PERMANENT WAY

NOTES

DOUBLE JUNCTIONS (2)

ACCURATE FORMULÆ FOR LENGTHS & ANGLES.

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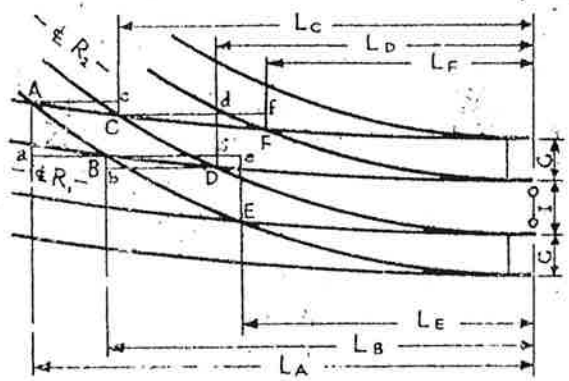
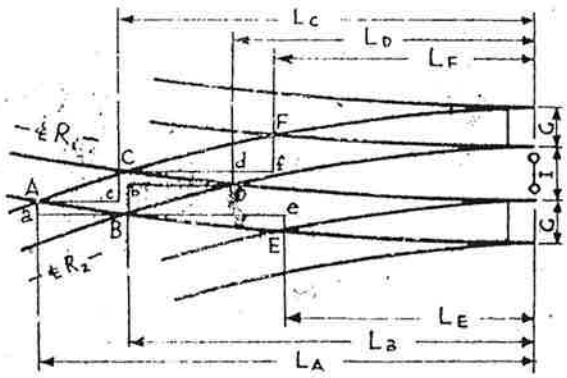
THESE NOTES ARE INTENDED FOR THE GUIDANCE AND ASSISTANCE OF STAFF ENGAGED UPON PERMANENT WAY WOR
THEY DO NOT IN ANY WAY MODIFY, SUPPLEMENT OR AMEND THE INSTRUCTIONS LAID DOWN IN E.D.I., STANDARD DRAWI
CIRCULARS ETC., WHICH SHOULD BE REFERRED TO IN ALL CASES.





LENGTHS OF LEGS

$AB = \sqrt{(L_A - L_B)^2 + (Aa)^2}$ $\quad BD = \sqrt{(L_B - L_D)^2 + (Bb)^2}$ $\quad BE = \sqrt{(L_B - L_E)^2 + (Ee)^2}$

$AC = \sqrt{(L_A - L_C)^2 + (Cc)^2}$ $\quad CD = \sqrt{(L_C - L_D)^2 + (Dd)^2}$ $\quad CF = \sqrt{(L_C - L_F)^2 + (Ff)^2}$

SIMILAR FLEXURE	CONTRARY FLEXURE
$L_A = \frac{1}{2(R_1-R_2)}\sqrt{4R_1R_2(I+2G)(2R_1-2R_2-[I+2G])}$	$L_A = \frac{1}{2(R_1+R_2)}\sqrt{4R_1R_2(I+2G)(2R_1+2R_2+[I+2G])}$
$L_B = \frac{1}{2(R_1-R_2)}\sqrt{(2R_1+G)(2R_2+G)(I+G)(2R_1-2R_2-[I+G])}$	$L_B = \frac{1}{2(R_1+R_2)}\sqrt{(2R_1+G)(2R_2-G)(I+G)(2R_1+2R_2+[I+$
$L_C = \frac{1}{2(R_1-R_2)}\sqrt{(2R_1-G)(2R_2-G)(I+G)(2R_1-2R_2-[I+G])}$	$L_C = \frac{1}{2(R_1+R_2)}\sqrt{(2R_1-G)(2R_2+G)(I+G)(2R_1+2R_2+[I+$
$L_D = \frac{1}{2(R_1-R_2)}\sqrt{4R_1R_2I(2R_1-2R_2-I)}$	$L_D = \frac{1}{2(R_1+R_2)}\sqrt{4R_1R_2I(2R_1+2R_2+I)}$
$L_E = \frac{1}{2(R_1-R_2)}\sqrt{(2R_1+[I+G])(2R_2+[I+G])G(2R_1-2R_2-G)}$	$L_E = \frac{1}{2(R_1+R_2)}\sqrt{(2R_1+[I+G])(2R_2-[I+G])G(2R_1+2R$
$L_F = \frac{1}{2(R_1-R_2)}\sqrt{(2R_1-[I+G])(2R_2-[I+G])G(2R_1-2R_2-G)}$	$L_F = \frac{1}{2(R_1+R_2)}\sqrt{(2R_1-[I+G])(2R_2+[I+G])G(2R_1+2R$

Ee.	Aa. & Dd.	Cc. & Bb.	Ff.
$\frac{2R_1}{2(R_1-R_2)}I$	$\frac{(2R_1-[I+G])}{2(R_1-R_2)}G$	$\frac{(2R_2+[I+G])}{2(R_1-R_2)}G$	$\frac{2R_2}{2(R_1-R_2)}I$

Ee.	Aa. & Dd.	Cc & Bb.	F
$\frac{2R_2}{2(R_1+R_2)}I$	$\frac{(2R_2+[I+G])}{2(R_1+R_2)}G$	$\frac{(2R_1+[I+G])}{2(R_1+R_2)}G$	$\frac{2R}{2(R_1+}$

CROSSING ANGLES	
$N_A = \sqrt{\frac{4R_1R_2}{4(I+2G)(2R_1-2R_2-[I+2G])}}$	$N_D = \sqrt{\frac{4R_1R_2}{4I(2R_1-2R_2+I)}}$
$N_B = \sqrt{\frac{(2R_1+G)(2R_2+G)}{4(I+G)(2R_1-2R_2-[I+G])}}$	$N_E = \sqrt{\frac{(2R_1+[I+G])(2R_2+[I+G])}{4G(2R_1-2R_2-G)}}$
$N_C = \sqrt{\frac{(2R_1-G)(2R_2-G)}{4(I+G)(2R_1-2R_2-[I+G])}}$	$N_F = \sqrt{\frac{(2R_1-[I+G])(2R_2-[I+G])}{4G(2R_1-2R_2-G)}}$

CROSSING ANGLES	
$N_A = \sqrt{\frac{4R_1R_2}{4(I+2G)(2R_1+2R_2+[I+2G])}}$	$N_D = \sqrt{\frac{4R_1R_2}{4I(2R_1+2R_2+}}$
$N_B = \sqrt{\frac{(2R_1+G)(2R_2-G)}{4(I+G)(2R_1+2R_2+[I+G])}}$	$N_E = \sqrt{\frac{(2R_1+[I+G])(2R_2}{4G(2R_1+2R_2}}$
$N_C = \sqrt{\frac{(2R_1-G)(2R_2+G)}{4(I+G)(2R_1+2R_2+[I+G])}}$	$N_F = \sqrt{\frac{(2R_1-[I+G])(2R}{4G(2R_1+2R}}$

FOR G = 4′-8½″ AND I = 6′-6″ :-
G = 4·7083 (log. = ·6728672)
I = 6·5 (log. = ·8129134)
I+G = 11·2083 (log. = 1·0495409)
I+2G = 15·916 (log. = 1·2018521)

FLEXIBLE SWITCHES

(1) CALCULATE LENGTHS AND ANGLES AS A
(2) USING ANGLE N_E SO FOUND, AND THE FORMULÆ FOR FLEXIBLE SWITCHES, CALC
LENGTH OF LEAD AND TURNOUT-RADIUS r_e FROM STRAIGHT. (3) FROM LATTER CALC
NEW [illegible] R_E BY FORMULA $R_E = \frac{R_1 r_e}{R_1 \mp r_e}$ (USING + FOR CURVES OF SIMILAR FL
AND — FOR CURVES OF CONTRA FLEXURE). (4) REPEAT FROM (2) FOR N