

Ref. Manual 185

Card 01-07 - punched

Col. JN only, 1 digit.

" Day 7 Blank Left blank in all cards

Revisions

Include Southern Hemisphere

USSR Sites - Oct 5, 6, 7 & 8 50.0°S & Southward

Card	No	No. punched
Oct 19-20	00-24	20, 06, 12, 18 (24 hr. = 00 next day)

50-51 add. X overpunch Column
50 Jan punches
exceeding 9.9 mbs.

Card
60- Same Blank
61 Punched X in all cards - designations
terminations are in C.C.

62-64 - Same Blank

65-67

New Paint

Whole °C

Pencil X in Column

65 for negative temperatures.

CARD CONTENT					
Column	Item gr Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
1-80	All items		Blank		Blank card columns indicate missing observed elements or unassigned columns.
1-4	Blank			Not used	
5-6	Year		57-58	Last two digits of year	"57" = 1957
7-8	Month		01-12	January-December	"01" = January "12" = December
9-10	Day		01-31	Day of the month	
11	Day of the week	Y	01-07	Sunday-Saturday, respectively	Day of the week is in G.M.T. When hour is coded "00" (midnight), Day of the week is coded as the day just beginning.
12	Octant	Q	0-3	See Code 1	N.H.
13-15	Latitude	L _a L _a L _a	500-900	50.0°-90.0° North Latitude	Degrees and tenths (Northern Hemisphere only) 5
16-18	Longitude	L _o L _o L _o	000-900 901-800 000-900 901-800	0.0°-90.0° W Longitude 90.1°-180.0° W " 0.0°-90.0° E " 90.1°-180.0° E "	Col. 12 punched "0" 5 Col. 12 punched "1" 6 Col. 12 punched "3" 8 Col. 12 punched "2" 7
19-20	Hour (G.M.T.)	GG	00-23	Time of Observation	"00" Beginning of Day 00, 06, 12, 18 only
21	Blank			Not used	
22	Total Cloud Amount 8ths	N	0-9	See Code 2	
23-24	Wind Direction	dd	00-36	See Code 3	
25-26	Wind Speed	ff	00-99	Wind Speed in meters per second	
27	Blank			Not used	
28-29	Visibility	vv	90-99	See Code 4	
30-31	Present Weather	ww	00-99	See Code 5	
32	Past Weather	w	0-9	See Code 6	
33-36	Pressure	pppp	0000-0700 9000-9999	1000.0-1070.0 mbs. 900.0-999.9 mbs.	Hundreds, tens, units, and tenths of millibars. (Thousands digit omitted)
37-41	Blank			Not used.	
42	Low Cloud Amount	N _h	0-9	See Code 2	
43	Low Cloud Type	C _L	0-9, X	See Code 7	
44	Low Cloud Height	h	0-9, X	See Code 8	
45	Middle Cloud Type	C _m	0-9, X	See Code 9	

CARD CONTENT					
Column	Item gr Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
46	High Cloud Type	C _h	0-9, X	See Code 10	
47	Ships Course	D _s	0-9	See Code 11	
48	Ships Speed	V _s	0-9	See Code 12	
49	Pressure Tendency	a	0-8, 9	See Code 13	Tendency and Change not reported regularly.
50-51	Amount of Pressure Change	pp	00-99	0.0-9.9 millibars	unless 99 is reported cloud footcandle + punched out to tenths. X overpunch code 50 for pp exceeding 9.9
52-56	Blank			Not used.	
57-59	Temperature (Air)	TT	000-999	00.0°-99.9° Degrees and Tenths Centigrade	"X" overpunch in column 57 indicates minus temperatures.
60-64	Blank			Not used.	
65-67	Temperature (Dew Point)	T _d T _d	000-999	00.0°-99.9° Degrees and Tenths Centigrade	"X" overpunch in column 65 indicates minus temperatures.
68-69	Air/Sea Temp. Difference	T _s T _s	00-99	00-99 whole degrees Centigrade	50 added when air temperature warmer than sea temperature
70-71	Direction of Wave	D _v D _v	0-9	See Code 14	
72	Period of Wave	P _v	0-9	See Code 15	
73	Height of Wave	H _v	0-9	See Code 16	
74-78	Blank			Not used	
79	Identification		0	Russian IGY Ship Reports	
80	Blank			Not used.	

CODE TABLES

When coding a meteorological report, symbolic letters are replaced by figures, which specify the value or the state of the corresponding element. In some cases, the specification of the symbolic letter (or group of letters) is sufficient to permit a direct transcription into figures (e.g., GG or FFF). In other cases, these figures are obtained by means of a special code table (or code, in short) for each element.

The codes elaborated to this end, as far as they are in world-wide use, are called international meteorological code tables. These same codes are used inversely for decoding observations and thus making available the information contained in them.

Besides the specifications given by the code tables in world-wide use, other sets of code tables are established by the WMO for regional use. Further arbitrary codes have been made necessary by the use of data in card decks which were never encoded into WMO forms.

Only codes pertinent to this card deck are included in the present manual. They appear in the order in which the elements were introduced in the description of the card content. They are numbered consecutively, and if applicable, the corresponding WMO code numbers are shown.

Code 1

(1949 WMO Code 70)
(1960 WMO Code 3300)

Q - Octant Of The Globe

Code Figure	Greenwich Longitude	Hemisphere
0	0° - 90°W	North
1	90° - 180°W	
2	180° - 90°E	
3	90° - 0°E	

Code 2

(1949 WMO Code 60)
(1960 WMO Code 2700)

N - The fraction of the celestial dome covered by cloud

N_h - The fraction of the celestial dome covered by the cloud(s) reported for C₁ or, if no C₁-cloud present, for C₄

Code figure	oktas or less, but not zero	1/10 or less, but not zero
0	0	0
1	1 oktas or less, but not zero	1/10 or less, but not zero
2	2 oktas	2/10 - 3/10
3	3 oktas	4/10
4	4 oktas	5/10
5	5 oktas	6/10
6	6 oktas or more, but not 8 oktas	7/10 - 8/10
7	7 oktas or more, but not 8 oktas	9/10 or more, but not 10/10
8	8 oktas	10/10
9	Sky obscured, or cloud amount cannot be estimated	

Code 3

(1949 WMO Code 23)
(1960 WMO Code 0877)

dd - True direction, in tens of degrees, from which wind is blowing

Code figure	Code figure	Code figure
00	Calm	19 185° - 194°
01	5° - 14°	20 195° - 204°
02	15° - 24°	21 205° - 214°
03	25° - 34°	22 215° - 224°
04	35° - 44°	23 225° - 234°
05	45° - 54°	24 235° - 244°
06	55° - 64°	25 245° - 254°
07	65° - 74°	26 255° - 264°
08	75° - 84°	27 265° - 274°
09	85° - 94°	28 275° - 284°
10	95° - 104°	29 285° - 294°
11	105° - 114°	30 295° - 304°
12	115° - 124°	31 305° - 314°
13	125° - 134°	32 315° - 324°
14	135° - 144°	33 325° - 334°
15	145° - 154°	34 335° - 344°
16	155° - 164°	35 345° - 354°
17	165° - 174°	36 355° - 4°
18	175° - 184°	99 Variable

51-86 Reported - denotes Gustiness - Subtracted 50 + funnel reported - Do not add 10 to wind speed.

Code 4

(1949 WMO Code 84)
(1960 WMO Code 4377)
(90 - 99 Decade only)

VV - Horizontal visibility

Code Figure	Km.	Yards (Approx.)	Statute Miles (Approx.)	Nautical Miles (Approx.)
90	< 0.05	< 95	< 1/32	
91	0.05	55	1/32	
92	0.2	220	1/8	
93	0.5	550	5/16	1/4
94	1	1,100	5/8	1/2
95	2	2,200	1 1/4	1
96	4	4,400	2 1/2	2
97	10	11,000	6 1/4	5
98	20	22,000	12 1/2	10
99	≥ 50	≥ 55,000	≥ 31 1/4	≥ 25

If the observed visibility is between two of the reportable distances as given in the table, the code figure for the lower reportable distance is reported.

Maximum visible distance regardless of direction.

Code 5

(1949 WMO Code 92)
(1960 WMO Code 4677)

wv - Present weather

- wv 00 - 49 No precipitation at the station at the time of observation
- wv 00 - 19 No precipitation, fog, ice fog (except 11 and 12), duststorm, sandstorm, drifting or blowing snow at the station (land station or ship) at the time of observation or, except for 09 and 17, during the preceding hour.

Code figure

- 00 Cloud development not observed or not observable
- 01 Clouds generally dissolving or becoming less developed
- 02 State of sky on the whole unchanged
- 03 Clouds generally forming or developing
- 04 Visibility reduced by smoke, e.g. valdt or forest fires, industrial smoke or volcanic ashes
- 05 Haze
- 06 Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation
- 07 Dust or sand raised by wind at or near the station at the time of observation, but no well developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen
- 08 Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the time of observation, but no duststorm or sandstorm
- 09 Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour
- 10 Mist
- 11 (Patches of) shallow fog or ice fog at the station, whether on land or sea,
- 12 (More or less) not deeper than about 2 metres continuous on land or 10 metres at sea
- 13 Lightning visible, no thunder heard
- 14 Precipitation within sight, not reaching the ground or the surface of the sea
- 15 Precipitation within sight, reaching the ground or the surface of the sea, but distant (i.e. estimated to be more than 5 km) from the station
- 16 Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station
- 17 Thunderstorm, but no precipitation at the time of observation
- 18 Squalls } at or within sight of the station during the preceding hour or at the time of observation
- 19 Funnel cloud(s) (tornado cloud or waterspout) }

No Meteors except photometeors

Haze, dust, sand or smoke

Code 5, continued

wv 20 - 29 Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour but not at the time of observation

Code figure

- wv 20 Drizzle (not freezing) or snow grains
- 21 Rain (not freezing)
- 22 Snow } not falling as shower(s)
- 23 Rain and snow or ice pellets, type (a)
- 24 Freezing drizzle or freezing rain
- 25 Shower(s) of rain
- 26 Shower(s) of snow, or of rain and snow
- 27 Shower(s) of hail (ice pellets, type (b), snow pellets), or of rain and hail (ice pellets, type (b), snow pellets)
- 28 Fog or ice fog
- 29 Thunderstorm (with or without precipitation)
- wv 30 - 39 Duststorm, sandstorm, drifting or blowing snow
- wv 30 } (has decreased during the preceding hour)
- 31 Slight or moderate duststorm or sandstorm } no appreciable change during the preceding hour
- 32 } has begun or has increased during the preceding hour
- 33 } (has decreased during the preceding hour)
- 34 Severe duststorm or sandstorm } no appreciable change during the preceding hour
- 35 } has begun or has increased during the preceding hour
- 36 Slight or moderate drifting snow } generally low (below eye level)
- 37 Heavy drifting snow }
- 38 Slight or moderate blowing snow } generally high (above eye level)
- 39 Heavy blowing snow }
- wv 40 - 49 Fog or ice fog at the time of observation
- wv 40 Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer

Code 5, continued

Code figure	
41 Fog or ice fog in patches	
42 Fog or ice fog, sky visible	} has become thinner during the preceding hour
43 Fog or ice fog, sky invisible	
44 Fog or ice fog, sky visible	} no appreciable change during the preceding hour
45 Fog or ice fog, sky invisible	
46 Fog or ice fog, sky visible	} has begun or has become thicker during the preceding hour
47 Fog or ice fog, sky invisible	
48 Fog, depositing rime, sky visible	
49 Fog, depositing rime, sky invisible	
wv 50 - 99	Precipitation at the station at the time of observation
wv 50 - 55	Drizzle
wv	
50 Drizzle, not freezing, intermittent	} slight at time of observation
51 Drizzle, not freezing, continuous	
52 Drizzle, not freezing, intermittent	} moderate at time of observation
53 Drizzle, not freezing, continuous	
54 Drizzle, not freezing, intermittent	} heavy (dense) at time of observation
55 Drizzle, not freezing, continuous	
56 Drizzle, freezing, slight	
57 Drizzle, freezing, moderate or heavy (dense)	
58 Drizzle and rain, slight	
59 Drizzle and rain, moderate or heavy	
wv 60 - 69	Rain
wv	
60 Rain, not freezing, intermittent	} slight at time of observation
61 Rain, not freezing, continuous	
62 Rain, not freezing, intermittent	} moderate at time of observation
63 Rain, not freezing, continuous	
64 Rain, not freezing, intermittent	} heavy at time of observation
65 Rain, not freezing, continuous	
66 Rain, freezing, slight	
67 Rain, freezing, moderate or heavy	
68 Rain or drizzle and snow, slight	
69 Rain or drizzle and snow, moderate or heavy	

Code 5, continued

wv 70 - 79	Solid precipitation not in showers
wv	
70 Intermittent fall of snow flakes	} slight at time of observation
71 Continuous fall of snow flakes	
72 Intermittent fall of snow flakes	} moderate at time of observation
73 Continuous fall of snow flakes	
74 Intermittent fall of snow flakes	} heavy at time of observation
75 Continuous fall of snow flakes	
76 Ice prisms (with or without fog)	
77 Snow grains (with or without fog)	
78 Isolated starlike snow crystals (with or without fog)	
79 Ice pellets, type (a)	
wv 80 - 99	Showery precipitation, or precipitation with current or recent thunderstorm
wv	
80 Rain shower(s), slight	
81 Rain shower(s), moderate or heavy	
82 Rain shower(s), violent	
83 Shower(s) of rain and snow mixed, slight	
84 Shower(s) of rain and snow mixed, moderate or heavy	
85 Snow shower(s), slight	
86 Snow shower(s), moderate or heavy	
87 Shower(s) of snow pellets or ice pellets, type (b), with or without rain or rain and snow mixed	} - slight - moderate or heavy
88	
89 Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder	} - slight - moderate or heavy
90	
91 Slight rain at time of observation	} thunderstorm during the preceding hour but not at time of observation
92 Moderate or heavy rain at time of observation	
93 Slight snow, or rain and snow mixed or hail (ice pellets, type (b), snow pellets), at time of observation	
94 Moderate or heavy snow, or rain and snow mixed or hail (ice pellets, type (b), snow pellets) at time of observation	
95 Thunderstorm, slight or moderate, without hail (ice pellets, type (b), snow pellets); but with rain and/or snow at time of observation	
96 Thunderstorm, slight or moderate, with hail (ice pellets, type (b), snow pellets) at time of observation	} thunderstorm at time of observation

Code 5, continued

Code figure	
97 Thunderstorm, heavy, without hail (ice pellets, type (b), snow pellets), but with rain and/or snow at time of observation	}
98 Thunderstorm combined with duststorm or sandstorm at time of observation	
99 Thunderstorm, heavy, with hail (ice pellets, type (b), snow pellets) at time of observation	

Code 6

(1949 WMO Code 90)
(1960 WMO Code 4500)

W - Past weather

Code figure

0	Cloud covering 1/2 or less of the sky throughout the appropriate period
1	Cloud covering more than 1/2 of the sky during part of the appropriate period and covering 1/2 or less during part of the period
2	Cloud covering more than 1/2 of the sky throughout the appropriate period
3	Sandstorm, duststorm or blowing snow
4	Fog or ice fog or thick haze
5	Drizzle
6	Rain
7	Snow, or rain and snow mixed
8	Shower(s)
9	Thunderstorm(s) with or without precipitation

Notes:

- (1) In the case of a sandstorm, with a temperature below 0°C, the word SANDSTORM is added at the end of the report, but is omitted in punching.
- (2) In the case of a shower or a thunderstorm, accompanied by hail, the words PAST HAIL are added at the end of the report, but are omitted in punching.
- (3) In the case of a snow shower or a shower of rain and snow mixed, with a temperature above 0°C, the word SNOW or SLEET is added at the end of the report, but is omitted in punching.

Code 7

(1949 WMO Code 11)
(1960 WMO Code 0513)

C_L - Clouds of the genera Stratocumulus, Stratus, Cumulus and Cumulonimbus

Code figure Non technical specifications

- 0 No Stratocumulus, Stratus, Cumulus or Cumulonimbus
- 1 Cumulus with little vertical extent and seemingly flattened, or ragged Cumulus other than of bad weather, or both
- 2 Cumulus of moderate or strong vertical extent, generally with protuberances in the form of domes or towers, either accompanied or not by other Cumulus or by Stratocumulus, all having their bases at the same level
- 3 Cumulonimbus the summits of which, at least partially, lack sharp outlines, but are neither clearly fibrous (cirriform) nor in the form of an anvil; Cumulus, Stratocumulus or Stratus may also be present
- 4 Stratocumulus formed by the spreading out of Cumulus; Cumulus may also be present
- 5 Stratocumulus not resulting from the spreading out of Cumulus
- 6 Stratus in a more or less continuous sheet or layer, or in ragged shreds, or both, but no Stratus fractus of bad weather
- 7 Stratus fractus of bad weather (generally existing during precipitation and a short time before and after), or Cumulus fractus of bad weather, or both (pannus), usually below Altostratus or Nimbostratus
- 8 Cumulus and Stratocumulus other than that formed from the spreading out of Cumulus; the base of the Cumulus is at a different level from that of the Stratocumulus
- 9 Cumulonimbus; the upper part of which is clearly fibrous (cirriform), often in the form of an anvil; either accompanied or not by Cumulonimbus without anvil or fibrous upper part, by Cumulus, Stratocumulus, Stratus or pannus
- X Stratocumulus, Stratus, Cumulus and Cumulonimbus invisible owing to darkness, fog, blowing dust or sand, or other similar phenomena

Code 8

(1949 WMO Code 43)
 (1960 WMO Code 1600)

h - Height, above ground, of the base of the cloud

Code figure	Height (m)
0	0 to 50 m
1	50 to 100 m
2	100 to 200 m
3	200 to 300 m
4	300 to 600 m
5	600 to 1,000 m
6	1,000 to 1,500 m
7	1,500 to 2,000 m
8	2,000 to 2,500 m
9	2,500 m or more, or no clouds
X	Height of base of cloud not known or base of clouds at a level lower and tops at a level higher than that of the station;

Notes:

- (1) A height exactly equal to one of the values at the ends of the ranges is to be coded in the higher range; e.g. a height of 600 m is reported by code figure 5.
- (2) The term "height above ground" is considered as being the height above the official aerodrome elevation or above station level at a non-aerodrome station.

Code 9

(1949 WMO Code 12)
 (1960 WMO Code 0515)

C_N - Clouds of the genera Alto cumulus, Altostratus and Nimbostratus

Code figure	Description
0	No Alto cumulus, Altostratus or Nimbostratus
1	Altostratus, the greater part of which is semi-transparent; through this part the sun or moon may be weakly visible, as through ground glass
2	Altostratus, the greater part of which is sufficiently dense to hide the sun or moon, or Nimbostratus
3	Alto cumulus, the greater part of which is semi-transparent; the various elements of the cloud change only slowly and are all at a single level
4	Patches (often in the form of almonds or fishes) of Alto cumulus, the greater part of which is semi-transparent; the clouds occur at one or more levels and the elements are continually changing in appearance
5	Semi-transparent Alto cumulus in bands, or Alto cumulus in one or more fairly continuous layers (semi-transparent or opaque), progressively invading the sky; these Alto cumulus clouds generally thicken as a whole
6	Alto cumulus resulting from the spreading out of Cumulus (or Cumulonimbus)
7	Alto cumulus in two or more layers, usually opaque in places, and not progressively invading the sky; or opaque layer of Alto cumulus, not progressively invading the sky; or Alto cumulus together with Altostratus or Nimbostratus
8	Alto cumulus with sproutings in the form of small towers or battlements, or Alto cumulus having the appearance of cumuliform tufts
9	Alto cumulus of a chaotic sky, generally at several levels
X	Alto cumulus, Altostratus and Nimbostratus invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds

Code 10

(1949 WMO Code 13)
 (1960 WMO Code 0509)

C_H - Clouds of the genera Cirrus, Cirrocumulus and Cirrostratus

Code figure	Non technical specifications
0	No Cirrus, Cirrocumulus or Cirrostratus
1	Cirrus in the form of filaments, strands or hooks, not progressively invading the sky
2	Dense Cirrus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus with sproutings in the form of small turrets or battlements, or Cirrus having the appearance of cumuliform tufts
3	Dense Cirrus, often in the form of an anvil, being the remains of the upper parts of Cumulonimbus
4	Cirrus in the form of hooks or of filaments, or both, progressively invading the sky; they generally become denser as a whole
5	Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally growing denser as a whole, but the continuous veil does not reach 45 degrees above the horizon
6	Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally growing denser as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered
7	Veil of Cirrostratus covering the celestial dome
8	Cirrostratus not progressively invading the sky and not completely covering the celestial dome
9	Cirrocumulus alone, or Cirrocumulus accompanied by Cirrus or Cirrostratus, or both, but Cirrocumulus is predominant
X	Cirrus, Cirrocumulus and Cirrostratus invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds

Code 11

(1949 WMO Code 20)
 (1960 WMO Code 0700)

D_s - Ships Course (true)

Direction toward which ship is moving

Code Figure	Direction	Code Figure	Direction
0	Ship hove to	5	SW
1	NE	6	W
2	E	7	NW
3	SE	8	N
4	S	9	All directions or unknown

Code 12

(1949 WMO Code 88)
 (1960 WMO Code 4451)

V_s - Ship's speed (In Nautical Miles per hour)

Code Figure	Speed	Code Figure	Speed
0	0	5	13-15
1	1-3	6	16-18
2	4-6	7	19-21
3	7-9	8	22-24
4	10-12	9	over 24

Code 13

(1955 WMO Code 02)
 (1960 WMO Code 0200)

a - Characteristic of pressure tendency during the three hours preceding the time of observation

Code figure	Description
0	Increasing, then decreasing; atmospheric pressure the same or higher than 3 hours ago
1	Increasing, then steady; or increasing, then increasing more slowly; } atmospheric pressure now higher than 3 hours ago
2	Increasing (steadily or unsteadily); } atmospheric pressure now lower than 3 hours ago
3	Decreasing or steady, then increasing; or increasing, then increasing more rapidly; } atmospheric pressure the same as 3 hours ago
4	Steady; atmospheric pressure the same as 3 hours ago
5	Decreasing, then increasing; atmospheric pressure the same or lower than 3 hours ago
6	Decreasing, then steady; or decreasing, then decreasing more slowly; } atmospheric pressure now lower than 3 hours ago
7	Decreasing (steadily or unsteadily); } atmospheric pressure now lower than 3 hours ago
8	Steady or increasing, then decreasing; or decreasing, then decreasing more rapidly; } atmospheric pressure now lower than 3 hours ago

Code 14

(1949 WMO Code 23B)
 (1960 WMO Code 0885)

d_w - Direction from which waves come, in tens of degrees

Code Figure	Code Figure	Code Figure	Code Figure
00	Calm (no waves)	19	185° - 194°
01	5° - 14°	20	195° - 204°
02	15° - 24°	21	205° - 214°
03	25° - 34°	22	215° - 224°
04	35° - 44°	23	225° - 234°
05	45° - 54°	24	235° - 244°
06	55° - 64°	25	245° - 254°
07	65° - 74°	26	255° - 264°
08	75° - 84°	27	265° - 274°
09	85° - 94°	28	275° - 284°
10	95° - 104°	29	285° - 294°
11	105° - 114°	30	295° - 304°
12	115° - 124°	31	305° - 314°
13	125° - 134°	32	315° - 324°
14	135° - 144°	33	325° - 334°
15	145° - 154°	34	335° - 344°
16	155° - 164°	35	345° - 354°
17	165° - 174°	36	355° - 364°
18	175° - 184°	37	365° - 374°
		38	375° - 384°
		39	385° - 394°
		40	395° - 404°
		41	405° - 414°
		42	415° - 424°
		43	425° - 434°
		44	435° - 444°
		45	445° - 454°
		46	455° - 464°
		47	465° - 474°
		48	475° - 484°
		49	485° - 494°
		50	495° - 504°
		51	505° - 514°
		52	515° - 524°
		53	525° - 534°
		54	535° - 544°
		55	545° - 554°
		56	555° - 564°
		57	565° - 574°
		58	575° - 584°
		59	585° - 594°
		60	595° - 604°
		61	605° - 614°
		62	615° - 624°
		63	625° - 634°
		64	635° - 644°
		65	645° - 654°
		66	655° - 664°
		67	665° - 674°
		68	675° - 684°
		69	685° - 694°
		70	695° - 704°
		71	705° - 714°
		72	715° - 724°
		73	725° - 734°
		74	735° - 744°
		75	745° - 754°
		76	755° - 764°
		77	765° - 774°
		78	775° - 784°
		79	785° - 794°
		80	795° - 804°
		81	805° - 814°
		82	815° - 824°
		83	825° - 834°
		84	835° - 844°
		85	845° - 854°
		86	855° - 864°
		87	865° - 874°
		88	875° - 884°
		89	885° - 894°
		90	895° - 904°
		91	905° - 914°
		92	915° - 924°
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