

ICAO

CIRCULAR

CIRCULAR 29-AN/25



1953

SPECIFICATIONS ADOPTED BY AGENCIES
OF THE UNITED STATES GOVERNMENT
FOR THE PRODUCTION OF ROUTE CHARTS
OF THE WORLD. SCALE 1:2.000.000

Published by direction of the Council

**INTERNATIONAL
CIVIL AVIATION
ORGANIZATION
MONTREAL • CANADA**

This publication is issued in English, French and Spanish.

Published in Montreal, Canada, by the
International Civil Aviation Organization.
Correspondence concerning publications
should be addressed to the Secretary General
of ICAO, International Aviation Building,
1080 University Street, Montreal, Canada.

Orders for ICAO publications should be sent, on payment:

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FOREWORD

The Aeronautical Charts Division (MAP), at its fifth session in October 1951, recommended that the specifications in use by the United States chart-producing agencies for Route Charts 1:2,000,000 should be reproduced by ICAO and made available for the information of Contracting States (see Final Report of the Session Doc 7222-MAP/567, Recommendation No. 21, page 131). This recommendation was approved by the Council on 4 December 1951.

The specifications issued by the Director of the U.S. Coast and Geodetic Survey are contained in this Circular and are published with the permission of the Government of the United States.

Since they were designed for internal use by U.S. Government agencies, certain administrative references are not applicable elsewhere. It should be noted that, while the compilation and drafting instructions and the Symbol Sheet follow in general the Standards and Recommended Practices contained in Annex 4 - Aeronautical Charts, they are published only for information.

A number of route charts have been published by the U.S.A. in conformity with these specifications. Details concerning the coverage and availability of these charts is published in the ICAO Aeronautical Chart Catalogue (Doc 7101).

TABLE OF CONTENTS

	<u>Page</u>
I. - GENERAL	3
A. Purpose and scope specifications	3
B. Definition	3
C. Liaison between agencies	3
II. - SCALE	3
III. - PROJECTION	4
A. Latitude	4
B. Longitude	4
C. Tick Marks	4
D. Graticule	5
IV. - SHEET SIZE	5
A. Width	5
B. Length	5
V. - GRAPHIC SCALES FOR THE MEASUREMENT OF DISTANCES	5
VI. - BORDER DIMENSIONS	6
VII. - CONVERSION OF ELEVATIONS - GRAPHIC SCALE	6
VIII. - TITLE AND MARGINAL INFORMATION	7
A. Title	7
B. Name	7
C. Number	7
D. Other Marginal Information	7
IX. - SYMBOLS	8
X. - COMPILATION OF THE BASE	8

	<u>Page</u>
XI. - TOPOGRAPHIC FEATURES TO BE SHOWN	8
A. Hydrography	8
B. Culture	12
C. Relief	15
D. Unusual Features and Unusual Land Areas	18
XII. - QUESTIONABLE LOCATION OR EXISTENCE OF FEATURES	18
XIII. - PLACE AND GEOGRAPHIC FEATURE NAMES	19
A. Punctuation Marks	19
B. Diacritical Marks	19
C. Type Placement	19
XIV. - TYPE STYLES AND SIZES	19
XV. - AERONAUTICAL INFORMATION	20
A. General Note	20
B. Aircraft Facilities	20
C. Radio Facilities	20
XVI. - COLOURS	23

SPECIFICATIONS ADOPTED BY AGENCIES
OF THE UNITED STATES GOVERNMENT
FOR THE PRODUCTION OF ROUTE CHARTS
OF THE WORLD, SCALE 1:2,000,000

I. - GENERAL

A. PURPOSE AND SCOPE SPECIFICATIONS

These specifications constitute the basic standards for guidance in the construction of Aeronautical Route Charts of the World by the U. S. Coast and Geodetic Survey (USC&GS), the USAF Aeronautical Chart and Information Service (ACIS), the U. S. Hydrographic Office (USHO), and any affiliate or subsidiaries of these agencies. Adherence to these specifications will eliminate duplication of effort, permit uniformity in the portrayal of features charted, and assure factual agreement of detail shown in common on the charts. These specifications shall not be amended except by action of the ACC Subcommittee on Aeronautical Charts and Maps.

B. DEFINITION

Route charts are designed to meet air navigation requirements along one or more routes of high-traffic frequency between specific terminals. A route chart normally portrays any information required for radio and visual navigation. The amount of detail shown may vary with the scale used; care being taken not to congest the chart.

C. LIAISON BETWEEN AGENCIES

All necessary liaison shall be maintained at the working level among the three agencies.

The Joint Specifications may contain variables such projections, scales or sheet sizes which will necessitate discussion and agreement by representatives of the C&GS, Navy and Air Force when the specifications are applied to meet individual chart requirements.

II. - SCALE

These specifications are developed on the premise that the basic scale for the majority of the charts shall be 1:2,000,000.

Note. - In some areas it will be desirable to use scales smaller than 1:2,000,000 to incorporate the required routes and terminals on a single chart. However, charts shall not be produced at scales smaller than 1:5,000,000.

III. - PROJECTION

The basic projection for the majority of the charts shall be the Oblique Mercator Projection.

Note. - In some areas it will be desirable to use projections other than the Oblique Mercator. The Lambert Conformal Conic Projection may be used in areas covered by a co-ordinated series of charts, scale 1:2,000,000, constructed on this projection. The limits of the three bands on the Lambert Conformal Conic Projection, and the "Standard Parallels" for each band, shall be:

LIMITS OF PROJECTION

4 and 28
28 and 48
48 and 72

STANDARD PARALLELS

at 7 and 20
at 33 and 45
at 55 and 65

In special cases the limits of the projection of the bands and the spacing of the "Standard Parallels" may be modified to suit the configuration of the land masses.

Over long water routes, the Mercator projection may be used.

A. LATITUDE

Spacing of all lines of latitude shall be at one (1) degree intervals with every other parallel (even) line graduated. All parallels shall extend to the neat line and shall be numbered within the border of the chart. The tick interval of latitude shall be at every five (5) minutes along the designated lines of longitude.

B. LONGITUDE

Spacing of all lines of longitude shall be at one (1) degree intervals with every third meridian line graduated. All meridians shall extend to the neat line and shall be numbered in the border of the chart. The tick interval of longitude shall be at every five (5) minutes along the designated lines of latitude.

C. TICK MARKS

The five (5) minute and the ten (10) minute ticks shall extend away from Greenwich and the Equator. The thirty (30) minute ticks shall extend equidistant on each side of the line. At 0° and 180° longitude and on the Equator

all tick marks shall extend equidistant on each side of the line. The five (5) minute tick shall measure 0.05"; and the ten (10) minute tick shall measure 0.10" and the thirty (30) minute tick shall measure 0.20" overall.

D. GRATICULE

All parallels and meridians shall extend to the neat line and shall be numbered in the border of the chart. In addition, each parallel, not graduated, and the first meridian to the left of each graduated meridian shall be numbered within the body of the chart, as near the intersection of these lines as is practicable. Graduated meridians and parallels shall not be numbered within the body of the chart. (See attached sample sheet.)

IV. - SHEET SIZE

The sheet size for charts of this series shall vary in accordance with the desired area of coverage.

A. WIDTH

The minimum width shall be 15-1/2 inches. In some areas it will be necessary to exceed the minimum width to include the required routes and terminals on a single chart. However, in no case shall the sheet exceed a maximum width of 31 inches.

B. LENGTH

The maximum length shall not exceed 56 inches.

V. - GRAPHIC SCALES FOR THE MEASUREMENT OF DISTANCES

Three (3) graphic scales representing the measurement of distances in nautical miles, statute miles and kilometres, based on the scale factor average of the chart coverage, shall be located between the neat line and the heavy border line on the long dimension of the chart. The scales shall appear in the following order:

NAUTICAL MILES;
STATUTE MILES;
KILOMETRES.

The scales shall read from left to right and shall have their zero points coincident with the same vertical line. To the right of the zero point, each scale shall be graduated at intervals of twenty-five (25) units. To the left of the zero point, each scale shall be extended an equivalent distance of twenty-five (25) units and shall be graduated at intervals of five (5) units.

In cases where the chart exceeds the minimum width, a graphic scale representing the measurement of distances in nautical miles shall be located between the neat line and the heavy border line opposite the border which includes the three-scale combination.

All scales shall extend from border line to border line and shall be labelled between folds.

VI. - BORDER DIMENSIONS

A. Dimensions from the neat line to the outer edge of the heavy border line, including the three-scale combination, are as follows:

	<u>CM</u>	<u>IN</u>
Inside line of nautical mile scale.....	0.552 cm.	0.217 in.
Inside line of statute mile scale	0.806 cm.	0.317 in.
Inside line of kilometre scale.....	1.060 cm.	0.417 in.
Inner edge of heavy border line.....	1.314 cm.	0.517 in.
Outer edge of heavy border line.....	1.390 cm.	0.547 in.

B. Dimensions from the neat line to the outer edge of the heavy border line, where no scales or tint box are included, are as follows:

Light border line.....	0.990 cm.	0.390 in.
Inner edge of heavy border line.....	1.180 cm.	0.465 in.
Outer edge of heavy border line.....	1.256 cm.	0.495 in.

C. Dimensions from the neat line to the outer edge of the heavy border line, in cases where the nautical mile scale is included in the border, are as follows:

Inside line of nautical mile scale.....	0.55 cm.	0.217 in.
Inner edge of heavy border line.....	0.81 cm.	0.317 in.
Outer edge of heavy border line.....	1.57 cm.	0.347 in.

Where topographic detail will not permit the placement of the altitude conversion scale and the gradient tint box within the body of the chart, the border along the width of the chart on the left side shall be constructed to accommodate them. The dimensions from the neat line to the outer edge of the heavy border line shall be as follows:

Light border line.....	2.54 cm.	1.00 in.
Inner edge of heavy border line.....	2.71 cm.	1.07 in.
Outer edge of heavy border line.....	2.78 cm.	1.09 in.

VII. - CONVERSION OF ELEVATIONS - GRAPHIC SCALE

A uniform conversion scale, in terms of metres and feet, shall be shown. Depending on available space, either a vertical or a horizontal scale may be used.

VIII - TITLE AND MARGINAL INFORMATIONA. TITLE

The title of this series shall be: ROUTE CHART.

B. NAME

The name of each chart shall be so devised that two selected major terminals shall serve as identification. When other major terminals are included on the chart, their names shall be shown, in parenthesis, directly beneath the chart name and number.

C. NUMBER

The number of each chart shall be selected at the time of assignment for production of the chart, and shall conform to the overall index for the series.

D. OTHER MARGINAL INFORMATION

Other marginal information shall include the following:

1. Authority note;
2. Base information note;
3. Aeronautical information note;
4. Edition note;
5. Users' note;
6. Fractional scale;
7. Joint Specifications note;
8. Projection note;
9. Magnetic information note;
10. "Elevations in Feet" note;
11. Seal (Agency);
12. Lithographic imprints (Optional);
13. Security classification note, when required;
14. Price (Optional);
15. Chart Location index;
16. Legend - Aeronautical;
17. Consult other sources note;
18. De Facto boundary note.

To meet specific requirements it may be necessary to incorporate marginal information in addition to that listed.

For the positioning of the title and marginal information, refer to the standard style and symbol sheet.

IX. - SYMBOLS

Symbols shall conform to those shown on the standard style and symbol sheet.

X. - COMPILATION OF THE BASE

The techniques employed in the preparation of the base compilation shall be the prerogative of the agency responsible for the production of the chart. However, it is emphasized that the compilation include those topographic features which are of definite check-point value for visual navigation.

Since charts of this series will normally include heavily congested areas as well as areas having limited topographic information, it will be necessary to select the features by local areas rather than by the chart in its entirety.

XI. - TOPOGRAPHIC FEATURES TO BE SHOWN

Features not mentioned in these specifications shall not be shown unless specifically requested in the compilation instructions.

A. HYDROGRAPHY

The hydrographic features shown shall be limited to those of sufficient size and character to be easily identified. Hydrographic features of known check-point value (usually obtained from field reports) may be emphasized by slight exaggeration. To identify these features their names may be added.

1. COASTAL SHORELINES, OPEN WATER AREAS AND OTHER RELATED FEATURES

a) Shorelines - tidal waters

Definite shorelines of tidal waters shall represent mean high water.

b) Open water areas

Open water areas shall be covered by light blue tint, solid or screened.

c) Charted rocks

Charted rocks, awash at mean low water and not large enough to be shown as islands, shall be located in their true positions. Groups of charted rocks shall be shown by a few representative rock symbols in the area (black plate).

The elevations of rocks of sufficient height to be landmarks or hazards to air navigation shall be shown if adequate information is available.

d) Reefs, coral and rocky ledges

These features shall be shown (blue plate), covered by open water blue tint.

e) Mud and tidal flats, sand bars and all similar areas

Mud and tidal flats, sand bars and all similar areas shall be shown. Do not label or outline.

f) Shipwrecks

Stranded shipwrecks, exposed at mean low water, shall be shown only when their prominence serves as aids to pilotage (black plate).

g) Unusual hydrographic features

As a rule, objects below mean low water shall not be shown. In exceptional cases, such reefs and shoals visible from the air shall be shown and appropriately labelled. This symbol shall be used in large water areas such as the Pacific Ocean to represent the only distinguishable features.

2. DRAINAGE

a) Shorelines

Shorelines shall be shown.

b) Lakes and ponds - perennial

Lakes and ponds shall be shown and covered by light blue tint, solid or screened. No distinction shall be made between salt lakes and fresh water lakes. In areas covered by numerous small lakes, only those of sufficient size and character shall be shown and supplemented, if necessary, by the descriptive note "numerous small lakes". The water surface elevations shall be shown when information is available.

c) Lakes and ponds - intermittent

Intermittent lakes and ponds shall be shown.

d) Dry lakes, alkali spots and salt wastes

Dry lakes, alkali spots and salt wastes that are permanently dry shall be shown. Tints shall be omitted.

e) Sebkhas - dry lakes in flat desert areas

Sebkhas shall be shown. Tints shall be omitted.

f) Salt pans and salt evaporators (man exploited)

Salt pans and salt evaporators (man exploited) shall be shown with principal separations indicated.

g) Streams - perennial

1) Single line perennial streams

Single line perennial streams shall be appropriately tapered at the headwaters. However, for the case of identification, streams of known check-point or landmark value (usually obtained from field reports) shall be shown as a heavier line than normally used for headwater streams.

2) Double line perennial streams

Double line perennial streams whose actual widths exceed .025" at reproduction scale shall be shown to scale.

3) Braided streams

Braided streams shall be shown.

4) Disappearing streams

Disappearing streams shall be shown. The points of disappearance and reappearance of disappearing streams shall be appropriately indicated.

Note. - Disappearing streams shall be considered as those perennial streams that abruptly disappear beneath the surface or reappear on the surface of the ground.

h) Streams - intermittent or dry

Intermittent or dry streams shall be shown. Single line wadis shall be shown as intermittent streams.

i) Streams - indefinite

Double line streams shall be covered by light blue tint, solid or screened.

j) Streams - unclassified

When information is not available to definitely determine whether a stream is perennial or intermittent, it shall be considered unclassified.

k) Falls and rapids

Falls and rapids shall be shown. These features shall be labelled, when necessary, for clarity. Proper names may be shown when important. Example: Victoria Falls, Niagara Falls, etc.

l) Canals

Only the most important canals shall be named.

m) Flood marked areas

Show areas that have become permanently and distinctively land-marked due to frequent inundation by floods.

n) Dry washes and dry river beds

1) Dry washes and dry river beds,
non-arid areas

Tints shall be omitted.

2) Dry washes and dry river beds,
arid areas

Tints shall be omitted.

o) Swamps and marshes

Swamps and marshes shall be shown by standard symbol (no outline). No distinction shall be made between salt and fresh water marshes and swamps. Mangrove swamps shall be labelled "Mangrove".

p) Springs, wells and waterholes

Springs, wells and waterholes shall be labelled, if necessary, for clarity.

q) Kanats - underground irrigation canals
with air vents

Kanats shall be shown.

r) Fisheries and hatcheries

Fisheries and hatcheries shall be covered by light blue tint, solid or screened, and shall be appropriately labelled, when necessary, for clarity. Principal separations shall be indicated.

s) Glaciers

Glaciers shall be outlined and form lines shall be used to indicate the direction of flow. Tints shall be omitted.

t) Permanent snowfields and icecaps

Permanent snowfields and icecaps shall be outlined and form lines shall be used to indicate direction of flow. Tints shall be omitted.

Note. - The form lines shall be more widely spaced than those used to indicate glaciers.

u) Land areas perpetually covered by snow and ice (polar areas)

The dashes shall be irregular in length and spacing in order to prevent the symbol being interpreted as form lines. This symbol is not intended to depict height or configuration of the terrain. Tints shall be omitted.

v) Shelf ice and pack ice

The limits of shelf ice and pack ice which are attached to the mainland shall be appropriately labelled when necessary for clarity. The date of observation shall be included when such information is available. Tints shall be omitted.

w) Ice peaks and ice cliffs

Prominent ice peaks and ice cliffs shall be shown.

B. CULTURE

1. METROPOLITAN AREAS, CITIES, TOWNS AND VILLAGES

a) 1st and 2nd Class - Metropolitan areas and large cities

Metropolitan areas and generally those cities having a population of 25, 000 or more shall be shown by a fine black line delimiting the built-up area (not political limits) and the open area covered with solid yellow tint. When source data for a city outline are not available use appropriate square symbol of the following dimensions:

Cities of 100, 000 population or more.....	.25"
Cities of 25, 000 to 100, 000.....	.15"

b) 3rd Class - Small cities and large towns

Small cities and large towns having a population of 10,000 to 25,000 shall generally be shown by a .08" square (fine black outline) and the enclosed area covered by solid yellow tint.

c) 4th Class - Small towns and villages

Small towns and villages shall be shown by a black open circle .05" diameter.

Note - 3rd class cities and towns, and 4th class small towns and villages of landmark value shall be shown by actual outline (fine black line) and the enclosed area covered by solid yellow tint. If necessary, slight exaggeration of the symbol is permissible.

d) Selection of cities, towns and villages

Cities, towns and villages shall be selected on a basis of visibility from the air, strategic and aeronautical importance, and population. Cities shall be selected in the order of their importance. Towns and villages shall be added when necessary to depict a comparable representation of the area. When towns are of equal importance, those of landmark value shall be given preference.

e) Type sizes

1st Class.....	8 Pt. Caslon Bold Cond. Caps (Foundry)
2nd Class.....	6 Pt. News Gothic Caps (Monotype or Foundry)
3rd Class.....	6 Pt. News Gothic C & L.C. (Monotype or Foundry)
4th Class.....	6 Pt. Lining Gothic C.&L.C. (Monotype) or Lightline Gothic #4 C.&L.C. (Foundry)

2. HIGHWAYS, ROADS AND TRAILS

Highways, roads and trails shall be shown, but their selection shall be governed by their relative importance as landmarks and check-points for visual navigation. None shall be shown within city outlines or city, town and village symbols. Highways, roads and trails shall not be named or numbered.

3. RAILROADS

Railroads shall be shown but their selection shall be governed by their relative importance as landmarks and check-points for visual

navigation. None shall be shown within city outlines or city, town and village symbols. All railroads shall be shown by the standard single-track symbol regardless of gauge or means of power. Railroads shall not be named.

4. BOUNDARIES

- a) International boundaries shall be overtinted with a screened gray band (gray plate).
- b) Inter colonial and inter territorial boundaries shall not be overtinted.
- c) State and province boundaries shall not be overtinted.

Note. - Boundaries of small provinces shall be omitted if they become confusing or congest the chart. Boundaries shall be shown in their entirety; however, those along streams may be partially omitted if clarity is maintained. The appropriate name shall be shown prominently on each side of the stream. Extend boundary lines into large bodies of open water to separate islands near shore. Names shall be placed along the boundary lines. The names of provinces, republics, etc., shall not be shown along international boundaries unless their boundaries do not appear elsewhere on the chart, or when the available space does not permit naming elsewhere. When indefinite, label "Boundary Indefinite".

- d) De facto boundaries (international or otherwise) shall be shown.

5. TREATY, CONVENTION AND MANDATE LINES

Treaty, convention and mandate lines shall be shown.

6. INTERNATIONAL DATE LINE

The international date line shall be shown and labelled "INTERNATIONAL DATE LINE". The words "Sunday" and "Monday", properly oriented, shall be shown adjacent and parallel to the symbol.

7. MISCELLANEOUS

a) Bridges

Railroad and highway bridges of relative importance as landmarks shall be shown.

b) Transmission lines

Transmission lines shall be shown only when they are of definite landmark value.

c) Pipelines

Pipelines shall be shown only when they serve as definite landmarks.

1. Exposed pipelines shall be labelled "pipeline".
2. Underground pipelines shall be labelled "underground pipeline".

d) Prominent walls

Prominent walls which extend for great distances across open country such as "The Great Wall of China" shall be appropriately labelled.

e) Tunnels, lookout towers, dams, forts, racetracks, mines and quarries of the open pit type, and prominent fences

These features shall be shown only when they are of definite landmark value. Label, if necessary, for clarity.

f) Located cultural objects

Located cultural objects in open country such as oil wells, factories, grain elevators, monasteries, ruins, etc., shall be shown by the standard square or round cultural object symbol, whichever is better to indicate proper shape. Label appropriately.

C. RELIEFI. CONTOURED AREAS

Wherever relief information is available, contour lines shall be compiled for use in the preparation of gradient layer tints. Contours shall be compiled at the following gradient tint intervals: 1000', 2000', 3000', 5000', 7000', 9000', 12000', 15000', and 20000'.

a) Reliable contours

Reliable contours shall be shown on the compilation by solid lines. However, these contours shall not appear on the chart.

b) Approximate contours

Approximate contours shall be shown when relief information is doubtful but felt to be fairly reliable. These contours shall be shown on the chart as dashed lines. On those charts which include approximate contours, the following note shall be shown near the gradient tint box:

CAUTION - Gradient tints delimited by dashed contour lines indicate approximate relief only.

c) Form lines

Form lines shall not be used except on glaciated areas (See item XI, A, 2, s) and t.)

2. GRADIENT TINT BOX

a) A key box showing the gradient tint system shall be shown. (See item VI, C.) The value in the top of the box shall be the highest elevation on the chart. Only those tints that appear on the chart involved shall be shown.

b) When the highest elevation on the chart is not definitely known, show in the top of the key box a note to the effect that the maximum elevation is under the highest possible elevation that can be determined from the source material. To determine the highest possible elevation, the equivalent of the contour interval shall be added to the highest contour shown. For example, show "Under 13000" when the source material has a contour interval of 1000' and the highest contour shown is 12000'; show "Under 4400" when the source material has a contour interval of 100' and the highest contour shown is 4300'.

c) In areas where contours are so close that they present a serious reproduction problem, the lower elevation may be covered by the next higher gradient tint.

d) In cases where the area (or areas) covered by brown tint is very small (less than 1/2 inch square) the contour brown may be used in the proper screen to save an additional press run.

3. UNCONTOURED AREAS

Where relief information is unreliable or not adequate to show contours, the area shall be overprinted with golden buff tint. A key box containing golden buff tint shall be shown in the border immediately below the gradient tint box. The note "CAUTION - Relief data incomplete" shall be shown below the golden buff key box.

4. UNSURVEYED AREAS

When both relief and planimetric data are unavailable, the area shall be overprinted with golden buff tint and labelled "UNSURVEYED". Type shall be positioned to indicate the extent of the unsurveyed area.

5. HACHURING

Hachuring shall be used to portray prominent features in mountainous areas where contour data are not available and is to be derived from form

lines and/or hachure information available on source material. In plateau country, wide flat areas between gradient tint intervals and the area above the highest contour, prominent rises, knolls and peaks shall be hachured when considered an aid to pilotage. Those features of known checkpoint value (usually obtained from field reports) may be emphasized by the use of hachures. To identify these features their names may be added.

6. SPOT ELEVATIONS

All critical spot elevations shall be shown. When information is available, a general pattern of spot elevations covering the entire chart shall be shown. Care shall be exercised to avoid congesting the chart with unimportant spot elevations. Spot elevations shall be indicated by a dot and elevation value. The highest elevation in a general area, such as a mountain range, island group or other distinctive portion of the chart, shall be shown with a larger dot and larger type size. The highest elevation value on the chart shall be cleared of all detail and tints.

Spot elevations which are questionable as to value shall be followed by a plus-and-minus mark. When exact location is in doubt, omit the dot and centre the value over the approximate point.

7. MOUNTAIN PASSES

Mountain passes shall be shown when they are considered as aids to pilotage. Show name and elevation when information is available.

8. ESCARPMENTS, BLUFFS AND CLIFFS

Escarments, bluffs and cliffs shall be shown only when they are prominent landmarks or when cultural detail is sparse and the source of information is reliable. The sand symbol shall not cover the escarpment, bluff or cliff symbols.

9. LEVEES AND ESKERS

Levees and eskers shall be shown and labelled when clarification is necessary.

10. SAND DUNES, SAND AREAS AND SAND RIDGES

Sand areas shall be shown by Zip-a-Tone. Sand dunes and sand ridges shall be portrayed by lightening and intensifying the Zip-a-Tone pattern to create a pictorial effect of these features.

11. NUNATAKS

Nunataks (large rock outcrops which appear above areas perpetually covered by snow and ice) shall be portrayed in the following manner:

a) Nunataks which are five (5) statute miles or less, in all directions, shall be shown by hachures.

b) Nunataks which are more than five (5) statute miles, in any direction, shall be shown by the appropriate land tint. Protruding peaks within these areas shall be shown by hachures. Nunataks shall be labelled. Proper names shall be shown when information is available.

12. VOLCANO CRATERS AND LAVA FLOWS

Volcano craters and lava flows shall be shown when they are prominent landmarks.

Add descriptive note "crater" (black plate) when lava flows do not exist.

Lava flows shall be shown by a pattern of hand-drafted scalloped lines indicating direction of flow and delimited by a solid line.

13. DISTORTED SURFACE AREAS

Distorted surface areas (lava and rocky areas) shall be shown and appropriately labelled.

14. ROCK STRATA OUTCROP

Rock strata outcrops shall be shown when actual position and alignment are known.

D. UNUSUAL FEATURES AND UNUSUAL LAND AREAS

1. Unusual features

Unusual features such as natural bridges, odd-shaped formations and white bluffs which are of landmark value and cannot be shown by symbol at reproduction scale, shall be indicated by a small dot appropriately labelled (black plate).

2. Unusual land areas

Unusual land areas such as jungle clearings, light or dark areas, which are of landmark value shall be delimited and appropriately labelled.

XII. - QUESTIONABLE LOCATION OR EXISTENCE OF FEATURES

When there is doubt as to the location or existence of any feature, question marks shall be added to the appropriate symbol. Question marks shall be shown in the same color as the feature.

XIII. - PLACE AND GEOGRAPHIC FEATURE NAMES

In all countries where the Latin alphabet is officially used, the latest acceptable local form shall be retained for the spelling of place and geographic feature names. In all other countries, the transliteration shall conform to that prescribed by the U.S. Board on Geographic Names. Whenever information is available, alternate names, enclosed in parenthesis, shall be shown for all geographic feature names and those place names which are of major importance. Alternate names of small cities and towns shall not be shown. The names of countries and large geographic features common to two (2) or more countries shall be spelled in accordance with conventional English usage. When a country name is shown in conjunction with the name of an island or a group of islands, to show ownership, it shall be centred under the feature name or under the alternate name when one is shown.

The full name of the most important of each type of geographic feature (cape, point, gulf, river, etc.) on the chart shall be spelled out. The translation of the generic part of the name, enclosed in parenthesis, shall be shown when necessary for clarity. The type used for translations shall be lower case. The size shall be one size smaller than that used for the generic, whenever practicable. The names of other similar features may be abbreviated and the translations omitted.

A. PUNCTUATION MARKS

Punctuation marks shall not be shown within the body of the chart.

B. DIACRITICAL MARKS

Diacritical marks shall be used within the body of the chart and in the chart name in accordance with policies of the U.S. Board on Geographic Names whenever this information is available.

C. TYPE PLACEMENT

Extreme care shall be exercised in the positioning of type, particularly city and town names, in order to clear aeronautical information which will be included in the final aeronautical overprinting and to avoid breaking the graticule.

XIV. - TYPE STYLES AND SIZES

See attached type styles and sizes sheets.

XV. - AERONAUTICAL INFORMATION

A. GENERAL NOTE

The aeronautical information shall be limited to that which is least subject to frequent change. Where detailed information is not available to civil users in the form of Notams, Radio Facility Charts, Airman's Guide, Notices to Aviators or other similar publications, more complete information may be shown in accordance with instructions in these specifications.

Air navigation aids which are peculiar to certain countries and which are not readily adaptable to U.S. navigation equipment shall not be shown. (Examples: Australian VAR facilities, Decca and Gee Systems.)

B. AIRCRAFT FACILITIES (Magenta plate)

The following aerodromes shall be shown:

1. International Airports;
2. Active Military Bases (U. S.);
3. Major Aerodromes - Metropolitan areas;
4. Selected Aerodromes - Area coverage:
 - a) Size;
 - b) Local, civil or military importance.

The classification of aerodromes shall be limited to: (1) civil aerodromes, (2) military aerodromes and (3) landing areas - limited or no facilities. Each aerodrome shall be identified by the official aerodrome name.

Note. - In areas where information concerning elevations of aerodromes, lighting facilities and lengths of longest runways are not available to civil users, these data shall be shown immediately beneath the aerodrome name (standard ICAO form).

C. RADIO FACILITIES

1. Radio ranges

a) Low and Medium Frequency

Low and medium frequency radio ranges shall be shown. In areas where information is not readily available, range courses with inbound bearings shall be shown by standard symbol (magenta plate).

b) Visual-aural - (VAR) - VHF

Visual-aural radio ranges (VHF) shall be shown (offset blue plate).

c) Omnirange (VOR) - VHF

Omniranges shall be shown (offset blue plate).

2. Radio beacons (magenta plate)

a) Aeronautical (non-directional)

All H and HH non-directional radio beacons shall be shown, but MH facilities may be shown in areas devoid of other air navigation aids.

b) Marine

A selection of marine radio beacons shall be shown when other air radio navigation facilities are not available. Selection shall be made on the following basis:

- (1) Range - 100 statute miles, or more;
- (2) Transmits continuous carrier wave during period of operation.

c) Radar - Racons

All Racons shall be shown. When Racons are located at the aerodromes, the circle and dot symbol shall be omitted.

d) Ocean Stations

Ocean stations shall be shown.

e) Consol

All consol beacons shall be shown.

f) Fan type and bone shape

Fan type and bone shaped beacons shall not be shown.

g) YG

YG beacons shall not be shown.

3. Direction Finding Stations

a) A selection of DF stations shall be shown based on their importance to air operations.

b) Direction finding stations located at aerodromes shall be shown by DF enclosed in a box. When aerodrome is not charted, the circle and dot symbol and the name enclosed in a box shall be shown.

4. Communication Stations

Communication stations shall not be shown except in isolated areas where other facilities are not available.

Note. - Frequencies may be included in the box.

5. Broadcasting Stations (magenta plate)

Broadcasting stations shall be shown. Selection shall be made on the following basis:

- a) Power of station - preferably stations of 5 KW or greater;
- b) Frequency -- preferably below 1,000 KC;
- c) Antenna array - non-directional;
- d) Operating schedule.

6. Air Navigation Lights

Air navigation lights shall not be shown.

7. Civil Airways

Civil airways may be shown.

8. Airspace Reservations (magenta plate)

a) Danger areas

Danger areas shall not be shown.

b) Restricted areas

Restricted areas shall not be shown.

c) Prohibited areas

Prohibited areas shall be shown. They shall be outlined by a .008" line and the entire area shall be covered by cross rule or stipple.

d) International boundaries - corridors

International boundaries closed to the passage of aircraft shall be overprinted with stipple .10" wide (magenta plate). Corridors crossing these boundaries shall be delineated to scale and the stipple omitted within the corridor. Solid lines (magenta) .015" wt shall be used.

9. Marine lights

Marine lights shall not be shown.

10. Isogonic Lines (magenta plate)

Lines of equal magnetic variation generally shall be shown for each whole two (2) degrees of change. Exceptions may be made in areas where it is desirable to reduce the interval to provide sufficient isogonic lines for navigational purposes.

The values shall be placed in the border area and also at frequent intervals within the body of the chart.

XVI. - COLOURS

1. Black

Black shall be used for graticule, scales, border lines, neat lines, spot elevations, rocks, shipwrecks, mountain passes, unusual relief features, unusual land areas; all cultural symbols, except highways roads, trails, highway bridges and highway tunnels. Black shall also be used for all marginal information, except aeronautical notes and legend; all lettering, except that specified for hydrographic and aeronautical information.

2. Gray

Gray shall be used for highways, roads, trails, highway bridges, highway tunnels and international boundary overtint. Gray shall also be used for land areas of chart location index.

3. Dark Blue

Dark blue shall be used for all hydrographic features, except rocks, shipwrecks, open areas within dry washes and dry river beds (non-arid areas), mud and tidal flats, sand bars and all similar areas. Dark blue shall also be used for hydrographic feature names.

4. Light Blue Tint (Solid or Screened)

Light blue tint shall be used for all open water areas.

5. Brown

Brown shall be used for approximate contours and all relief features, except mountain passes. Brown shall also be used for mud and tidal flats, sand bars and all similar areas, open areas within dry lakes, alkali spots, salt wastes and open areas within dry washes and dry river beds (non-arid areas).

6. Yellow

Yellow shall be used to tint the open area within actual outlines of metropolitan areas, cities, towns and villages. Yellow shall also be used to tint open areas within square symbols used to represent cities and towns.

7. Golden Buff Tint

Golden buff tint shall be used for uncontroled and unsurveyed areas.

8. Gradient Tints

Gradient tints ranging from shades of green through shades of brown shall be used where adequate contoured relief information is available. Light pastel shades shall be used to permit the addition of shaded relief, if specified. Shades of colours shall be obtained through use of fine dot screen patterns.

Gradient tints shall conform to the following colors for the range of elevations indicated:

<u>ELEVATION</u>	<u>COLOUR</u>
Below Sea Level	Blue Green
0 - 1000	Green
1000 - 2000	Green
2000 - 3000	Light Brown
3000 - 5000	Light Brown
5000 - 7000	Light Brown
7000 - 9000	Light Brown Dark Brown
9000 - 12000	Light Brown Dark Brown

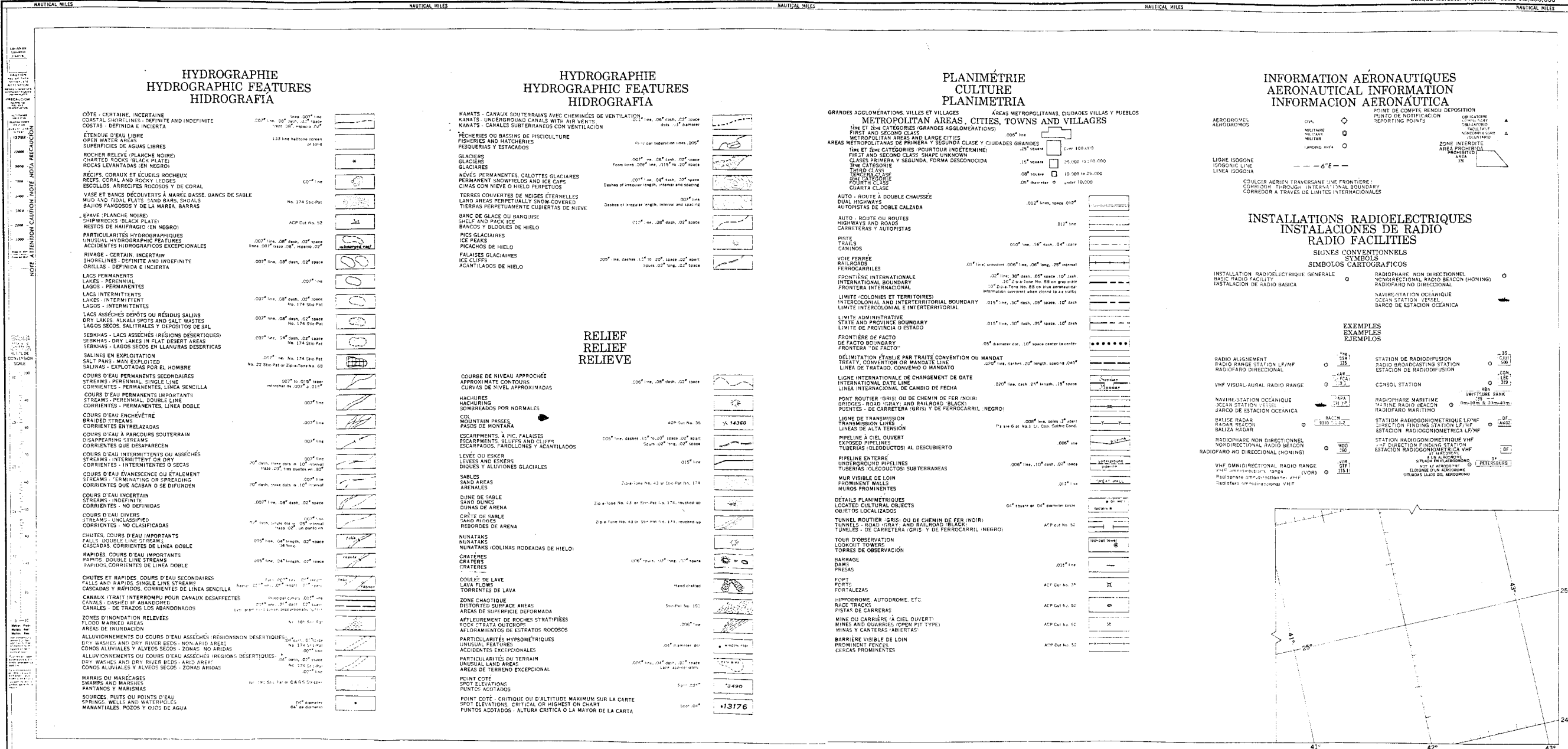
<u>ELEVATION</u>	<u>COLOUR</u>
12000 - 15000	Light Brown Dark Brown
Over 15000	Light Brown Dark Brown Blue (open water)

9. Magenta

Magenta shall be used for aircraft facilities, low and medium frequency radio facilities, isogonic lines, prohibited areas and overprinting of international boundaries closed to passage of aircraft.

10. Offset blue

Offset blue shall be used for VHF radio facilities.



HYDROGRAPHIE
HYDROGRAPHIC FEATURES
HIDROGRAFIA

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HYDROGRAPHIC FEATURES
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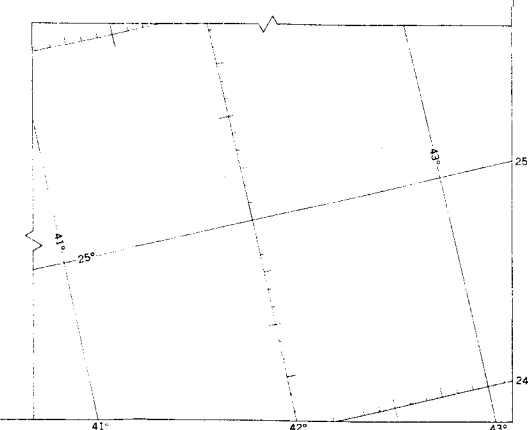
PLANIMETRIE
CULTURE
PLANIMETRIA

INFORMATION AERONAUTIQUES
AERONAUTICAL INFORMATION
INFORMACION AERONAUTICA

RELIEF
RELIEF
RELIEVE

INSTALLATIONS RADIOELECTRIQUES
INSTALACIONES DE RADIO
RADIO FACILITIES

- SYMBOLS CONVENTIONNELS / SIMBOLOS CARTOGRAFICOS
EXEMPLES / EJEMPLOS
RADIO ALIGNEMENT / RADIO RANGE DIRECTIONAL
NAVIRE-STATION OCEANIQUE / OCEAN STATION
STATION RADIOGONIOMETRIQUE / RADIO GONIOMETRIC STATION



NAUTICAL MILES / STATUTE MILES / KILOMETERS scale bars.
Aeronautical Legend / Legende Aeronautique / Leyenda Aeronautica.
Notes on magnetic variation and chart information.
Scale: 1:2,000,000.
Edition: May 1952.

TYPE ET DIMENSIONS DES CARACTÈRES
 POUR LA TOPOGRAPHIE
 ESTILO Y TAMAÑO DE LOS CARACTERES
 PARA LOS DATOS
 TYPE STYLES AND SIZES
 FOR FEATURES

RENSEIGNEMENTS AÉRONAUTIQUES
 FOR AERONAUTICAL INFORMATION
 PARA INFORMACION AERONAUTICA

TYPE ET DIMENSIONS
 STYLE AND SIZE
 ESTILO Y TAMAÑO

RENSEIGNEMENTS MARGINAUX
 FOR BORDER
 PARA EL MARGEN
 EJEMPLO
 EXAMPLE
 EJEMPLO

TYPE ET DIMENSIONS
 STYLE AND SIZE
 ESTILO Y TAMAÑO

TYPE ET DIMENSIONS
 STYLE AND SIZE
 ESTILO Y TAMAÑO

OBJET
 ITEM
 ITEM

SEATTLE-TACOMA INTL

New Chart Contained in Pt. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 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, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 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1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2

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