Test Results of High Speed Impedance Relays (ASEA)

ROUTINE TESTING RESULTS

GENERAL

1.1 Name of sub-station/Power-house :..... ... .Date : .....

1.2 Name of Feeder : .... Circuit Breaker No. : .....

1.3 Details of Relay :—Sl. No .....Type : ....

SETTINGS :— a=.....K_1 .....ϕ=..... I_2= ..... I (—)=.....

P_1=.....TK_1=.....Secs. P_2=.....Secs.

P_2=.....TK_2=.....Sces. PT_1=.....Secs.

P_3= .....TK_3=.....Secs. PT_2=.....Secs.

P_4=.....TK_4=.....Secs. G=.....Secs.

2.1 Covered Impedance :— Primary value in Ohms Secondary value in Ohms

Zone I

Zone II

Zone III

Zone IV

CHECKING OF D.C. SEQUENCE :—

D.C. Sequence checked, the results are O.K. as per sheet attached.

ACCURACY OF ZERO SEQUENCE RELAY (In) :—

(i) Rated voltage ..... Volts (ii) Rated current..... .....Amps.

(iii) Set value ..... Amps

(iv) Operating current Measured on each phase in amperes.

R= ....S= .... T=..... .....

5. ACCURACY OF NEGATIVE SEQUENCE RELAY [I(—)] :—

Sl. no.	Type of fault	Phase	Measured operating current Im	Calculated (—) sequence current :— $I(-)=\frac{Im}{3}$ for single phase fault $I(-)=\frac{Im}{\sqrt{3}}$ for double phase faults	Remarks
1	2	3	4	5	6
1.	Single phase	R			
		S			
		T			
2.	Double phase	R(S)			
		S(T)			
		T(R)			

6 (A) Checking of Accuracy of Starters for Symetrical Faults

Phase with direction	Relay Ohmic Setting Z_R in ohms	N	Impedance to be set ZFB set $Z = Z_R/N$	Impedance Set on ZFB Test Set				Source Impedance in ohms	Observed %Potential P′	Theoretical %Potential P	% Error $\frac{P'-P}{P} \times 100$	Remarks
				Taps on R	Taps on X	Z in ohms	Angle					
1	2	3	4	5	6	7	8	9	10	11	12	13
R–N S–N T–N												Remove I_N relay & connect terminals 38 and 55

6 (B) Checking of Accuracy of Starters for Asymetrical Faults

R–N			2 Z_R/N				90° 270° 30° 120°					Short terminals 47A–47B & 47C–47D
S–N							90° 270° 30° 120°					keeping I_N relay out. Remove
T–N							90° 270° 30° 120°					Connection of 38 & 55 made earlier

7. D.C. VOLTAGE ACROSS RESETTING MAGNETS :—

Sl. no.	Magnet	Theoretical value	Observed value		Remarks
			Without 'L' operated	With 'L' operated	
1	2	3	4	5	6
1.	SP_R				
2.	SP_S				
3.	SP_T				
4.	SP_K				

8. D.C. INTERLOCKED SUPPLY CHECKED AND IT IS————————————

9. ACCURACY OF TIMER CHECKED

Zone	Time Set at in Sec	% P kept at	Operating time in Secs.	Remarks
I				
II				
III				
IV				

Counter Signed

Tested by

Executive Engineer (T&C)

Assistant Engineer (T&C)