

HUR 7-85

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Adjustments to SPH isovel patterns

in Memoranda HUR 7-62, 7-62A,

7-63, 7-64 and 7-65

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

November 3, 1965

H-2.3

MEMORANDUM TO CORPS OF ENGINEERS

HUR 7-85

FROM : Hydrometeorological Branch
Office of Hydrology

SUBJECT : Adjustments to SPH isovel patterns in Memoranda HUR 7-62,
7-62A, 7-63, 7-64 and 7-65

- References:
1. Letter to HMB from OCE dated Oct. 21, 1965
 2. Letter from District Engineer, New Orleans, dated Sept. 29, 1965 to Chief of Engineers
 3. Memorandum HUR 7-84 Standard Project Hurricane Wind Field Patterns (revised) to Replace Existing Patterns in NHRP Report No. 33, for Zones B and C
 4. Memorandum HUR 7-42, SPH Parameters and Isovels Mid-Gulf Coast U. S., Zone B, Oct. 11, 1957
 5. Memoranda HUR 7-62, 7-62A, 7-63, 7-64 and 7-65, SPH Wind Field Along Several Tracks Critical for Lake Pontchartrain and Other Places Vicinity of New Orleans, Sept. 8-Oct. 21, 1959.

This memorandum supplies a ratio chart (figure 1) which can be used to adjust the isovel patterns of reference 5 to reflect the proposed revisions to the SPH isovels (zones B and C) presented in HUR 7-84. A sample of an adjustment (figure 2) is also included.

Comments on HUR 7-84

The newly-developed SPH isovel patterns in HUR 7-84 represent an up-dating of the patterns in HUR 7-42 in line with recent hurricanes in the Gulf area. However, these patterns are tentative pending an analysis of "Betsy," 1965.

Construction of ratio chart (figure 1)

The ratio chart was constructed in the following manner:

1. An SPH isovel chart was constructed for the latitude of New Orleans—large radius (30 n. mi.), mean forward speed of translation (5-15 kt.)—based on the recently up-dated SPH given in HUR 7-84.

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2. The above chart was superimposed on the SPM isovel chart in HUR 7-42 and ratios computed between windspeed values of the first and second charts.
3. Isolines of equal ratios were drawn and labeled beginning with 1.00 at the radius of maximum winds.
4. For current purposes, the isovel field inside the radius of maximum winds is considered unchanged, and therefore all points inside the circle labeled 1.00 in figure 1 have an adjustment factor of 1.00.

Use of figure 1

1. Place the isovel chart to be adjusted onto figure 1 and lay the isovel chart storm center over the center point of figure 1.
2. Consult table of figure 1 for appropriate HUR and align corresponding arrow with direction-of-motion arrow of isovel chart.
3. Finally, trace isolines of ratios onto isovel chart and derive new windspeed values. Figure 2 uses the -4 hour chart of HUR 7-62 as a sample where the adjustment ratio isolines are shown in red. For example, at the point where the 70 mph isovel crosses the 1.15 ratio isoline southeast of New Orleans, the adjusted speed becomes 80 mph.

for J. Ruedel
Vance A. Myers
Chief, Hydrometeorological Branch
Office of Hydrology

Attachments

cc: 2 to OCE
4 sets of figures

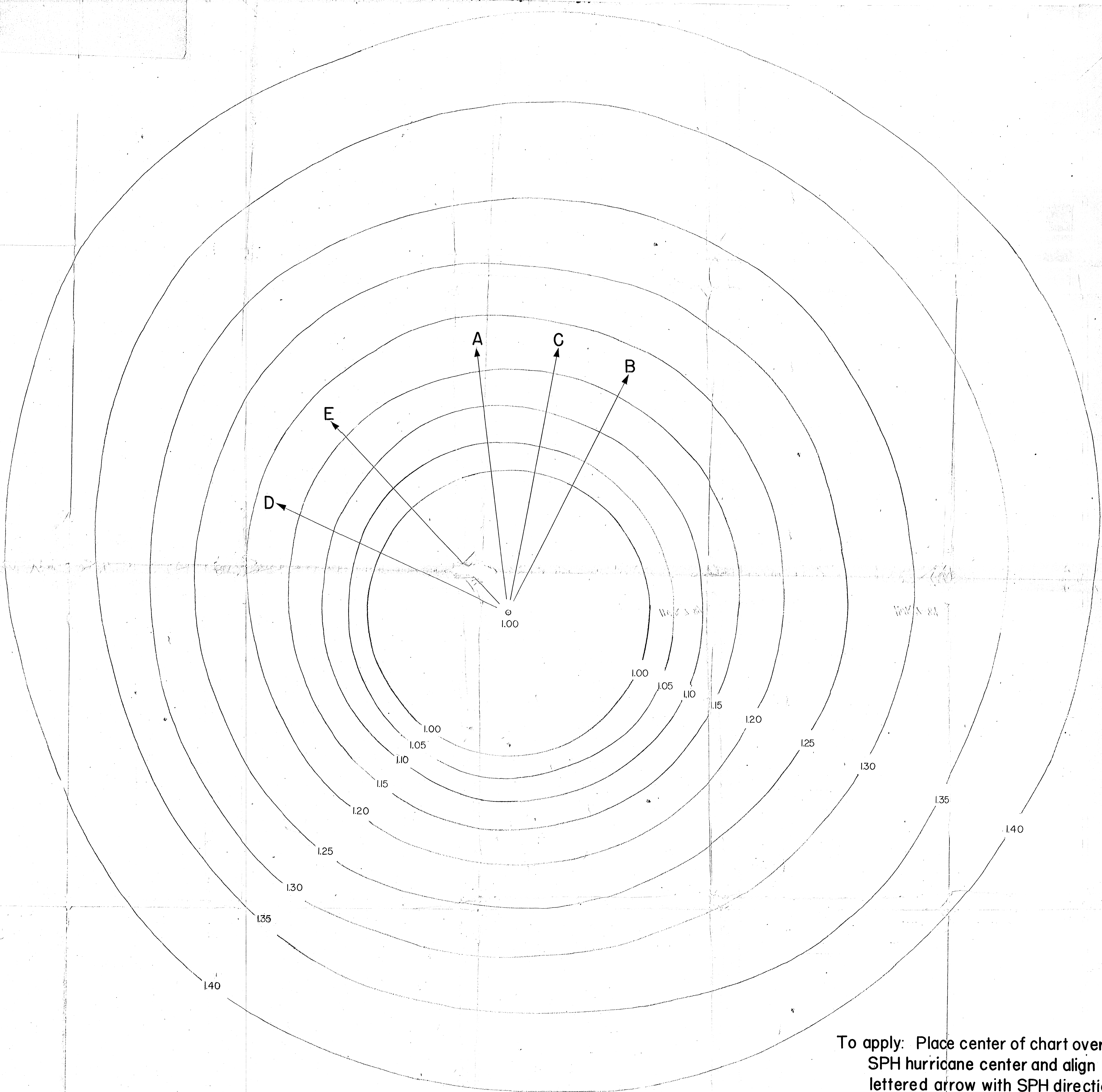


Figure 1. Ratio chart to adjust SPH isovels (HUR 7-62 to 7-65) to revised SPH isovels (HUR 7-84).

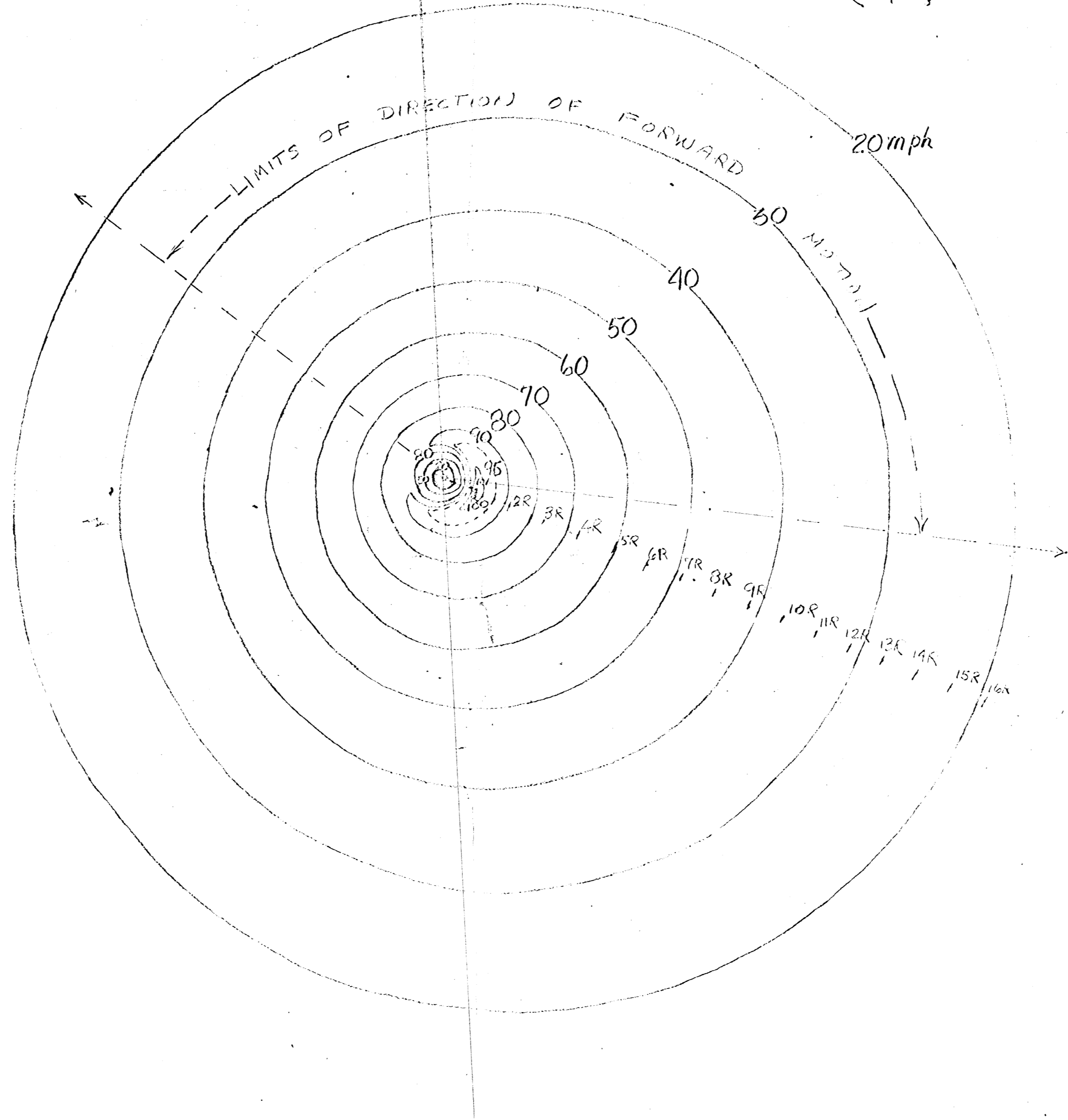
To apply: Place center of chart over SPH hurricane center and align lettered arrow with SPH direction-of-motion arrow. Select correct arrow from table below:

A - Hur 7-62	D - Hur 7-64
B - Hur 7-62A	E - Hur 7-65
C - Hur 7-63	

DIRECTION OF FORWARD MOTION

ZONES B AND C
MEAN RADIUS (RM)
MODERATE SPEED OF TRANSLATION (MT)

(FOR CPI OF 27.55" TO ADJUCT
(CPI, SEE TABLE 3, NHRP No. 33)



STANDARD PROTECT HURRICANE, 20-FT. CIRCULAR ISRAEL PATTERN

8/17/65

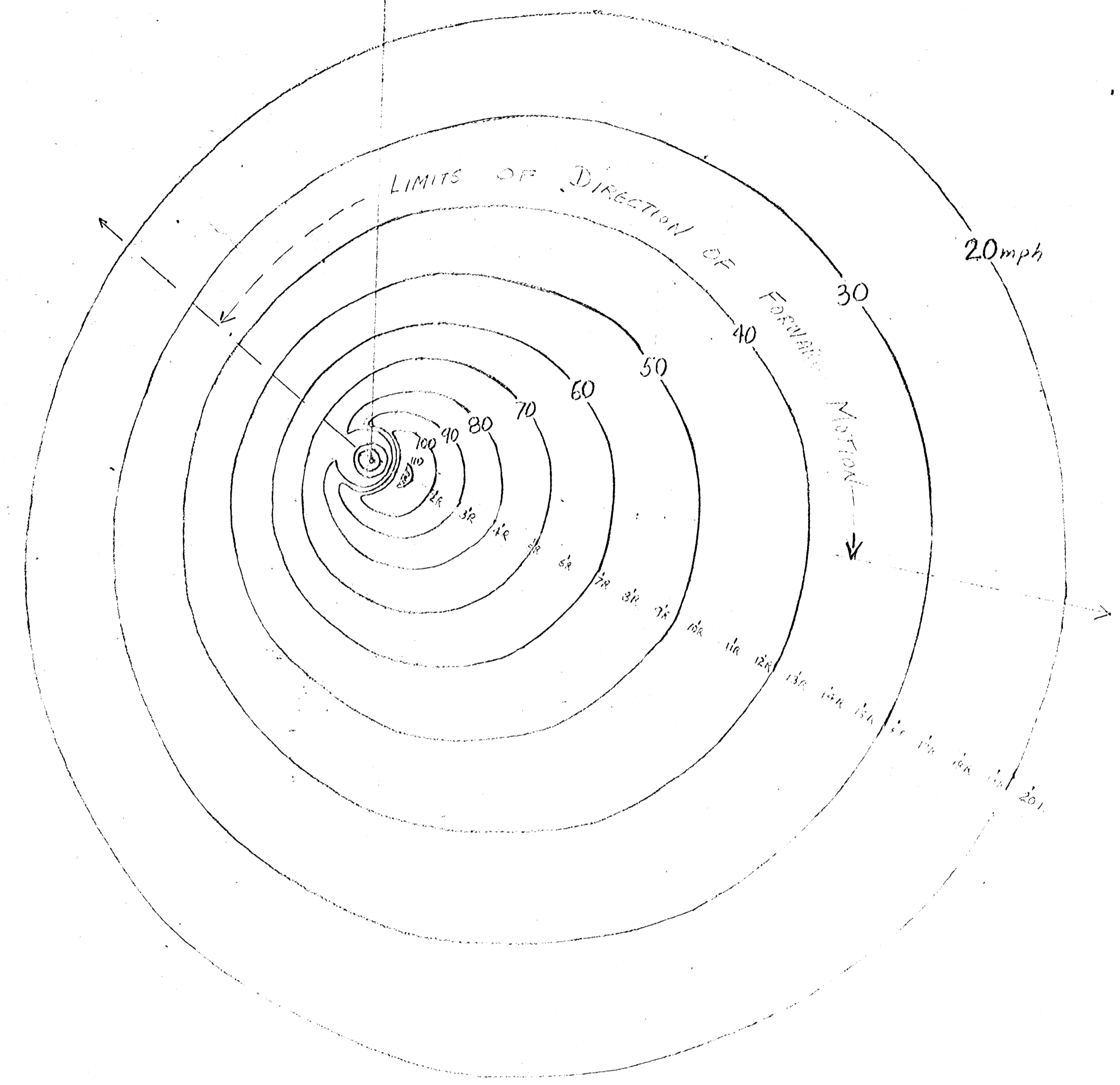
Fig 13

8/17/65

DIRECTION OF FORWARD MOTION

ZONES BAND C
MEAN RADIUS (RM)
HIGH SPEED OF TRANSLATION (HT)

(FOR CPE OF 07.55)
(TO ADJUST CPE, SEE TABLE 3, NHRP No. 33)



STANDARD PROJECT HURRICANE, 30-FT. OVER-WATER ISVEL PATTERN

8/17/65

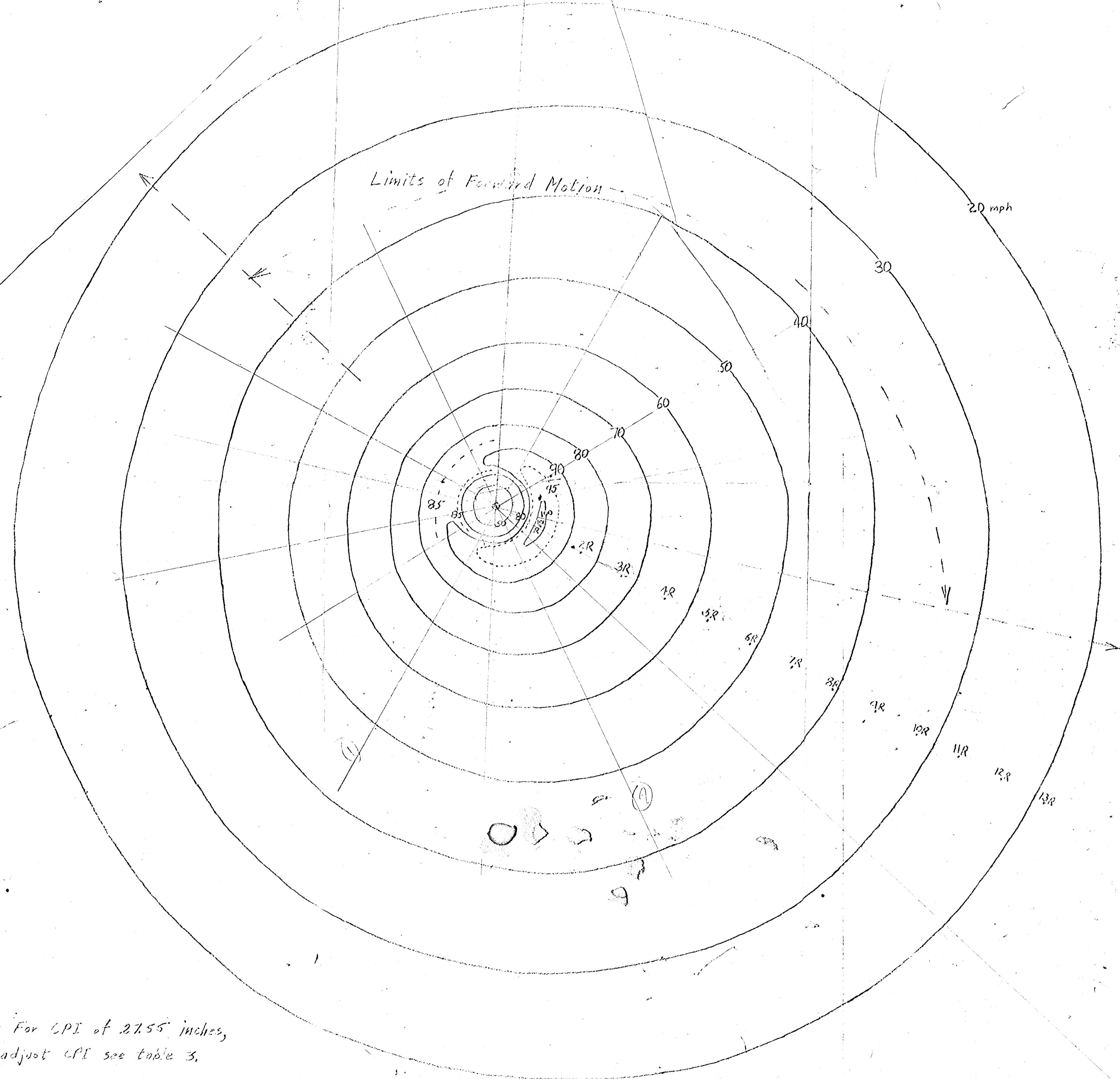
HUR 7-62A

Fig. 44

4/17/65

ZONES B and C
LARGE RADIUS (RL)
MODERATE SPEED OF
TRANSLATION (MT)

Direction of
A. Forward
Motion

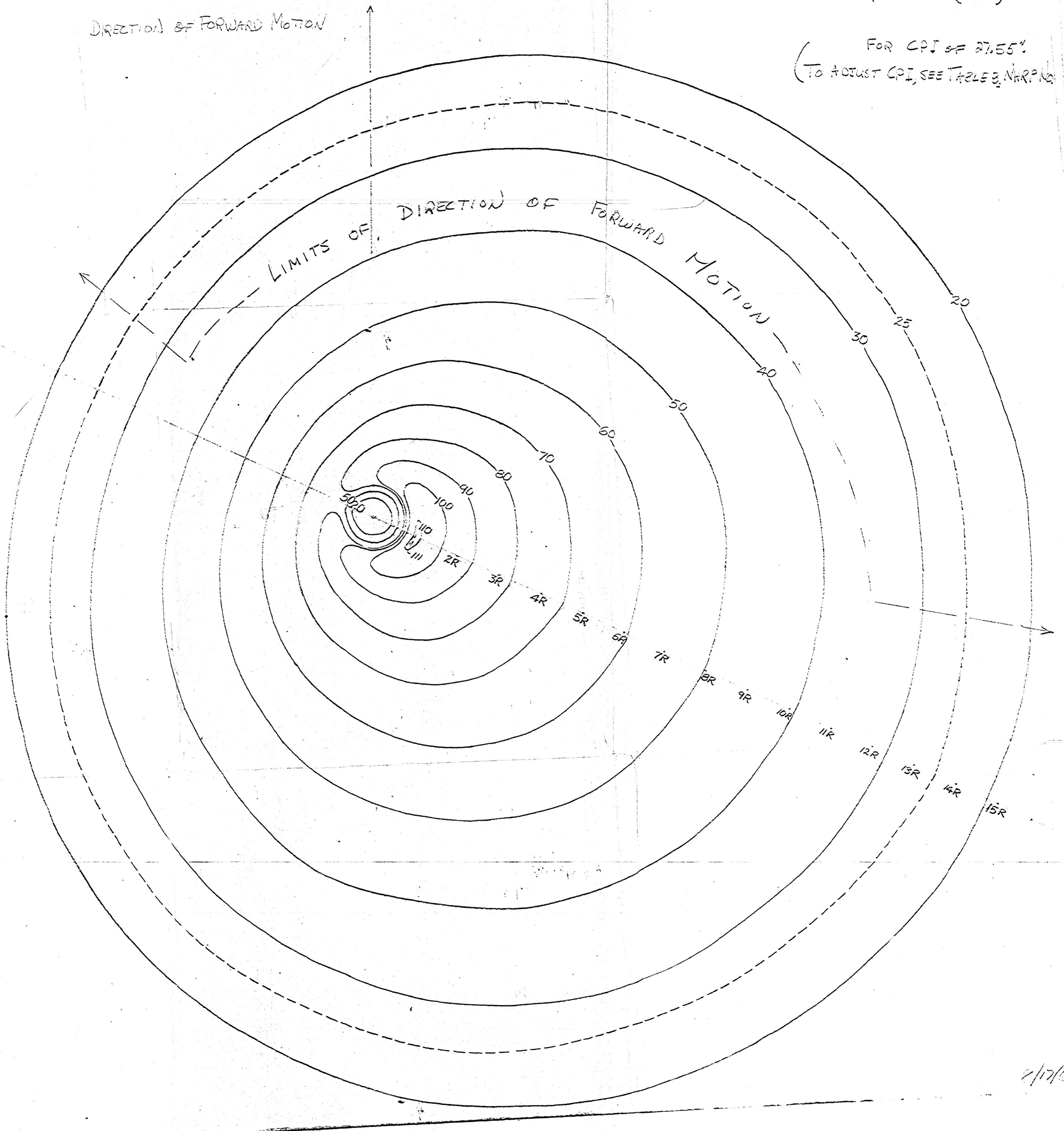


Note: For CPI of .2755 inches,
to adjust CPI see table 3.

FIG. 45

ZONES B AND C
LARGE RADIUS (RL)
HIGH SPEED OF TRANSLATION (HT)

FOR CPI OF 27.55'
(TO ADJUST CPI, SEE TABLE NARRATIVE)

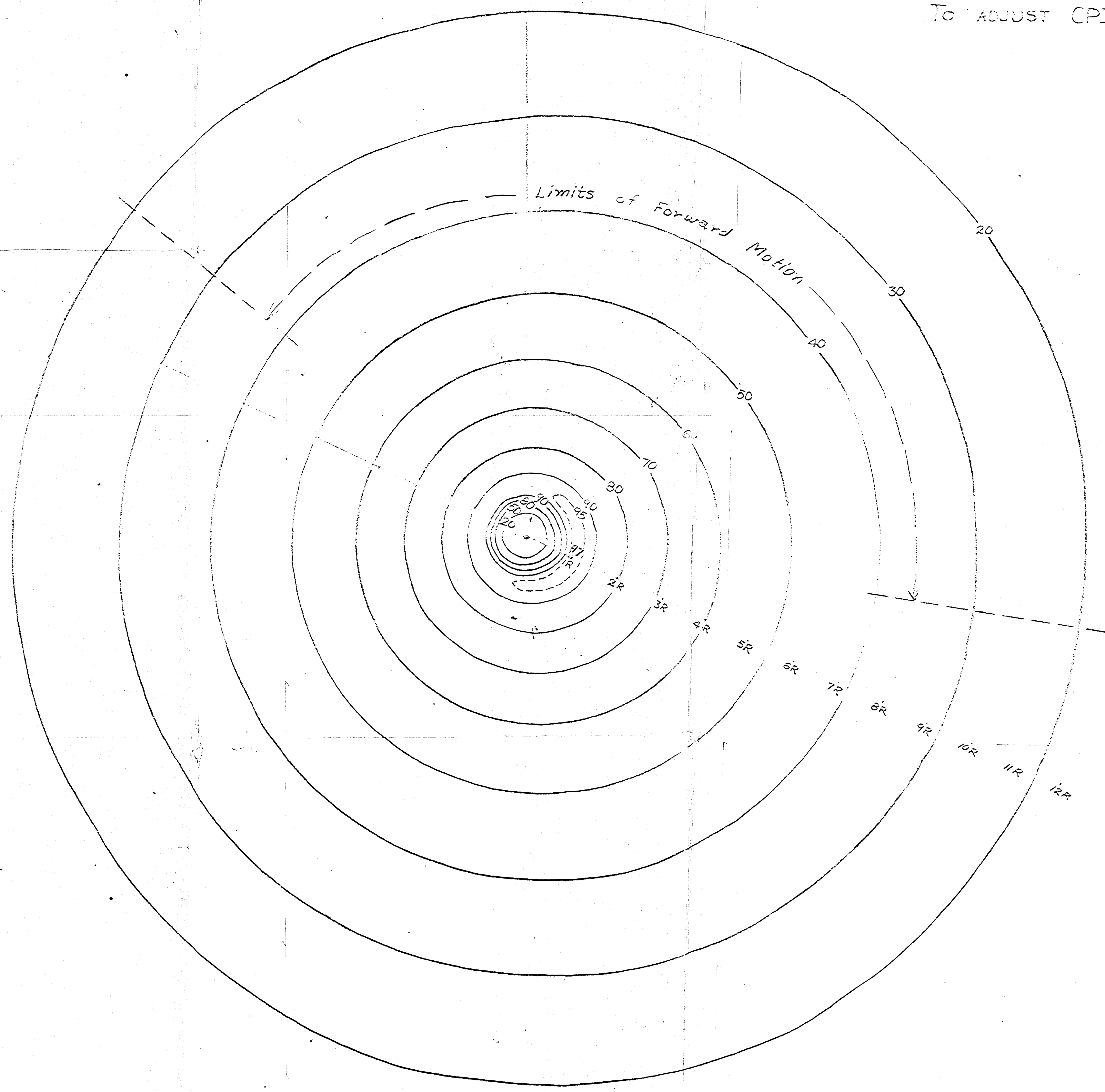


STANDARD PROJECT HURRICANE, 30-FT. OVER-WATER ISOVEL PATTERN

2/17/65

Direction of
Forward Motion

ZONES B and C
LARGE RADIUS (RL)
SLOW SPEED OF TRANSLATION (ST)
FOR CPI OF 27.55 INCHES.
TO ADJUST CPI, SEE TABLE 3, NHRP No.33



STANDARD PROJECT HURRICANE, 30-FT. OVER-WATER ISOVEL PATTERN

HUR 7-65
Fig. 46A

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