PERMANENT WAY

NOTES

BASIC LEAD FORMULAE

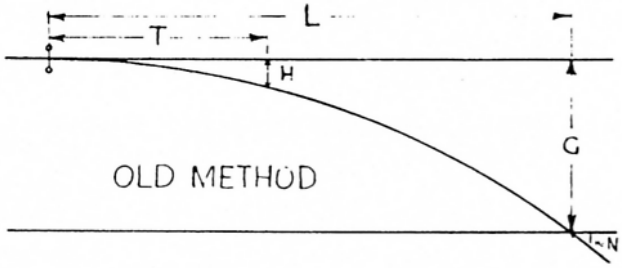
AND APPLICATION TO DOUBLE JUNCTIONS

CURVE OUT OF STRAIGHT

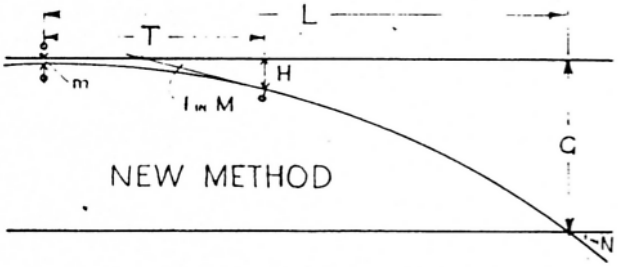
THESE NOTES ARE INTENDED FOR THE GUIDANCE AND ASSISTANCE OF STAFF ENGAGED UPON PERMANENT WAY WORK. THEY DO NOT IN ANY WAY MODIFY, SUPPLEMENT OR AMEND THE INSTRUCTIONS LAID DOWN IN E.D.I., STANDARD DRAWINGS, CIRCULARS ETC., WHICH SHOULD BE REFERRED TO IN ALL CASES.

LEADS

OUTER RAIL OF TURNOUT CURVE TANGENTIAL TO MAIN LINE. HEEL OF OUTER SWITCH-RAIL LOCATED WHERE OPENING EQUALS OFFSET FROM MAIN LINE TO OUTER RAIL OF TURNOUT CURVE.



OUTER RAIL OF TURNOUT CURVE TANGENTIAL TO OUTER SWITCH RAIL AT HEEL



	GENERAL FORMULAE	SIMPLIFIED FORMULAE [G=4'8½", H=4½"]
T	$\sqrt{(2R-H)H}$	$\sqrt{0{\cdot}75R-0{\cdot}140625}$
N	$\sqrt{\frac{R}{2G}-\frac{1}{4}}$	$\sqrt{\frac{R}{9{\cdot}416}-\frac{1}{4}}$
R	$2G(N^2+\frac{1}{4})$	$9{\cdot}416(N^2+\frac{1}{4})$
L	$\sqrt{(2R-G)G}$	$\sqrt{9{\cdot}416R-22{\cdot}16840277}$
	$2GN$	$9{\cdot}416N$

STANDARD METHOD FOR BH OLD TYPE CURVED SWITCHES CAN BE ADOPTED FOR BH OLD-TYPE STRAIGHT SWITCHES IN SPECIAL CIRCS

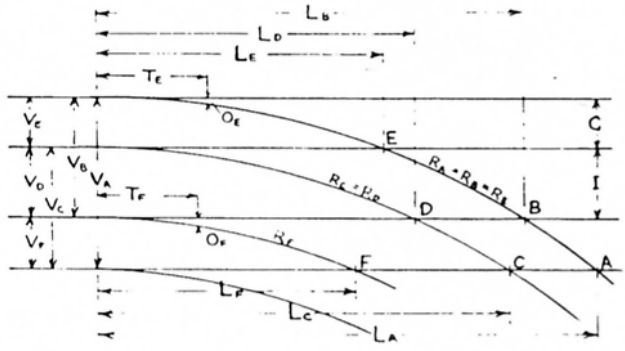
	GENERAL FORMULAE	SIMPLIFIED FORMULAE [G=4'8½"]
T, m	$T=\frac{RM}{M^2+\frac{1}{4}}$ $m=H-\frac{R}{2(M^2+\frac{1}{4})}$	$T=RZ$ $m=H-\frac{RZ}{2\sqrt{Y}}$
N	$\sqrt{\frac{2RM^2-(G-H)(M^2+\frac{1}{4})}{4(G-H)(M^2+\frac{1}{4})+2R}}$	$\sqrt{\frac{4RY-X}{4(X+R)}}$
R	$\frac{2(G-H)(N^2+\frac{1}{4})(M^2+\frac{1}{4})}{M^2-N^2}$	$\frac{X(N^2+\frac{1}{4})}{Y-N^2}$
L	$\sqrt{R^2-\left[\frac{M^2-\frac{1}{4}}{M^2+\frac{1}{4}}R-G+H\right]^2}$	
	$\frac{2N(G-H)(M^2+\frac{1}{4})}{M^2-N^2}$	$\frac{XN}{Y-N^2}$

FOR VALUES OF CONSTANTS X, Y, Z & 2√Y SEE PERMANENT WAY NOTES SWITCH CONSTANTS 1962

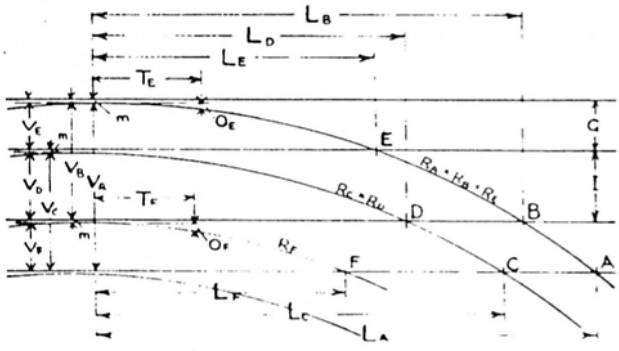
STANDARD METHOD FOR BH OLD TYPE STRAIGHT & FB FLEXIBLE SWITCHES CAN BE ADOPTED FOR BH OLD TYPE CURVED SWITCHES IN SPECIAL CIRCUMSTANCES

DOUBLE JUNCTIONS.

USE SIMPLE EXTENSION OF OLD METHOD (SEE DIAGRAM BELOW)- $V_F = V_F + C$ $V_D = I$ $V_A = I + 2G$ $V_B = V_C = I + G$



ONLY ONE SWITCH RAIL CAN HAVE TURNOUT CURVE TANGENTIAL TO SWITCH HEEL. SELECT WHICH, AND HENCE EITHER R_A OR R_F TO CALCULATE 'm'. THEN USE EXTENSION OF OLD METHOD, ALLOWING FOR 'm' IN COMPUTING 'V' & 'O' VALUES FROM G & I



$L_A = \sqrt{(2R_A - V_A)V_A}$ $L_B = \sqrt{(2R_B - V_B)V_B}$ etc $N_A = \sqrt{\frac{R_A}{2V_A} - \frac{1}{4}}$ $N_B = \sqrt{\frac{R_B}{2V_B} - \frac{1}{4}}$ ..... etc

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

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

$T_E = \sqrt{(2R_E - O_E)O_E}$ ....etc. $D\text{ to }E = \sqrt{(L_D - L_E)^2 + I^2}$ $D\text{ to }F = \sqrt{(L_D - L_F)^2 + G^2}$