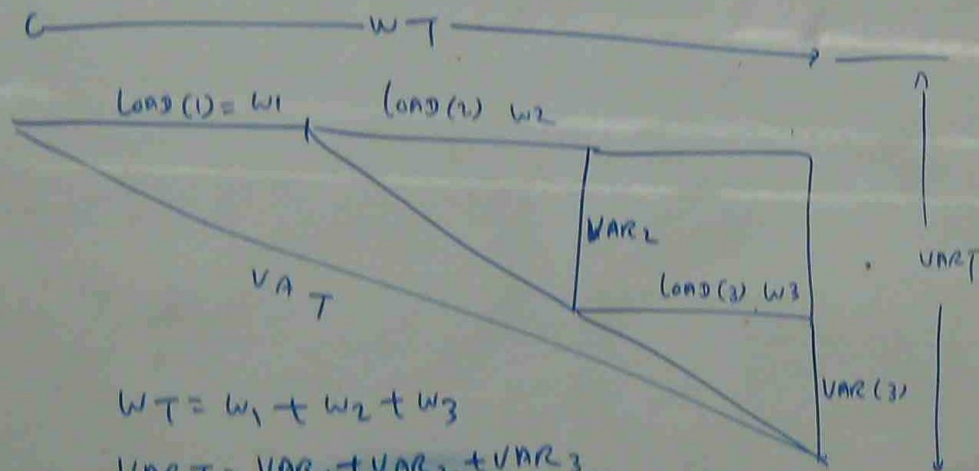


REAL POWER / REACTIVE POWER AND APPARENT POWER

INDUSTRIAL LOADS ARE INDUCTIVE LOADS. THAT CAUSES THE LAGGING POWER FACTOR



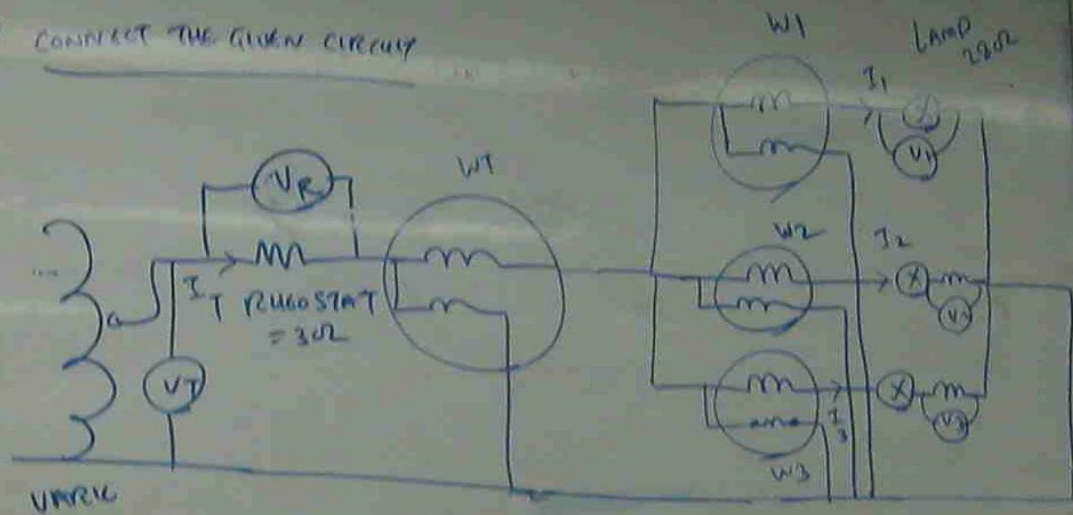
$$W_T = W_1 + W_2 + W_3$$

$$VAR_T = VAR_1 + VAR_2 + VAR_3$$

$$V_{A_T} = \sqrt{W_T^2 + VAR_T^2}$$

$$P.F._T = \frac{W_T}{V_{A_T}}$$

CONNECT THE GIVEN CIRCUIT



CONNECT THE GIVEN CIRCUIT

IN JECT VOLTAGE

TAKE THE READINGS OF

$V_T, V_R, W_T, W_1, W_2, W_3, V_1, V_2, V_3$

FILL IN TABLE

V_T	V_R	$I_T = \frac{V_R}{R}$	W_T	$VAR_T = V_T I_T$	$P_T = \frac{W_T}{W_T}$	W_1	V_1	$I_1 = \frac{V_1}{280\Omega}$	$VAR_1 = V_1 I_1$	$VAR_1 = \sqrt{VAR_T^2 - W_1^2}$	$\theta_1 = \tan^{-1} \frac{VAR_1}{W_1}$	$PF_1 = \cos \theta_1$
					$PF_1 = \cos \theta_1$	W_2	V_2	$I_2 = \frac{V_2}{280\Omega}$	$VAR_2 = V_2 I_2$	$VAR_2 = \sqrt{VAR_1^2 - W_2^2}$	$\theta_2 = \tan^{-1} \frac{VAR_2}{W_2}$	$PF_2 = \cos \theta_2$
						W_3	V_3	$I_3 = \frac{V_3}{280\Omega}$	$VAR_3 = V_3 I_3$	$VAR_3 = \sqrt{VAR_2^2 - W_3^2}$	$\theta_3 = \tan^{-1} \frac{VAR_3}{W_3}$	$PF_3 = \cos \theta_3$

Then plot the power triangle

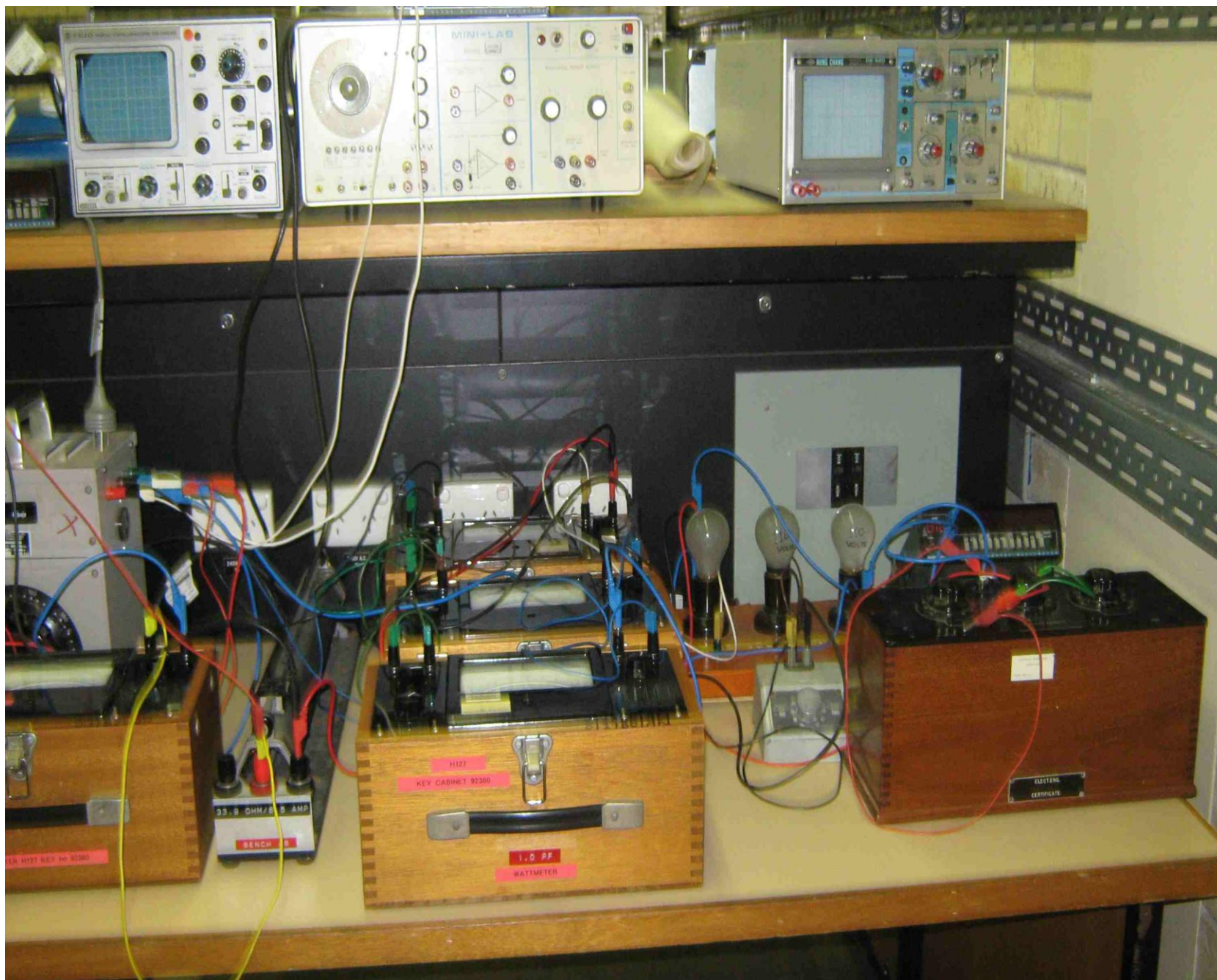
1) ALL INDUCTANCES ARE SET TO ZERO AND TAKE THE READINGS AND FIL IN TABLE AGAIN

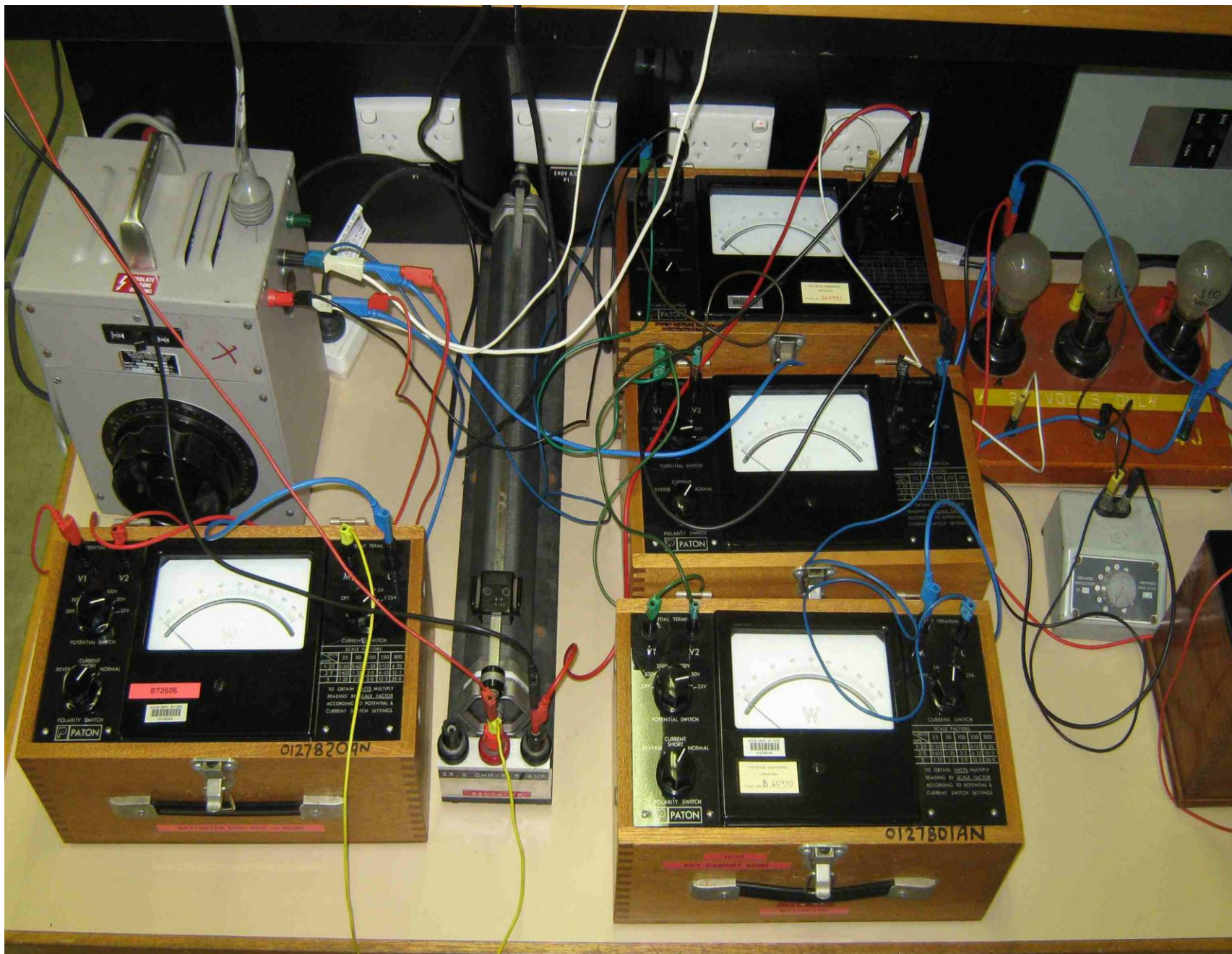
2) COMPARE ORIGINAL W_T WITH W_T WHEN INDUCTANCES ARE ZERO.

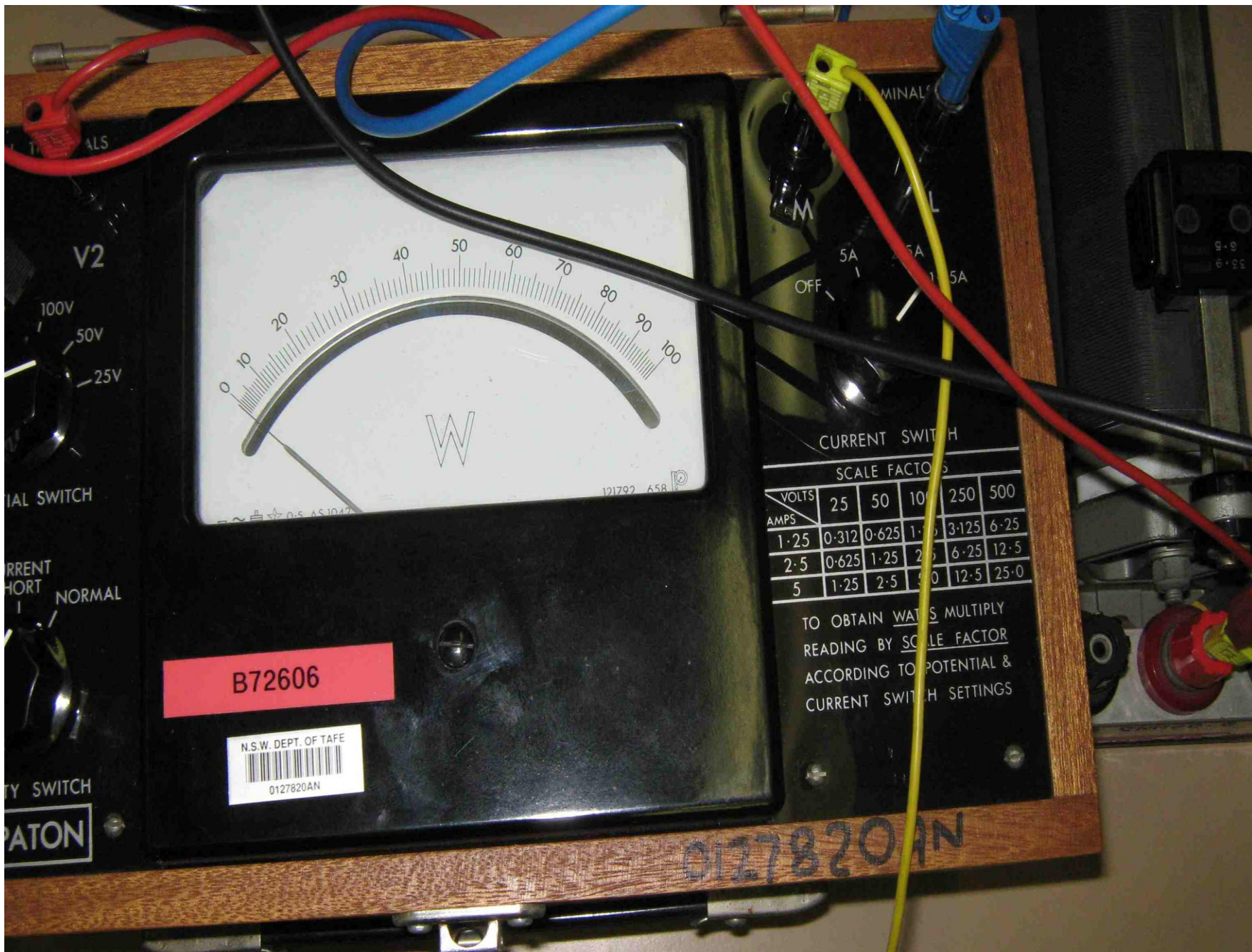
_____ VAR_T WITH VAR_T _____

_____ VAR_T WITH VAR_T _____

_____ POWER FACTOR WITH POWER FACTOR _____







V2

100V

50V

25V

AL SWITCH

URRENT
SHORT NORMAL

TY SWITCH

PATON

B72606

N.S.W. DEPT. OF TAFE



0127820AN

CURRENT SWITCH

SCALE FACTORS

VOLTS	25	50	100	250	500
AMPS					
1.25	0.312	0.625	1.25	3.125	6.25
2.5	0.625	1.25	2.5	6.25	12.5
5	1.25	2.5	5.0	12.5	25.0

TO OBTAIN WATTS MULTIPLY
READING BY SCALE FACTOR
ACCORDING TO POTENTIAL &
CURRENT SWITCH SETTINGS

0127820AN



POTENTIAL TERMINALS

V1

V2

500V 250V 100V 50V 25V OFF

POTENTIAL SWITCH

REVERSE CURRENT SHORT NORMAL

POLARITY SWITCH

PATON

N.S.W. DEPT OF TAPE

0127801AN

ELECTRICAL ENGINEERING

CERTIFICATE

B 60990

PLANT NO.

CURRENT TERMINALS

M

L

5A 2.5A 1.25A OFF

CURRENT SWITCH

SCALE FACTORS

VOLTS AMPS	25	50	100	250	500
1.25	0.312	0.625	1.25	3.125	6.25
2.5	0.625	1.25	2.5	6.25	12.5
5	1.25	2.5	5.0	12.5	25.0

TO OBTAIN WATTS MULTIPLY
READING BY SCALE FACTOR
ACCORDING TO POTENTIAL &
CURRENT SWITCH SETTINGS

0127801AN

