

LEGEND					
REF.	DESCRIPTION	TYPE	MANUF.	DRAWING	REMARKS
AP	ANTI-PUMPBACK CIRCUIT				
ARI-6	AUXILIARY RUN				
AS	AMMETER SWITCH				THROUGH-PUT TYPE
ART	AUXILIARY TIMER				DELAYED PICK-UP RANGE 0-15sec SET AT 80sec OR AS SPECIFIED
C, C-1, C-2, C-3, C-4, C-5	CONTACTOR				
C2	RED SIGNAL LAMP				CIRCUIT BREAKER CLOSED
C5	GREEN SIGNAL LAMP				CIRCUIT BREAKER OPEN
C6	BLUE SIGNAL LAMP				
C9	WHITE SIGNAL LAMP				
CB	CIRCUIT BREAKER	UNELEC			SEE NOTE 14
CC	CLOSING COIL CIRCUIT				
CS-1	CONTROL SWITCH	C306R			
CS-1L	CONTROL SWITCH LAZY CONTACT	C306R			
CS-1N	CONTROL SWITCH "NEUTRAL" CONTACT	C306R			
CS-2	CONTROL SWITCH	C302R			
CSS-1	CONTROL SWITCH SWITCH				2 POLE MAIN-TEST 60 AMPS PADLOCKABLE
CSS-2	CONTROL SWITCH SWITCH				5 POLE TEST-REMOTE
CSS-3	CONTROL SWITCH SWITCH				1 POLE OFF-ON
CSS-4	CONTROL SWITCH SWITCH				2 POLE TEST-OFF-AUTO
CSS-5	CONTROL SWITCH SWITCH				2 POLE TIMER SEQUENCE RESET-START-ADJUSTMENT
CSS-6	CONTROL SWITCH SWITCH				2 POLE OFF-INTERVAL-CONTINUOUS-TEST
CSS-7	CONTROL SWITCH SWITCH				7 POLE TEST-REMOTE
CSS-8	CONTROL SWITCH SWITCH				13 POLE TEST-REMOTE
CSS-9	CONTROL SWITCH SWITCH				
CT	CURRENT TRANSFORMER				
C-X1	AUXILIARY CONTACTOR				
CL1, CL2, CL3	LOW SPEED MOTOR CONTACTOR				
CH1, CH2, CH3	HIGH SPEED MOTOR CONTACTOR				
DCF, DCF-1	D.C. FAIL RELAY	RA 32	A.E.G.		FLAG INDICATION MANUAL RESET OR EQUIVALENT
DCF-2	D.C. FAIL RELAY				FLAG INDICATION MANUAL RESET. 48V DC COIL
ETR	EMERGENCY TRIP RELAY	HP4-SF	NATIONAL		48V DC COIL
FL	RELEASE FLOOD RELAY				RANGE 0-15sec SET AT 2sec
FL-X	RELEASE FLOOD AUXILIARY RELAY				
FS	FUSE SWITCH/INTERRUPTER FUSE				INTERLOCKED WITH COMPARTMENT DOOR
GP	5,5KV UNIT GEN. CONTROL PANEL SWITCHGEAR TERMINAL				
IPR-H	INTERPOSING RELAY RUN HIGH SPEED	HP4-SF	NATIONAL		
IPR-L	INTERPOSING RELAY RUN LOW SPEED	HP4-SF	NATIONAL		
IPS-H	INTERPOSING RELAY STOP HIGH SPEED	HP4-SF	NATIONAL		
IPS-L	INTERPOSING RELAY STOP LOW SPEED	HP4-SF	NATIONAL		
IPC	INTERPOSING RELAY "CLOSE"	HP4-SF	NATIONAL		SEE SPECIFICATION SCHEDULE A
IPO	INTERPOSING RELAY "OPEN"	HP4-SF	NATIONAL		SPECIAL REQUIREMENTS PARAGRAPH 2
IPR, IPR1-5	INTERPOSING RELAY "RUN"	HP4-SF	NATIONAL		SEE NOTE 1
IPS, IPS1-5	INTERPOSING RELAY "STOP"	HP4-SF	NATIONAL		
IPT	INTERPOSING RELAY "TRIP"	HP4-SF	NATIONAL		
IPCS	INTERPOSING RELAY "CLOSING" RELAY	HP4-SF	NATIONAL		
IPC-T	INTERPOSING RELAY "TIMER"	HP4-SF	NATIONAL		0-3sec SET TO 25ms ON DELAY
IPX	INTERPOSING RELAY AND "CLOSE" LATCH RELAY				OPERATING TIME NOT TO EXCEED 15ms
ISOLC	HIGH IMPEDANCE PROTECTION EQUIPMENT	SF 446H	E.P.C.		
LAP	LOCAL ALARM RELAY				
LR	LOCAL / REMOTE SELECTOR SWITCH	S208			ROTARY OR SANTON
LOD	LOCK OUT DEVICE RELAY	VAJY 11	GEC	0.52/128	
LOM	LOCK OUT DEVICE RELAY	VAJY 11	GEC	0.52/128	
MCB-1	CIRCUIT BREAKER				MOULDED CASE
MCB-2	CIRCUIT BREAKER	DVE 10/10	SIEMENS		MOTOR CIRCUIT BREAKER RATING 0,35-0,5A
MCB-3	CIRCUIT BREAKER	DVE 10/10	SIEMENS		MOTOR CIRCUIT BREAKER RATING 0,15-0,25A
MWT	MOTOR WINDING TEMPERATURE				
M	MOTOR TERMINUS				
PF	PHASE FAILURE RELAY				
FR-1,2,3,4	OVERCURRENT PROTECTION RELAY	CAG 39	GEC	0.52/440	
R1	RESISTOR FOR FAULT LAMP				CONNECTED IN SERIES WITH C9
RSR	RACKING SWITCH RELAY	VAJC 11	GEC	0.52/154	
RS	RACKING SWITCH				
RTC + h	RUNNING HOUR TRIP COUNTER	SHR-S	SINERONICS		
S	SWITCHGEAR TERMINAL FOR CABLE CONNECTION				
S1	SWITCHGEAR TERMINAL FOR BUSWIRE CONNECTION				
SCM	SPRING CHARGE MOTOR CIRCUIT				
SPS	STABILISED POWER SUPPLY DEVICE				
SW	SWITCH				
SSR, SSR-1	SEQUENCE START RELAY				DELAYED PICK-UP RANGE 0-15sec SET AT 3sec OR AS SPECIFIED
T1	TIMER				DELAYED PICK-UP RANGE 0-15sec SET AT 3sec OR AS SPECIFIED
T2	TIMER				DELAYED PICK-UP, MOUNTED ON UN-5 COMBIFLEX BASE, RANGE 0-15sec SET AT 3sec OR AS SPECIFIED
T3	TIMER	SZA 525	SCHLEICHER		FOR ITEMS A31-A42
T4	TIMER	SZA 525	SCHLEICHER		FOR ITEMS A31-A42
T3-X	TIMER AUXILIARY RELAY				
Ts	TRANSFORMER	MIRA-1125	ULTRASTAT TILCH		1A-20mA

LEGEND					
REF.	DESCRIPTION	TYPE	MANUF.	DRAWING	REMARKS
T2A	TIMER				DELAYED PICK-UP RANGE 0-15sec SET AS SPECIFIED
T2B	TIMER				DELAYED PICK-UP, MOUNTED ON UN-5 COMBIFLEX BASE, RANGE 0-15sec SET AT 3sec OR AS SPECIFIED
TC	TRIP COIL CIRCUIT				
TH	THERMISTOR RELAY				
TOL	THERMAL OVERLOAD DEVICE				
TR	TRIP RELAY				
TT	TRIP TIMER RELAY				
TT-A	TRIP TIMER AUXILIARY RELAY	SINERONICS			DELAYED PICK-UP RANGE 0-15sec SET AT 3sec OR AS SPECIFIED
TPM	TRUE POWER MONITOR				
TPM-H	TRUE POWER MONITOR HIGH SPEED				
TPM-L	TRUE POWER MONITOR LOW SPEED				
UY-1, 2, 3, 4, 5	UNDERVOLTAGE RELAY	RXOTD4	ASEA		3A. MOUNTED ON COMBIFLEX BASE SETTING RANGE 50-80V OF RATED INPUT VOLTAGES & SHALL BE ADJUSTABLE
UDF	UNIT DISTRIBUTION FRAME				
VC	VALVE CLOSED CONTACTOR				
VC-X	VALVE CLOSED AUXILIARY CONTACTOR				
VMR	VOLTAGE MONITORING RELAY				
VO	VALVE OPEN CONTACTOR				
VO-X	VALVE OPEN AUXILIARY CONTACTOR				
VS-I	VOLTAGE SELECTOR SWITCH-INCOMING VOLTS				
VS-B	VOLTAGE SELECTOR SWITCH-BUSBAR VOLTS				
VSR	VOLTAGE SELECTOR RELAY				

NOTES:

- INTERPOSING RELAYS PROVIDED BY SWITCHGEAR CONTRACTOR FOR ITEMS A43 TO A45, B1 TO B20, B25 TO B39; MAKE: NATIONAL; TYPE HP4-SF 48V DC
INTERPOSING RELAYS PROVIDED BY ESCOM FOR ITEMS A1 TO A24, A31 TO A42, B21 TO B24; MAKE: HARTMAN AND BRAUN; TYPE KR11 24V DC
- CIRCUITS SHOW THE EQUIPMENT IN THE INOPERATIVE OR DE-ENERGISED POSITION OR STATE.
i.e. CIRCUIT BREAKERS/CONTACTORS:
MAIN CONTACT "OPEN"
POSITION RACKED IN (OR "SERVICE")
SPRINGS DISCHARGED
POWER AND CONTROL SUPPLIES "OFF"
ALL RELAYS DE-ENERGISED STATE
TEST BLOCKS NORMAL COVER INSERTED
FUSES "HEALTHY"
- CONTROL SELECTOR SWITCH ESCUTCHEON ENGRAVING: FOR LANGUAGE PRECEDENCE, SEE SPECIFICATION.
- * INDICATES ADDITIONAL CIRCUIT REQUIRED FOR WITHDRAWABLE TYPE CIRCUIT BREAKERS.
- Δ INDICATES WIRE SIZE TO BE 1,5mm²
- † INDICATES WHERE REFERENCE MUST BE MADE TO:
i) THE APPROPRIATE SWITCHGEAR SCHEDULE FOR THE CIRCUIT TYPE APPLICABLE.
ii) THE STANDARD CIRCUIT DIAGRAM FOR CONNECTION DETAILS.
- ** INDICATES LINK AND ASSOCIATED WIRING REQUIRED IF SPECIFIED IN EQUIPMENT SCHEDULE.
- # INDICATES BUSBAR VOLTAGE METER REQUIRED IF SPECIFIED IN EQUIPMENT SCHEDULE.
- INDICATES KLIPPPON TERMINAL TYPE SAKR OR EQUIVALENT WITH SCREW CLAMP CONNECTION.
- REFERENCE LETTERS AND NUMBERS SHOWN IN PARENTHESIS THUS, (C3) ARE THE GRID CO-ORDINATES ON THE DIAGRAM SHEET WHICH LOCATE ITEMS AS FOLLOWS:-
a) GRID REFERENCE PLACED IN THE CONTACT ARRANGEMENT DIAGRAM LOCATE THE POSITION WHERE THE CONTACT IS USED.
b) CONVERSELY, A GRID REFERENCE AT AN AUXILIARY CONTACT IN THE SCHEMATIC DIAGRAM LOCATES ITS OPERATING COIL OR DEVICE.
- * INDICATES THAT THE CIRCUIT BREAKER AUXILIARY CONTACTS MUST NOT BE CONNECTED IN THE TEST POSITION.
- LABEL ON CIRCUIT BREAKER:

WARNING: DC FUSES TO BE REMOVED ONLY AFTER CIRCUIT BREAKER IS RACKED OUT.
- LABEL TO HAVE WHITE LETTERING ON A RED BACKGROUND. (BILINGUAL)
LABEL TO BE MOUNTED WITH SCREWS.
- RSR RELAY CONTACT ARRANGEMENTS TO BE SELECTED TO RESET PRIOR TO COMMISSIONING.
- ALL CIRCUIT BREAKER PANELS OF THE SAME CURRENT RATING SHOULD FUNCTION CORRECTLY WHEN CIRCUIT BREAKERS ARE INTERCHANGED INCLUDING SPARE CIRCUIT BREAKERS

CONTRACT/	OPT 11759
MANUFACTURER	ALLENWEST-GE
ITEM	B-44

FIRST ISSUE / SERVICE INSTRUMENTS		BY: [] DATE: []	
REV	DATE	REVISED / REWORKED	BY: [] DATE: []
001	1/1/81	002	1/1/81
SOUTH AFRICA		ESCOM • EVKOM	
TUTUKA POWER STATION		380V. HYDROGEN GEN. PLANT BOARD	
COVER SHEET A		0-61/15537	