INSTALLATION • OPERATION • MAINTENANCE

INSTRUCTIONS

UNIFLEX TYPE ARM TRIP MODULE WITH AR RELAY OUTPUTS

APPLICATION

The ARM module is used to provide dry contact trip outputs, trip indication, dry contact breaker failure outputs, system reset, and powering up trip inhibits.

CONSTRUCTION

The ARM is a printed circuit module designed to fit into a standard Uniflex 3 rack unit Uniflex chassis. The module is approximately 4.875 x 10 x 1.375 inches requiring three module positions in the standard cage. The front edge of the board contains a reset switch and two trip indicators. The location of all components is shown in Figure 1C.

OPERATION

Refer to Figure 1D which shows the module detail logic. As the name implies, this logic details the actual implementation of the system logic in Figure 1S.

There is a one to one correspondence between the detail logic and hardware on the printed circuit board. The diagram employs positive logic and a +15 volt signal corresponds to a one state and nearly zero volts corresponds to a zero state. The diagram has been made such that with no input signals applied the pins shown with a circle or pins without a circle and the word NOT on them will be at ±15 volts and all those without circles without the word NOT will be at zero volts.

An incoming signal (near zero volts) on either of pc board terminals 7, 8, 9, or 10 will result in an output on terminal 16, and an input to pin 9 of the trip control "OR" gate IC3(8). Likewise, an incoming signal on terminals 11, 12, or 13 will result in an output on terminal 18, and an input to pin 10 of the trip control IC3(8). A feed back signal appears on the trip control "OR" gate IC3(8) on pins 12 and 13 whenever trip current is flowing, as will be described later. The appearance of a signal on either pin 9, 10, 12, or 13 will cause a signal on pin 4 of IC4(3). Transistor Q5 either blocks or transmits the trip signal to the output trip circuit control transistor Q4. Transistor Q5 will be conducting when the output photo coupler transistor in the system power supply wired to the PSMC and PSME terminals 5 and 6 respectively is conducting. Thus transistor Q5 conducts only when all the outputs on the power supply are within their reasonable range. With transistor Q5 conducting and pin 3 of IC4(3) is near zero volts, base current will flow into the base of transistor Q4. When transistor Q4 conducts, current flows in the base of transistor Q3, turning Q3 on and pulling in the AR relay. When contact AR2 is closed and a current of .5 ampere or greater is flowing out of the TR1 terminal, reed relay RY1 will pickup. Closing the contact of RY1 causes pin 5 of IC6(6) to go to zero volts, which in turn causes pin 8 of IC6(8) to go to near zero. The capacitor C14 provides noise supression. Three things happen when pin 8 of IC6(8) goes near zero. First, the signal is fed back to pin 12 of the previously mentioned trip control IC3(8), and thus the output trip signal is main-

All possible contingencies which may arise during installation, operation, or maintenance, and all details and variations of this equipment do not purport to be covered by these instructions. If further information is desired by purchaser regarding his particular installation, operation or maintenance of his equipment, the local Westinghouse Electric Corporation representative should be contacted.

SUPERSEDES I.L. 41-847.1 DATED MAY 1978
✪ DENOTES CHANGED SINCE PREVIOUS ISSUE
EFFECTIVE NOVEMBER 1984

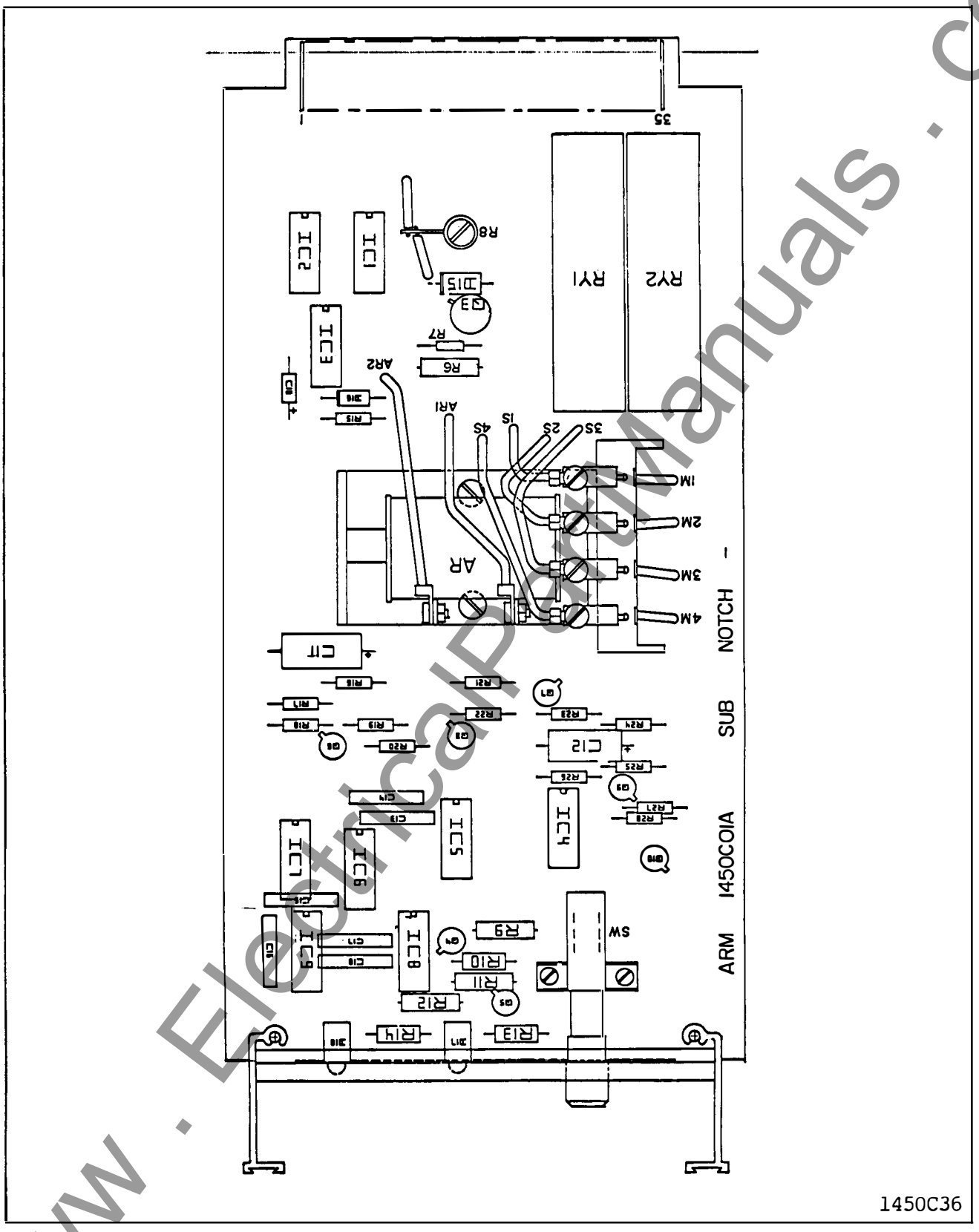

Fig. 1C. Component Location of Type ARM Trip Module

COMPONENT		DESCRIPTION		STYLE NO.
C10	CAPACITOR	1.000UF	35V	837A241H15
C11	CAPACITOR	47.000UF	35V	184A661H03
C12	CAPACITOR	39.000UF	35V	187A508H04
C13	CAPACITOR	.100UF	50V	184A663H04
C14	CAPACITOR	.100UF	50V	184A663H04
C15	CAPACITOR	.100UF	50V	184A663H04
C16	CAPACITOR	.100UF	50V	184A663H04
C17	CAPACITOR	.100UF	50V	184A663H04
C18	CAPACITOR	.100UF	50V	184A663H04
C19	CAPACITOR	510.0 PF	50V	3534A26H01
D15	DIODE	1N4818		188A342H06
D16	DIODE	1N457A		184A855H07
D17	DIODE	LED		3508A22H01
D18	DIODE	LED		3508A22H01
Z1	ZENER	1N752A	5.6V	186A797H12
D19	DIODE	1N457A		184A855H07
IC1	INT CKT	MC680L		6296D58H03
IC2	INT CKT	MC671L		6677D51H12
IC3	INT CKT	MC660		6677D51H01
IC4	INT CKT	MC672L		6296D58H01
IC5	INT CKT	MC680L		6296D58H03
IC6	INT CKT	MC681L		6677D51H22
IC7	INT CKT	MC681L		6677D51H22
IC8	INT CKT	MC679L		6296D58H02
IC9	INT CKT	MC672L		6296D58H01
R6	RESISTOR	150.0 3.00W	5%	762A679H01
R7	RESISTOR	1.0K .25W	1%	863A174H01
R8	RESISTOR	22.0 12W	5%	3515A09H01
R9	RESISTOR	10.0K .50W	1%	863A175H01
R10	RESISTOR	10.0K .50W	1%	863A175H01
R11	RESISTOR	1.5K .50W	1%	836A503H30
R12	RESISTOR	1800.0 .50W	2%	629A531H38

Fig. 1P. Parts List

COMPONENT		DESCRIPTION	STYLE NO.
R13	RESISTOR	10.0K .50W 1%	863A175H04
R14	RESISTOR	1800.0 .50W 2%	629A531H38
R15	RESISTOR	1.0K .25W 1%	863A174H01
R16	RESISTOR	22.1K .25W 1%	863A175H34
R17	RESISTOR	5620.0 .25W 1%	863A174H73
R18	RESISTOR	5620.0 .25W 1%	863A174H73
R19	RESISTOR	22.1K .25W 1%	863A175H34
R20	RESISTOR	47.5K .25W 1%	863A175H66
R21	RESISTOR	10.0K .25W 1%	863A175H01
R22	RESISTOR	1.0K .25W 1%	863A174H01
R23	RESISTOR	10.0 .25W 1%	187A290H01
R24	RESISTOR	82.5K .25W 1%	863A175H89
R25	RESISTOR	82.5K .25W 1%	863A175H89
R26	RESISTOR	22.1K .25W 1%	863A175H34
R27	RESISTOR	10.0K .25W 1%	863A175H01
R28	RESISTOR	1.0K .25W 1%	863A174H01
R29	RESISTOR	100.0K .25W 1%	848A821H42
R30	RESISTOR	100.0K .25W 1%	848A821H42
Q3	TRANSISTOR	2N5681	762A672H14
Q4	TRANSISTOR	2N2907A	762A672H17
Q5	TRANSISTOR	2N2222A	762A672H15
Q6	TRANSISTOR	2N2222A	762A672H15
Q7	TRANSISTOR	2N2222A	762A672H15
Q8	TRANSISTOR	2N2907A	762A672H17
Q9	TRANSISTOR	2N2222A	762A672H15
Q10	TRANSISTOR	2N2222A	762A672H15
AR	RELAY	1.6 OHMS	408C845G44
RY1	RELAY		1442C62G01
RY2	RELAY		1442C62G01
SW	SWITCH		1444C63H01

Sub 13
1319D89
Sheet 2 of 2

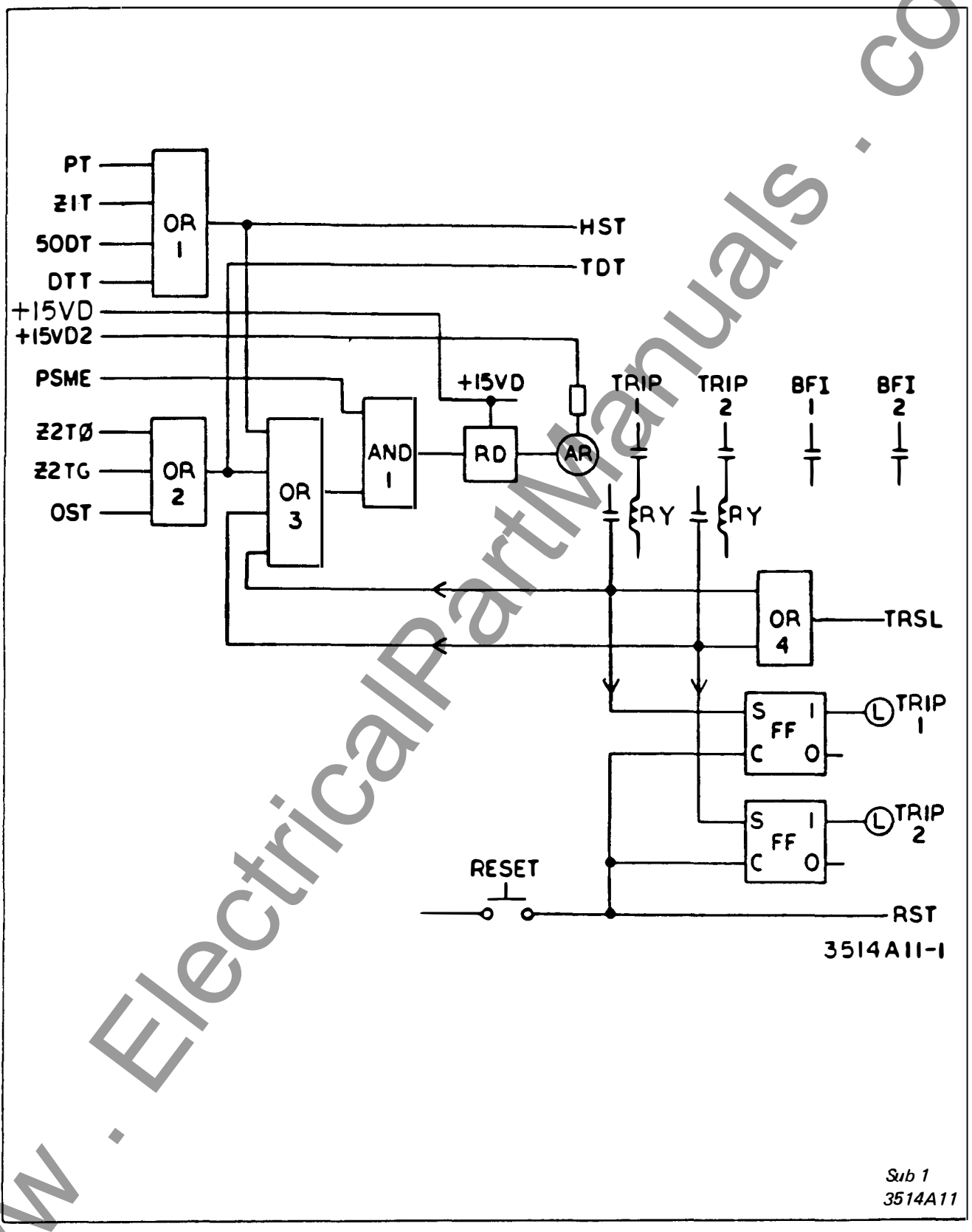

Fig. 1S. System Logic Schematic of Type ARM Trip Module

W E S T I N G H O U S E E L E C T R I C C O R P O R A T I O N

RELAY AND TELECOMMUNICATIONS DIVISION

CORAL SPRINGS, FL 33065

Printed in U.S.A.