Charts published ☐
Charts not published ☐

UNIVERSAL WATER CHARTS
Universal Water Charts (Scale 1:1,000,000; size 29 x 22 inches) covering 4° of lat.
have been published for use in place of the World Aeronautical Charts in water areas.
The user must insert the appropriate long. values for the particular area desired.
Water tint is printed within the normal geographical limits and the chart is designed
for use in both north and south latitudes.
NOTE: Requisition these charts by name and latitude interval.
Catalogue No. 1-275-1-14-1 WATER-47/52

1 - 30 NOVEMBER 1963 SIGHTINGS

DATE	LOCATION	OBSERVER	EVALUATION
2	St. Peter, Illinois	Civilians	Astro (METEOR)
2	Bean Blossom, Indiana	[REDACTED]	Astro (METEOR)
3	40.00N 174.00W (Pacific)	Military	INSUFFICIENT DATA
5	Kindley AFB, Bermuda	Military	Astro (JUPITER)
5	Nebraska - Iowa	Civilian - Military	Astro (METEOR)
8	Conde, Bahia, Brazil	Civilian	Other (HOAX)
11	Duncanville, Texas	[REDACTED]	INSUFFICIENT DATA
11	40N 173W (Pacific)	Military	INSUFFICIENT DATA
12	St. Claire County, Michigan	Multiple	AIRCRAFT
14	Stead AFB, Nevada	[REDACTED]	Other (MISSILE)
16	36.5N 72 5W (Atlantic)	Military	Other (FLARE)
17	33N 177W (Pacific)	Multiple	Astro (METEOR)
18	New Platz, New York	Multiple	Astro (METEOR)
18	32.10N 177.20W (Pacific)	Military	SATELLITE
19	Mt. Dora, Florida	Civilian	Other (UNRELIABLE REPCR)
19	Phoenix, Arizona	[REDACTED]	Astro (SPICA)
19	37.00N 173.30W (Pacific)	Military	Astro (METEOR)
21	West Nyak, New York	[REDACTED]	Astro (METEOR)
21	41.50N 60,30W (Atlantic)	Military	AIRCRAFT
27	Kenema, Sierra Leone, Africa	[REDACTED]	Other (MISSILE)
27	Monrovia, Liberia, Africa	Multiple	Other (MISSILE)
27	Pennsylvania	[REDACTED]	Astro (METEOR)
30	Knoxville, Tennessee	Military - Civilian	Astro (METEOR)

ADDITIONAL REPORTED SIGHTINGS (NOT CASES)

DATE	LOCATION	SOURCE	EVALUATION
Nov	Linwood, N. J.	[REDACTED] (164)	
2	Pacific Missile Range	[REDACTED] (Steward Observatory, University of Arizona)	
7-8	California Area	News Clipping	
14	Argentina	" "	
15	"	" "	
16	"	" "	
16	Buenos Aires, Argentina	" "	
16	Hythe, Kent	" "	
28	Argentina	" "	

minutes and, when it was realized the object was not properly identified as a KC-135, it was called to the attention of the other passengers. The 12-year-old pronounced it a cloud. [REDACTED] was puzzled. At this time, the smoke had dissipated and there appeared to be a drogue trailing to the left of the main body. The range appeared to be closing and the object getting larger; with the sunset lighting conditions, there was no color, only a dark silhouette, which seemed to be changing rather constantly.

The object lacked symmetry throughout the entire observation and, at no time, did it have the exact appearance of any flying machine known to us. Its silhouette, however, was very definite, sharp, and left no doubt as to whether or not it was a cloud formation. It definitely was not a cloud.

As the range seemed to close, or as the object grew larger, it appeared at one point to have the shape of a small, high-wing monoplane, perhaps a half mile away.

At this point, it was decided to turn toward and clarify the situation. Immediately after turning toward, the drogue appeared to increase in size and the main body diminished in size until the drogue became as large as the original object. A minute or so later, the object began to move away, or diminish in size; always on the true bearing. We had the feeling that this object was either remaining stationary or in the same relative position to our aircraft, depending on the actual distance involved. We gave chase until the size had diminished to the