

1. RATIO DEFINITIONS:

$$1.5 < \frac{7}{4} < 2.0 \quad > EQ \text{ AND NOT } \frac{7}{4} \equiv > \frac{8}{7}$$

$$\frac{8}{7} < EQ < \frac{9}{8} \quad < EQ \text{ AND NOT } \frac{4}{7} \equiv < \frac{7}{8}$$

2. FIELD DEFINITIONS:
 6 DIGITS

OUT IN $> \frac{8}{7}$ FOLLOWED BY 5 EQ FOLLOWED BY $\frac{7}{4}$
 IN OUT $\frac{4}{7}$ FOLLOWED BY 5 EQ FOLLOWED BY $< \frac{7}{8}$

4 DIGIT SAME AS ABOVE EXCEPT FOR 3 EQ

3. TO AVOID POSSIBLE ERRORS:

A. AFTER $\frac{7}{4}$ ON ONE TRACK WAIT TO SEE IF THE OTHER TRACK TERMINATES PROPERLY ONE CHARACTER LATER. IF IT DOES, REJECT THE FIRST TRACK AND ACCEPT THE SECOND.

B. IF A FOUR DIGIT FIELD SHOWS UP, WAIT FOR 2 CHARACTERS TO SEE IF A SIX DIGIT FIELD SHOWS UP. IF IT DOES, REJECT THE FOUR DIGIT FIELD AND ACCEPT THE SIX DIGIT FIELD.

4. ZERO SUPPRESSED SYMBOL MUST BE READ TWICE AND COMPARE.
 OTHER DOUBLE READS:
 NUMBER SYSTEM 2

EAN 8

PROVIDE HDW. TO CHANGE LAST 2, TO NORMAL SINGLE READ & FIELD COMPARISON.

5. IF A FIELD SHOWS UP WITH 6 EQ.
 - A. ON IN-OUT TRACK THROW OUT THE LAST DIGIT THEN ACCEPT THE FIELD. BUT ONLY AT THE END OF A FULL READ.
 - B. ON OUT-IN TRACK REJECT FIELD.
6. USE FIELD COMPARISON.
 - A. SAVE UP TO 3 READS AND LOOK FOR COMPARISON BETWEEN ANY PAIR. IF THERE IS A VALID COMPARE, SAVE THAT NUMBER AND STOP. IF AFTER THE THIRD READ THERE IS NO VALID COMPARE, DISCARD THE OLDEST READ AND ADD A NEW READ. REPEAT UNTIL A VALID READ IS FOUND. IF THERE HAS BEEN NO VALID READ AND NO NEW READ TO TRY, THE SCANNING ATTEMPT FAILS. IF ONLY ONE READ IS CAUGHT IT IS ACCEPTED.

ALL OF THE ABOVE IS PERFORMED ON ONE HALF OF A SYMBOL. (ON THE LEFT HALF AND ON THE RIGHT HALF.)
7. SYMBOL HALVES ARE REJECTED IF THEY HAVE INVALID PARITY PATTERNS.
8. ZERO SUPPRESSED SYMBOL WILL BE REJECTED IF ANY VALID 6 DIGIT SYMBOL HALF IS FOUND OR EAN 13.
9. CHECK DIGIT CALCULATION IS PERFORMED AFTER FIELD COMPARISON.
10. E SYMBOL WILL NOT BE EXPANDED, BUT CHECK DIGIT TEST WILL BE MADE.

II. BLEED CORRECTION, APPROXIMATE MODULE LENGTH W AS

$W = \frac{1}{8} (T_R + \frac{T_R}{8})$ WHERE T_R IS THE CHARACTER LENGTH.

A. AT GUARD BARS OR CENTER BARS

$BL_1 = \frac{B-S}{2}$
 $BL_1 = \text{BLEED}$
 $B = \text{BAR}$
 $S = \text{SPACE}$

B. BLEED IS ADDED TO LB (LAST BAR) BEFORE DECODE

C. AFTER DECODE NEW BLEED IS CALCULATED:

$BL_n = \frac{1}{2} [BL_{(n-1)} + LB_0 - nW]$

LB_0 LAST BAR UNCORRECTED

BL_1 IS APPLIED TO THE FIRST CHARACTER
 BL_n IS THEN CALCULATED FROM CHARACTER n AND APPLIED TO CHARACTER $n+1$

D. BLEED CORRECTION IS ONLY APPLIED TO RESOLVE 1 OR 7 AND 2 OR 8.