PERMANENT WAY NOTES

DOUBLE JUNCTIONS (1) CURVE OUT OF STRAIGHT.

ACCURATE FORMULÆ FOR LENGTHS & ANGLES.

THESE NOTES ARE INTENDED FOR THE GUIDANCE AND ASSISTANCE OF STAFF ENGAGED UPON PERMANENT WAY WORK. THEY DO NOT IN ANY WAY MODIFY, SUPPLEMENT OR AMEND THE INSTRUCTIONS LAID DOWN IN E.D.I., STANDARD DRAWINGS CIRCULARS ETC., WHICH SHOULD BE REFERRED TO IN ALL CASES.

FLEXIBLE SWITCHES

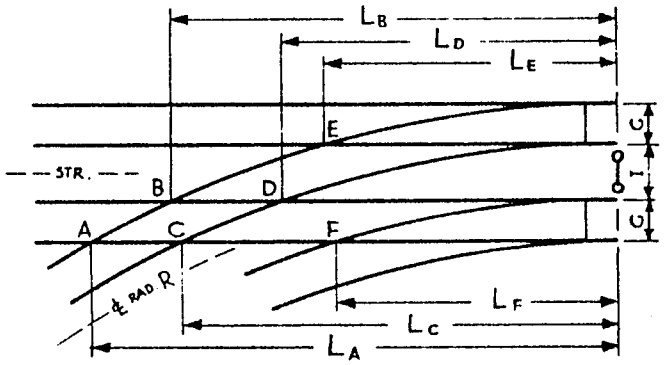
(1) CALCULATE LENGTHS AND ANGLES AS BELOW. (2) USING ANGLE N_E SO FOUND, AND THE FORMULÆ FOR FLEXIBLE SWITCHES CALCULATE LENGTH OF LEAD AND MODIFIED TURNOUT-RADIUS R_E. (3) REPEAT FOR N_F, R_F.

OLD TYPE (CURVED) SWITCHES

INT. OF XING. N_E TO 4½" OFFSET = 6·759 N_E
" " " N_F " " " = 6·759 N_F
(log. 6·759 ... = ·8298908)

18-30FT. (STRAIGHT) SWITCHES

[SEE "PERMANENT WAY NOTES" R1752]



LENGTHS OF LEGS

$$AB = \sqrt{(L_A - L_B)^2 + G^2} \qquad CD = \sqrt{(L_C - L_D)^2 + G^2} \qquad BE = \sqrt{(L_B - L_E)^2 + I^2}$$

$$AC = L_A - L_C \qquad BD = L_B - L_D \qquad CF = L_C - L_F$$

($G^2 = 22{\cdot}1684$ $6{\cdot}5^2 = 42{\cdot}25$)

TANGENT LENGTHS.

$L_A = \sqrt{2R(I+2G)}$	$L_B = \sqrt{(2R+G)(I+G)}$	$L_C = \sqrt{(2R-G)(I+G)}$
$L_D = \sqrt{2RI}$	$L_E = \sqrt{(2R+[I+G])G}$	$L_F = \sqrt{(2R-[I+G])G}$

CROSSING ANGLES.

$N_A = \sqrt{\frac{2R}{4(I+2G)}}$	$N_{B.C} = \sqrt{\frac{2R}{4(I+G)}}$ (APPROX.)	(ACCURATE FORMULÆ FOR ELBOWS) $N_B = \sqrt{\frac{2R+G}{4(I+G)}}$ $N_C = \sqrt{\frac{2R-G}{4(I+G)}}$
$N_D = \sqrt{\frac{2R}{4I}}$	$N_E = \sqrt{\frac{(2R+[I+G])}{4G}}$	$N_F = \sqrt{\frac{(2R-[I+G])}{4G}}$

SPECIAL CONTRACTED METHOD FOR 6'-6" INTERVAL ONLY. (APPROX)

(1) CALCULATE IMAGINARY LEAD CROSSING ANGLE, $N_o = {\cdot}326\ldots\sqrt{R}$. (log ·326 ... = $\bar{1}{\cdot}5130514$)

(2) CALCULATE CROSSING ANGLES, AS BELOW :–

$N_A = {\cdot}544\ N_o$
$N_{B.C} = {\cdot}648\ N_o$
$N_D = {\cdot}851\ N_o$
$N_E = N_o + \frac{{\cdot}3}{N_o}$
$N_F = N_o - \frac{{\cdot}3}{N_o}$

(3) CALCULATE LENGTHS OF LEGS, AS BELOW :–

$$AC = 2{\cdot}785 N_o + \frac{1{\cdot}816}{N_o} \qquad AB = AC + \left(\frac{4{\cdot}18"}{N_o}\right)$$

$$CD = 3{\cdot}465 N_o + \frac{1{\cdot}383}{N_o} \qquad BD = CD + \left(\frac{5{\cdot}20"}{N_o}\right)$$

$$CF = 5{\cdot}112 N_o + \frac{{\cdot}986}{N_o} \qquad BE = CF + \left(\frac{25{\cdot}81"}{N_o}\right)$$

log 2·785 = ·4447855
log 3·465 = ·5396705
log 5·112 = ·7086146

ANY OF THE ABOVE OPERATIONS FOR WHICH LOGS. OF THE CONSTANTS ARE NOT GIVEN, MAY GENERALLY BE PERFORMED WITH SUFFICIENT ACCURACY ON THE SLIDE-RULE

N.B. THESE CONSTANTS ONLY, IN INS.