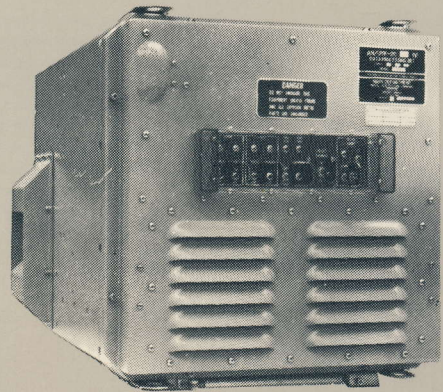


AN/UYK-20/20A

Technical Summary

NAVSEA
PMS 408
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AN/UJK-20 & AN/UJK-20A COMPUTER
REPERTOIRE OF INSTRUCTIONS

OCTAL FORMAT	HEXIDECIMAL FORMAT	CODING FORMAT	INSTRUCTION	OPERATION	C	DV	CC					
d	f	a	m	OP	a	m						
00	0	—	—	—	—	—	—					
00	3	a	m	03	a	m	BL $a_{x,y,m}$	Diagnostic return	If diagnostic jump set $R_{13} \rightarrow \mu P$	—	NC	—
01	0	a	m	04	a	m	LR $a_{x,m}$	Byte load	(Y) byte $\rightarrow R_{a7} 0.0 - R_{a15} 6$	0	0	X
01	1	a	m	05	a	m	LI $a_{x,m}$	Load (Register)	$(R_m) \rightarrow R_a$	0	0	X
01	2	a	m	06	a	m	LK $a_{x,y,m}$	Load (Indirect)	$(Y^*) \rightarrow R_a$	0	0	X
01	3	a	m	07	a	m	L $a_{x,y,m}$	Load (Constant)	$Y \rightarrow R_a$	0	0	X
02	0	a	00	08	a	0	PR a	Load	$(Y) \rightarrow R_a$	0	0	X
02	0	a	01	08	a	1	NR a	Make positive	If $(R_a) < 0, (R_a) \rightarrow R_a$	X	X	X
02	0	a	02	08	a	2	RR a	Make negative	If $(R_a) > 0, (R_a) \rightarrow R_a$	X	X	X
								Round	$(R_a) \rightarrow (R_{a+1}) 15 - R_a 3$	X	X	X
02	0	a	04	08	a	4	TCR a	Two's Complement	$(R_a) \rightarrow R_a$	X	X	X
02	0	a	05	08	a	5	TCDR a	Two's Complement Double	$(R_a, R_{a+1}) \rightarrow R_a, R_{a+1} 3$	X	X	X
02	0	a	06	08	a	6	OCR a	One's Complement	(R_a) bit-by-bit complement $\rightarrow R_a$	0	0	X
02	0	a	10	08	a	8	IROR a	Increase R_a by 1	$(R_a) + 1 \rightarrow R_a$	X	X	X
02	0	a	11	08	a	9	DROR a	Decrease R_a by 1	$(R_a) - 1 \rightarrow R_a$	X	X	X
02	0	a	12	08	a	A	IRTR a	Increase R_a by 2	$(R_a) + 2 \rightarrow R_a$	X	X	X
02	0	a	13	08	a	B	DRTR a	Decrease R_a by 2	$(R_a) - 2 \rightarrow R_a$	X	X	X
02	1	a	m	09	a	m	LDI $a_{x,m}$	Load Double (Indirect)	$(Y^*, Y^*+1) \rightarrow R_a, R_{a+1} 3$	0	0	X
02	3	a	m	0B	a	m	LD $a_{x,m}$	Load Double	$(Y, Y+1) \rightarrow R_a, R_{a+1} 3$	0	0	X
03	0	a	00	0C	a	0	ER a	Executive Return	Generate interrupt; $(P)+1 \rightarrow R_a 6$	0	0	X
03	0	a	01	0C	a	1	SROR a	Store SR1	$(SR1) \rightarrow R_a$	0	0	X
03	0	a	02	0C	a	2	SSTR a	Store SR2	$(SR2) \rightarrow R_a$	0	0	X
03	0	a	03	0C	a	3	SCR a	Store Clock	(RTC register) $15.0 - R_a$	0	0	X
03	0	a	04	0C	a	4	LPR a	Load P	$(R_a) \rightarrow P$	—	NC	—
03	0	a	05	0C	a	5	LSOR a	Load SR1	$(R_a) \rightarrow SR1$	—	NA	—
03	0	a	06	0C	a	6	LSTR a	Load SR2	$(R_a) \rightarrow SR2$	—	NC	—
03	0	a	07	0C	a	7	LCR a	Load RTC lower	$(R_a) \rightarrow$ RTC register 15.0	—	NC	—
03	0	a	10	0C	a	8	ECR	Enable Clock	Enable RTC reg. (countup and interrupt)	—	NC	—
03	0	a	11	0C	a	9	DCR	Disable Clock	Disable RTC reg. (countup and interrupt)	—	NC	—
03	0	a	12	0C	a	A	LEM a	Load and Enable Mon. clock	$(R_a) \rightarrow$ Mon. clock reg. enable countdown and interrupt	—	NC	—
03	0	a	13	0C	a	B	DM	Disable Monitor clock	Disable Mon. clock reg. (countdown and interrupt)	—	NC	—
03	0	a	14	0C	a	C	LCRD a	Load and enable Clock Double	$(R_a, R_{a+1}) \rightarrow$ RTC, enable countup only	—	NC	—
03	0	a	15	0C	a	D	SCRD a	Store Clock Double	(RTC Register) $\rightarrow R_a, R_{a+1} 3, 5$	0	0	X
03	0	a	16	0C	a	E	ECIR	Enable Clock Interrupt	Enable RTC overflow interrupt	—	NC	—
03	0	a	17	0C	a	F	DCIR	Disable Clock Interrupt	Disable RTC overflow interrupt	—	NC	—
03	3	a	m	0F	a	m	LM $a_{x,y,m}$	Load multiple	$(Y, Y+m-3) \rightarrow R_a, R_m$	—	NC	—
# 04	0	a	00	10	a	0	SQR a	Square Root	$\sqrt{(R_a, R_{a+1}) \rightarrow R_{a+1}}; \text{Rem.} \rightarrow R_a 3$	0	X	X
04	0	a	01	10	a	1	RVV a	Reverse Register	Reverse (R_a)	0	0	X
04	0	a	02	10	a	2	CRT a	Count Ones	Number of binary ones in $R_a \rightarrow R_{a+1}$	—	NC	—
04	0	a	03	10	a	3	SFR a	Scale Factor	Shift (R_a, R_{a+1}) left until $(R_{a+1}) 5.3$ $\#(R_a) 14$; shift count $\rightarrow R_{a+2} 0$	—	NC	—
04	3	a	m	13	a	m	BLX $a_{x,y,m}$	Byte Load and index by 1	$(Y)_{byte} \rightarrow R_a; (R_{a+1}) \rightarrow R_m 0$	0	0	X
05	0	a	m	14	a	m	SBR $a_{x,m}$	Set Bit	$1 \rightarrow (R_m)$	0	0	X
05	1	a	m	15	a	m	LXI $a_{x,m}$	Load and index by 1 (Indirect)	$(Y^*) \rightarrow R_a; (R_{a+1}) \rightarrow R_m 0$	0	0	X
05	3	a	m	17	a	m	LX $a_{x,y,m}$	Load and index by 1	$(Y) \rightarrow R_a; (R_{a+1}) \rightarrow R_m 0$	0	0	X
06	0	a	m	18	a	m	ZBR $a_{x,m}$	Zero Bit	$0 \rightarrow (R_m)$	0	0	X
06	1	a	m	19	a	m	LDXI $a_{x,y,m}$	Load Double Index by 2 (Indirect)	$(Y^*, Y^*+1) \rightarrow R_a, R_{a+1}; 0, 2, 3, 4$	0	0	X
06	3	a	m	1B	a	m	LDX $a_{x,y,m}$	Load Double, index by 2	$(Y, Y+1) \rightarrow R_a, R_{a+1}; (R_{a+2}) \rightarrow R_m 0, 2, 3, 4$	0	0	X
07	0	a	m	1C	a	m	CBR $a_{x,m}$	Compare Bit	Test bit m of R_a for zero	0	0	X
07	1	00	m	1D	0	m	LPW	Load PSW (Indirect)	$(Y^*, Y^*+1, Y^*+2) \rightarrow P, SR1, SR2$ enable power fault interrupt	—	NA	—
07	3	00	m	1F	0	m	LPY m	Load PSW	$(Y, Y+1, Y+2) \rightarrow P, SR1, SR2$ enable power fault interrupt	—	NA	—
10	0	a	m	20	a	m	LRSR $a_{x,m}$	Logical Right Shift (Register)	Shift (R_a) right $(R_m) 15.0$ places, zero fill	0	0	X
10	2	a	m	22	a	m	LRS $a_{x,y,m}$	Logical Right Shift	Shift (R_a) right $(Y) 5.0$ places, zero fill	0	0	X
10	3	a	m	23	a	m	BS $a_{x,y,m}$	Byte Store	$(R_a) 7.0 \rightarrow Y_{byte}$	—	NC	—
11	0	a	m	24	a	m	ARSR $a_{x,m}$	Algebraic Right Shift (Register)	Shift (R_a) right $(R_m) 15.0$ places, sign fill	0	0	X
11	1	a	m	25	a	m	SI $a_{x,m}$	Store (Indirect)	$(R_a) \rightarrow Y^*$	—	NC	—
11	2	a	m	26	a	m	ARS $a_{x,y,m}$	Algebraic Right Shift	Shift (R_a) right $(Y) 5.0$ places, sign fill	0	0	X
11	3	a	m	27	a	m	S $a_{x,y,m}$	Store	$(R_a) \rightarrow Y$	—	NC	—
12	0	a	m	28	a	m	LRDR $a_{x,m}$	Logical Right Double shift (Register)	Shift (R_a, R_{a+1}) right $(R_m) 15.0$ places, zero fill 3	0	0	X
12	1	a	m	29	a	m	SDI $a_{x,m}$	Store Double (Indirect)	$(R_a, R_{a+1}) \rightarrow Y^*, Y^*+1 3$	—	NC	—
12	2	a	m	2A	a	m	LRO $a_{x,y,m}$	Logical Right Double shift	Shift (R_a, R_{a+1}) right $(Y) 5.0$ places, zero fill	0	0	X
12	3	a	m	2B	a	m	SD $a_{x,y,m}$	Store Double	$(R_a, R_{a+1}) \rightarrow Y, Y+1 3$	—	NC	—

Optional Math Pac Instructions 1 Count = 31 for all zeros or all ones. 2 if a # m 3 a,m,y must be even
4 if a # # m 5 cc set on Ra+1 only 6 if Class II interrupts enabled

OCIAL FORMAT OP a m	HEXIDECIMAL FORMAT OP a m	CODING FORMAT	INSTRUCTION	OPERATION	C OV CC
13 0 a m	2C a m	ARD a,m	Algebraic Right Double Shift	Shift (R_0, R_{2+1}) right $(R_m)_{15}$ g places, sign fill	0 0 X
13 2 a m	2E a m	ARD a,y,m	Algebraic Right Double Shift	Shift (R_0, R_{2+1}) right Y_5 g places, 0 fill	0 0 X
13 3 a m	2F a m	SM a,y,m	Store Multiple	$(R_0, \dots, R_m) \rightarrow Y, Y+m-4$ - NC	
14 0 a m	30 a m	ALSR a,m	Algebraic Left Shift (Register)	Shift (R_0) left $(R_m)_{15}$ g places, zero fill	0 0 X
14 2 a m	32 a m	ALS a,y,m	Algebraic Left Shift	Shift (R_0) left Y_5 g places, zero fill	0 0 X
14 3 a m	33 a m	BSL a,y,m	Byte Store, index by 1	$(R_0)_{15} \rightarrow Y_{15}; (R_m)_{15} \rightarrow R_m$ - NC	
15 0 a m	34 a m	CLSR a,m	Circular Left Shift (Register)	Shift (R_0, R_{2+1}) circularly left $(R_m)_{15}$ g places	0 0 X
15 1 a m	35 a m	SX a,y,m	Store index by 1 (Indirect)	$(R_0) \rightarrow Y'; (R_{2+1}) \rightarrow R_m$ - NC	
15 2 a m	36 a m	CLS a,y,m	Circular Left Shift	Shift (R_0) circularly left Y_5 g places	0 0 X
15 3 a m	37 a m	SX a,y,m	Store, index by 1	$(R_0) \rightarrow Y'; (R_{2+1}) \rightarrow R_m$ - NC	
16 0 a m	38 a m	ALDR a,m	Algebraic Left Double Shift (Register)	Shift (R_0, R_{2+1}) left $(R_m)_{15}$ g places, zero fill	0 0 X
16 1 a m	39 a m	SDXI a,m	Store Double index by 2 (Indirect)	Shift $(R_0, R_{2+1}) \rightarrow Y', Y'+1; (R_m)_{15} \rightarrow R_m/2-3$ - NC	
16 2 a m	3A a m	ALD a,y,m	Algebraic Left Double Shift	Shift (R_0, R_{2+1}) left Y_5 g places zero fill	0 0 X
16 3 a m	3B a m	SDX a,y,m	Store Double, index by 2	Shift $(R_0, R_{2+1}) \rightarrow (Y, Y+1); (R_m)_{15} \rightarrow R_m/2-3$ - NC	
17 0 a m	3C a m	CLDR a,m	Circular Left Double Shift	Shift (R_0, R_{2+1}) circularly left $(R_m)_{15}$ g places	0 0 X
17 1 00 m	3D 0 m	SZ 0 m	Store Zeros (Indirect)	$0 \rightarrow Y'$ - NC	
17 2 a m	3E a m	CLD a,y,m	Circular Left Double Shift	Shift (R_0, R_{2+1}) circularly left Y_5 g places	0 0 X
17 3 00 m	3F 0 m	SZ 0 y,m	Store Zeros	$0 \rightarrow Y$ - NC	
20 1 a m	40 a m	SUR a,m	Subtract (Register)	$(R_0) - (R_m) \rightarrow R_0$ X X X	
20 1 a m	41 a m	SUR a,y	Subtract (Indirect)	$(R_0) - (Y') \rightarrow R_0$ X X X	
20 2 a m	42 a m	SU a,y,m	Subtract (Constant)	$(R_0) - Y \rightarrow R_0$ X X X	
20 3 a m	43 a m	SU a,y,m	Subtract	$(R_0) - (Y) \rightarrow R_0$ X X X	
21 0 a m	44 a m	SDUR a,m	Subtract Double (Register)	$(R_0, R_{2+1}) - (R_m, R_{m+1}) \rightarrow R_0, R_{2+1}$ X X X	
21 1 a m	45 a m	SDU a,y	Subtract Double (Indirect)	$(R_0, R_{2+1}) - (Y', Y'+1) \rightarrow R_0, R_{2+1}$ X X X	
21 3 a m	47 a m	SDU a,y,m	Subtract Double	$(R_0, R_{2+1}) - (Y, Y+1) \rightarrow R_0, R_{2+1}$ X X X	
22 0 a m	48 a m	AR a,m	Add (Register)	$(R_0) + (R_m) \rightarrow R_0$ X X X	
22 1 a m	49 a m	AI a,m	Add (Indirect)	$(R_0) + (Y') \rightarrow R_0$ X X X	
22 2 a m	4A a m	AR a,y,m	Add (Constant)	$(R_0) + Y \rightarrow R_0$ X X X	
22 3 a m	4B a m	A a,y,m	Add	$(R_0) + (Y) \rightarrow R_0$ X X X	
23 0 a m	4C a m	ADR a,m	Add Double (Register)	$(R_0, R_{2+1}) + (R_m, R_{m+1}) \rightarrow R_0, R_{2+1}$ X X X	
23 1 a m	4D a m	AD a,y	Add Double (Indirect)	$(R_0, R_{2+1}) + (Y', Y'+1) \rightarrow R_0, R_{2+1}$ X X X	
23 3 a m	4F a m	AD a,y,m	Add Double	$(R_0, R_{2+1}) + (Y, Y+1) \rightarrow R_0, R_{2+1}$ X X X	
24 0 a m	50 a m	CR a,m	Compare (Register)	$(R_0) < (R_m)$ X X X	
24 1 a m	51 a m	CI a,m	Compare (Indirect)	$(R_0) < (Y')$ X X X	
24 2 a m	52 a m	CK a,y,m	Compare (Constant)	$(R_0) < Y$ X X X	
24 3 a m	53 a m	C a,y,m	Compare	$(R_0) < (Y)$ X X X	
25 0 a m	54 a m	CDR a,m	Compare Double (Register)	$(R_0, R_{2+1}) < (R_m, R_{m+1})$ X X X	
25 1 a m	55 a m	CDI a,m	Compare Double (Indirect)	$(R_0, R_{2+1}) < (Y', Y'+1)$ X X X	
25 3 a m	57 a m	CD a,y,m	Compare Double	$(R_0, R_{2+1}) < (Y, Y+1)$ X X X	
26 0 a m	58 a m	MR a,m	Multiply (Register)	$(R_{2+1}) \cdot (R_m) \rightarrow R_0, R_{2+1}$ X X X	
26 1 a m	59 a m	MI a,y	Multiply (Indirect)	$(R_{2+1}) \cdot (Y') \rightarrow R_0, R_{2+1}$ X X X	
26 2 a m	5A a m	MK a,y,m	Multiply (Constant)	$(R_{2+1}) \cdot Y \rightarrow R_0, R_{2+1}$ X X X	
26 3 a m	5B a m	M a,y,m	Multiply	$(R_{2+1}) \cdot (Y) \rightarrow R_0, R_{2+1}$ X X X	
27 0 a m	5C a m	DR a,m	Divide (Register)	$(R_0, R_{2+1}) / (R_m) \rightarrow R_{2+1}$; remainder $\rightarrow R_0$ X X X	
27 1 a m	5D a m	DI a,m	Divide (Indirect)	$(R_0, R_{2+1}) / (Y') \rightarrow R_{2+1}$; remainder $\rightarrow R_0$ X X X	
27 2 a m	5E a m	DK a,y,m	Divide (Constant)	$(R_0, R_{2+1}) / Y \rightarrow R_{2+1}$; remainder $\rightarrow R_0$ X X X	
27 3 a m	5F a m	D a,y,m	Divide	$(R_0, R_{2+1}) / (Y) \rightarrow R_{2+1}$; remainder $\rightarrow R_0$ X X X	
30 0 a m	60 a m	ANDR a,m	AND (Register)	$(R_0) \wedge (R_m) \rightarrow R_0$ 0 0 X	
30 1 a m	61 a m	ANDI a,m	AND (Indirect)	$(R_0) \wedge (Y') \rightarrow R_0$ 0 0 X	
30 2 a m	62 a m	ANDK a,y,m	AND (Constant)	$(R_0) \wedge Y \rightarrow R_0$ 0 0 X	
30 3 a m	63 a m	AND a,y,m	AND	$(R_0) \wedge (Y) \rightarrow R_0$ 0 0 X	
31 0 a m	64 a m	ORR a,m	OR (Register)	$(R_0) \vee (R_m) \rightarrow R_0$ 0 0 X	
31 1 a m	65 a m	ORR a,y	OR (Indirect)	$(R_0) \vee (Y') \rightarrow R_0$ 0 0 X	
31 2 a m	66 a m	ORK a,y,m	OR (Constant)	$(R_0) \vee Y \rightarrow R_0$ 0 0 X	
31 3 a m	67 a m	OR a,y,m	OR	$(R_0) \vee (Y) \rightarrow R_0$ 0 0 X	
32 0 a m	68 a m	XDRR a,m	Exclusive OR (Register)	$(R_0) \oplus (R_m) \rightarrow R_0$ 0 0 X	
32 1 a m	69 a m	XDRI a,m	Exclusive OR (Indirect)	$(R_0) \oplus (Y') \rightarrow R_0$ 0 0 X	
32 2 a m	6A a m	XDRK a,y,m	Exclusive OR (Constant)	$(R_0) \oplus Y \rightarrow R_0$ 0 0 X	
32 3 a m	6B a m	XDR a,y,m	Exclusive OR	$(R_0) \oplus (Y) \rightarrow R_0$ 0 0 X	
33 0 a m	6C a m	MSR a,m	Masked Substitute (Register)	$[(R_{2+1})_{15}] \cdot [(R_m)_{15} \rightarrow R_{2+1}]$ 0 0 X	
33 1 a m	6D a m	MSI a,y,m	Masked Substitute (Indirect)	$[(R_{2+1})_{15}] \cdot (Y') \rightarrow R_{2+1}$ 0 0 X	
33 2 a m	6E a m	MSK a,y,m	Masked Substitute (Constant)	$[(R_{2+1})_{15}] \cdot Y \rightarrow R_{2+1}$ 0 0 X	
33 3 a m	6F a m	MS a,y,m	Masked Substitute	$[(R_{2+1})_{15}] \cdot (Y) \rightarrow R_{2+1}$ 0 0 X	
34 0 a m	70 a m	CMR a,m	Compare Masked (Register)	$[(R_0) \wedge (R_{2+1})] : [(R_m) \wedge (R_{2+1})]$ 0 0 X	

② if a m ③ a,y,m,y must be even

OCIAL FORMAT OP a m	HEXIDECIMAL FORMAT OP a m	CODING FORMAT	INSTRUCTION	OPERATION	C OV CC
34 2 a m	71 a m	CM a,y,m	Compare Masked (Indirect)	$[(R_0) \wedge (R_{2+1})] : [(Y') \wedge (R_{2+1})]$ 0 0 X	
34 3 a m	72 a m	CMK a,y,m	Compare Masked (Constant)	$[(R_0) \wedge (R_{2+1})] : (Y \wedge (R_{2+1}))$ 0 0 X	
35 0 00	73 a m	CM a,y,m	Compare Masked	$[(R_0) \wedge (R_{2+1})] : [(Y) \wedge (R_{2+1})]$ 0 0 X	
35 1 00	74 a m	IDCR	Input/Output Command	Execute (0140) - 0 - 0140,15,14 - NC	
35 2 00	75 a m	BFI m	Bit Field Extract (Indirect)	$(Y') \rightarrow CC; 1 \rightarrow Y'_{15}, 14$ 0 0 X	
35 3 00	76 a m	REX a,y,m	Execute	$(Y) \rightarrow CC; 1 \rightarrow Y'_{15}, 14$ 0 0 X	
#37 0 a m	7C a m	0	See page 6	Bit Field Extract	$(Y) \rightarrow CC; 1 \rightarrow Y'_{15}, 14$ 0 0 X
#37 0 a 010	7C a 8	FC a,y	Floating Point Compare	Trap & Hyperbolic Floating Point Compare (7, R, Ra+1); (Y, Y+1)	0 0 X
#37 0 a 011	7C a 9	FXC a	Fixed to Floating Point Conversion	Form Normalized Floating Point number in R_0 , R_{2+1} and the binary exponent in R_3 and integer mantissa in R_{2+1} (2's complement)	X X X
#37 0 a 012	7C a A	FLC a	Floating Point to Fixed Conversion	Unpack Floating Point number in R_0, R_{2+1} into binary exponent in R_3 and integer mantissa into R_{2+1}	0 0 X
#37 0 a 013	7C a B	NF a	Floating Point Normalize	Normalize the Floating Point number in R_0 and R_{2+1}	X X X
#37 0 a 016	7C a E	OAL a,y	Algebraic Left Quadruple Shift	Shift $(R_0, R_{2+1}, R_{2+2}, R_{2+3})$ left Y_5 g places, zero fill	0 0 X
#37 0 a 017	7C a F	OAR a,y	Algebraic Right Quadruple Shift	Shift $(R_0, R_{2+1}, R_{2+2}, R_{2+3})$ right Y_5 g places, sign fill	0 0 X
40 0 00 m	80 0 m	JER m	Jump Equal	If CC indicates = or D, $(R_m) \rightarrow P$ - NC	
40 0 01 m	80 1 m	JNER m	Jump Not Equal	If CC indicates = or not D, $(R_m) \rightarrow P$ - NC	
40 0 02 m	80 2 m	JGER m	Jump Greater or Equal	If CC indicates \geq or =, $(R_m) \rightarrow P$ - NC	
40 0 03 m	80 3 m	JLGR m	Jump Less or Equal	If CC indicates \leq or =, $(R_m) \rightarrow P$ - NC	
40 0 04 m	80 4 m	JOR m	Jump Overflow	If overflow set, $(R_m) \rightarrow P$ - NC	
40 0 05 m	80 5 m	JCR m	Jump Carry	If carry set, $(R_m) \rightarrow P$ - NC	
40 0 06 m	80 6 m	JPR m	Jump Power out of Tolerance	If power out of tolerance, $(R_m) \rightarrow P$ - NC	
40 0 07 m	80 7 m	JBR m	Jump Bootstrap 2 selected	If bootstrap 2 selected, $(R_m) \rightarrow P$ - NC	
40 0 10 m	80 8 m	JR m	Jump	Stop; $(R_m) \rightarrow P$ - NC	
40 0 11 m	80 9 m	JSR m	Jump after Stop	If key 1 set, stop, $(R_m) \rightarrow P$ - NC	
40 0 12 m	80 A m	JKSR 1,m	Jump. If Key Set - Stop, then jump (Register)	If key 1 set, stop, $(R_m) \rightarrow P$ - NC	
40 0 13 m	80 B m	JKSR 2,m	Jump. If Key Set - Stop, then jump (Register)	If key 2 set, stop, $(R_m) \rightarrow P$ - NC	
40 1 0 d	81 d	LJ d	Local Jump	$(P) \rightarrow D \rightarrow P$ - NC	
40 2 00 m	82 0 m	JE a,y,m	Jump Equal	If CC indicates = or D, $Y \rightarrow P$ - NC	
40 2 01 m	82 1 m	JNE a,y,m	Jump Not Equal	If CC indicates = or not D, $Y \rightarrow P$ - NC	
40 2 02 m	82 2 m	JGE a,y,m	Jump Greater than or Equal	If CC indicates \geq or =, $Y \rightarrow P$ - NC	
40 2 03 m	82 3 m	JLE a,y,m	Jump Less	If CC indicates \leq or =, $Y \rightarrow P$ - NC	
40 2 04 m	82 4 m	JD a,y,m	Jump on Overflow	If overflow set, $Y \rightarrow P$ - NC	
40 2 05 m	82 5 m	JC a,y,m	Jump on Carry	If carry set, $Y \rightarrow P$ - NC	
40 2 06 m	82 6 m	JPT a,y,m	Jump if Power out of Tolerance	If power out of tolerance, $Y \rightarrow P$ - NC	
40 2 07 m	82 7 m	JB a,y,m	Jump if Bootstrap 2 selected	If bootstrap 2 selected, $Y \rightarrow P$ - NC	
40 2 10 m	82 8 m	JY a,y,m	Jump	$Y \rightarrow P$ - NC	
40 2 11 m	82 9 m	JS a,y,m	Jump after Stop	Stop; $Y \rightarrow P$ - NC	
40 2 12 m	82 A m	JKS 1,y,m	Jump. If Key Set - Stop, then jump (Register)	If key 1 set, stop, $Y \rightarrow P$ - NC	
40 2 13 m	82 B m	JKS 2,y,m	Jump. If Key Set - Stop, then jump (Register)	If key 2 set, stop, $Y \rightarrow P$ - NC	
40 3 00 m	83 0 m	JL a,y,m	Jump Equal	If CC indicates = or D, $(Y) \rightarrow P$ - NC	
40 3 01 m	83 1 m	JNE a,y,m	Jump Not Equal	If CC indicates = or not D, $(Y) \rightarrow P$ - NC	
40 3 02 m	83 2 m	JGE a,y,m	Jump Greater or Equal	If CC indicates \geq or =, $(Y) \rightarrow P$ - NC	
40 3 03 m	83 3 m	JLE a,y,m	Jump Less	If CC indicates \leq or =, $(Y) \rightarrow P$ - NC	
40 3 04 m	83 4 m	JO a,y,m	Jump on Overflow	If overflow set, $(Y) \rightarrow P$ - NC	
40 3 05 m	83 5 m	JC a,y,m	Jump on Carry	If carry set, $(Y) \rightarrow P$ - NC	
40 3 06 m	83 6 m	JPT a,y,m	Jump if Power out of Tolerance	If power out of tolerance, $(Y) \rightarrow P$ - NC	
40 3 07 m	83 7 m	JB a,y,m	Jump if Bootstrap 2 selected	If bootstrap 2 selected, $(Y) \rightarrow P$ - NC	
40 3 10 m	83 8 m	JY a,y,m	Jump	$Y \rightarrow P$ - NC	
40 3 11 m	83 9 m	JS a,y,m	Jump after Stop	Stop; $(Y) \rightarrow P$ - NC	
40 3 12 m	83 A m	JKS 1',y,m	Jump. If Key Set - Stop, then jump	If key 1 set, stop, $(Y) \rightarrow P$ - NC	
40 3 13 m	83 B m	JKS 2',y,m	Jump. If Key Set - Stop, then jump	If key 2 set, stop, $(Y) \rightarrow P$ - NC	
41 0 a m	84 a m	XJR a,m	Index Jump Register	If $(R_0) \neq 0$, $(R_0) - 1 \rightarrow R_0$, $(R_m) \rightarrow P$ - NC	
41 1 2 a m	85 d	LJ d	Local Jump (Indirect)	$(P) \rightarrow D \rightarrow P$ - NC	
41 2 a m	86 a m	XJ a,y,m	Index Jump	$(R_0) \neq 0$, $(R_0) - 1 \rightarrow R_0$, $Y \rightarrow P$ - NC	
41 3 a m	87 a m	XJ a,y,m	Index Jump	If $(R_0) \neq 0$, $(R_0) - 1 \rightarrow R_0$, $(Y) \rightarrow P$ - NC	

≠ Optional Math Pac Instruction

③ a,y,m,y must be even

⑦ cannot be executed via execute remote

⑧ operands must be normalized

OCTAL FORMAT o f a m	HEXIDECIMAL FORMAT OP a m	CODING FORMAT	INSTRUCTION	OPERATION	C OV CC
42 0 a m	88 a m	JLRR,a,m	Jump Link Register (Register)	$(P) + 1 - R_0, (Rm) - P$	- NC -
42 2 a m	8A a m	JLR,a,y,m	Jump Link Register	$(P) + 2 - R_0, (Rm) - P$	- NC -
42 3 a m	8B a m	JLR,a,y,m	Jump Link Register	$(P) + 2 - R_0, (Y) - P$	- NC -
43 1 d	8D d	JLJM,d	Local Jump Link Memory	$(P) + 1 - (P) + D, (P) + D + 1 - P$	- NC -
43 2 a m	8E 0 m	JLM,y,m	Jump Link Memory	$(P) + 1 - Y, (Y) + 1 - P$	- NC -
43 3 00 m	8F 0 m	JLM,y,m	Jump Link Memory	$(P) + 2 - (Y), (Y) + 1 - P$	- NC -
44 0 a m	90 a m	JZR,a	Jump Zero (Register)	$(R)_0 = 0; (Rm) - P$	- NC -
44 1 d	91 d	LJE,d	Local Jump Equal	IF CC indicators = 0; $(P) + D - P$	- NC -
44 2 a m	92 a m	JZ,a,y,m	Jump Zero	$(R)_0 = 0; (Y) - P$	- NC -
44 3 a m	93 a m	JZ,a,y,m	Jump Zero	$(R)_0 = 0; (Y) - P$	- NC -
45 0 a m	94 a m	JNZR,a,m	Jump Not Zero (Register)	$(R)_0 \neq 0; (Rm) - P$	- NC -
45 1 d	95 d	LJNE,d	Local Jump Not Equal	IF CC indicators for not 0; $(P) + D - P$	- NC -
45 2 a m	96 a m	JNZ,a,y,m	Jump Not Zero	$(R)_0 \neq 0; (Y) - P$	- NC -
45 3 a m	97 a m	JNZ,a,y,m	Jump Not Zero	$(R)_0 \neq 0; (Y) - P$	- NC -
46 0 a m	98 a m	JPSI,a,m	Jump Positive (Register)	IF $(R)_0 > 0; (Rm) - P$	- NC -
46 1 d	99 d	LJGE,d	Local Jump Greater or Equal	IF CC indicators \geq or +; $(P) + D - P$	- NC -
46 2 a m	9A a m	JPA,y,m	Jump Positive	IF $(R)_0 > 0; (Y) - P$	- NC -
46 3 a m	9B a m	JPA,y,m	Jump Positive	IF $(R)_0 > 0; (Y) - P$	- NC -
47 0 a m	9C a m	JNJR,a,m	Jump Negative (Register)	IF $(R)_0 < 0; (Rm) - P$	- NC -
47 1 d	9D d	LJLS,d	Local Jump Less	IF CC indicators $<$ or -; $(P) + D - P$	- NC -
47 2 a m	9E a m	JN,a,y,m	Jump Negative	IF $(R)_0 < 0; (Y) - P$	- NC -
47 3 a m	9F a m	JN,a,y,m	Jump Negative	IF $(R)_0 < 0; (Y) - P$	- NC -
#50 0 a m	A0 a m	FSUR,a,m	Floating point subtract (Register)	$(R_0, R_{n+1}) - (Rm, Rm+1) - R_0$ $R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#50 1 a m	A1 a m	FSUI,a,m	Floating point Subtract (Indirect)	$(R_0, R_{n+1}) - (Y, Y+1) - R_0, R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#50 3 a m	A3 a m	FSU,a,y,m	Floating point Subtract	$(R_0, R_{n+1}) - (Y, Y+1) - R_0, R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#51 0 a m	A4 a m	FAR,a,m	Floating point Add (Register)	$(R_0, R_{n+1}) + (Rm, Rm+1) - R_0$ $R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#51 1 a m	A5 a m	FAl,a,m	Floating point Add (Indirect)	$(R_0, R_{n+1}) + (Y, Y+1) - R_0, R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#51 3 a m	A7 a m	FA,a,y,m	Floating point Add	$(R_0, R_{n+1}) + (Y, Y+1) - R_0, R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#52 0 a m	A8 a m	FMR,a,m	Floating point Multiply (Register)	$(R_0, R_{n+1}) \times (Rm, Rm+1) - R_0$ $R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#52 1 a m	A9 a m	FMI,a,m	Floating point Multiply (Indirect)	$(R_0, R_{n+1}) \times (Y, Y+1) - R_0, R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#52 3 a m	AB a m	FM,a,y,m	Floating point Multiply	$(R_0, R_{n+1}) \times (Y, Y+1) - R_0, R_{n+1}; Res. - R_{n+2}, R_{n+3}$	X X X
#53 0 a m	AC a m	FDR,a,m	Floating point Divide (Register)	$(R_0, R_{n+1}) / (Rm, Rm+1) - R_0$ $R_{n+1}; Rem. - R_{n+2}, R_{n+3}$	X X X
#53 1 a m	AD a m	FDI,a,m	Floating point Divide (Indirect)	$(R_0, R_{n+1}) / (Y, Y+1) - R_0, R_{n+1}; Rem. - R_{n+2}, R_{n+3}$	X X X
#53 3 a m	AF a m	FD,a,y,m	Floating point Divide	$(R_0, R_{n+1}) / (Y, Y+1) - R_0, R_{n+1}; Rem. - R_{n+2}, R_{n+3}$	X X X
*54 0 a m	80 a m	LARR,a,m	Load Address Register (Register)	$(Rm) \rightarrow AR_0$ SEE LEGEND	- NC -
*54 1 a m	B1 a m	LARI,a,m	Load Address Register (Indirect)	$(Y) \rightarrow AR_0$	- NC -
*54 3 a m	83 a m	LARM,a,y,m	Load Address Register Multiple	$(Y, \dots, Y+u) \rightarrow AR_0, \dots, AR_7+u$	- NC -
*55 0 a m	B4 a m	SARR,a,m	Store Address Register (Register)	$(AR)_i \rightarrow R_m$	- NC -
55 1 a m	B5 a m	SARI,a,m	Store Address Register (Indirect)	$(AR)_i \rightarrow Y^$	- NC -
55 3 a m	B7 a m	SARM,a,y,m	Store Address Register Multiple	$(AR)_i, \dots, AR_7+u \rightarrow Y^, \dots, Y^*+u$	- NC -
#56 0 a m	B8 a m	MDR,a,m	Multiply Double (Register)	$(R_0, R_{n+1}) \times (Rm, Rm+1) - R_0$ $R_{n+1}, R_{n+2}, R_{n+3}$	0 0 X
#56 1 a m	B9 a m	MDI,a,m	Multiply Double (Indirect)	$(R_0, R_{n+1}) \times (Y, Y+1) - R_0$ $R_{n+1}, R_{n+2}, R_{n+3}$	0 0 X
#56 3 a m	B6 a m	MD,a,y,m	Multiply Double	$(R_0, R_{n+1}) \times (Y, Y+1) - R_0, R_{n+1}, R_{n+2}, R_{n+3}$	0 0 X
#57 0 a m	8C a m	DDR,a,m	Divide Double (Register)	$(R_0, R_{n+1}, R_{n+2}, R_{n+3}) / (Rm, Rm+1) - R_{n+2}, R_{n+3}; Rem. - R_0, R_{n+1}$	0 0 X
#57 1 a m	8D a m	DDI,a,m	Divide Double (Indirect)	$(R_0, R_{n+1}, R_{n+2}, R_{n+3}) / (Y, Y+1) - R_{n+2}, R_{n+3}; Rem. - R_0, R_{n+1}$	0 0 X
#57 3 a m	8F a m	DD,a,y,m	Divide Double	$(R_0, R_{n+1}, R_{n+2}, R_{n+3}) / (Y, Y+1) - R_{n+2}, R_{n+3}; Rem. - R_0, R_{n+1}$	0 0 X
60 0 a m	C0 a m	LLRS,a,m	Literal Logical Right Shift	Shift (R_0) right m places, zero fill	0 0 X
C1 a m	C1 a m	LLAS,a,m	Literal Algebraic Right Shift	Shift (R_0) right m places, zero fill	0 0 X
60 2 a m	C2 a m	LLRD,a,m	Literal Logical Right Double shift	Shift (R_0, R_{n+1}) right m places, zero fill	0 0 X

Optional Math Pac Instructions 3 a,m,y must be even

*See Expanded Memory Legend

OCTAL FORMAT o f a m	HEXIDECIMAL FORMAT OP a m	CODING FORMAT	INSTRUCTION	OPERATION	C OV CC
60 3 a m	C3 a m	LARD,a,m	Literal Algebraic Right Double Shift	Shift (R_0, R_{n+1}) right m places, zero fill	0 0 X
61 0 a m	C4 a m	LALS,a,m	Literal Algebraic Left Shift	Shift (R_0) left m places, zero fill	0 0 X
61 1 a m	C5 a m	LCLS,a,m	Literal Circular Left Shift	Shift (R_0) left circular m places, zero fill	0 0 X
61 2 a m	C6 a m	LALD,a,m	Literal Algebraic Left Double Shift	Shift (R_0, R_{n+1}) left m places, zero fill	0 0 X
61 3 a m	C7 a m	LCLO,a,m	Literal Circular Left Double Shift	Shift (R_0, R_{n+1}) left circular m places	0 0 X
62 0 a m	C8 a m	LSU,a,m	Literal Subtract	$(R)_m - R_n$	X X X
62 1 a m	C9 a m	LSUD,a,m	Literal Subtract Double	$(R)_m - R_n - R_{n+1}$	X X X
62 2 a m	CA a m	LA,a,m	Literal Add	$(R)_m + R_n$	X X X
62 3 a m	CB a m	LAD,a,m	Literal Add Double	$(R)_m + R_n - R_{n+1}$	X X X
63 0 a m	CC a m	LLC,a,m	Literal Load	$R_n \rightarrow R_m$	0 0 X
63 1 a m	CD a m	LC,a,m	Literal Compare	$(R)_m - R_n$	X X X
63 2 a m	CE a m	LMUL,a,m	Literal Multiply	$(R)_m \times R_n - R_{n+1}$	0 0 X
63 3 a m	CF a m	LODV,a,m	Literal Divide	$(R)_m / R_n - R_{n+1}$	0 0 X
64 3 a m	D3 a m	BSU,a,y,m	Byte Shift	$(R)_m \rightarrow R_n$	X X X
65 3 a m	D7 a m	BA,a,y,m	Byte Subtract	$(R)_m - (Y) \text{ byte} - R_n$	X X X
66 3 a m	D8 a m	BC,a,y,m	Byte Compare	$(R)_m \times (Y) \text{ byte}$	X X X
67 0 a m	DC a m	UMI,a,m	User Macro - CP	Reserved for User Macro	-NA-
67 1 a m	DD a m	UMI,a,m	User Macro - CP	Reserved for User Macro	-NA-
67 2 a m	DE a m	UMK,a,y,m	User Macro - CP	Reserved for User Macro	-NA-
67 3 a m	DF a m	BCX,a,y,m	Byte Compare and Index By 1	$(R)_i \times (Y) \text{ byte}; (R)_m + 1 - R_m$	X X X
COMMAND/CHAIN INSTRUCTION					
70 0 0 0 0	E0 0 0	ACR0	Channel Control	Master clear all channels	
70 0 0 0 4	E0 4	ACR 4	Channel Control	Enable external interrupts, all channels	
70 0 0 0 5	E0 5	ACR 5	Channel Control	Disable external interrupts, all channels	
70 0 0 0 6	E0 6	ACR 6	Channel Control	Enable Class III, Priority 2, 3, 4 interrupts	
70 0 0 0 7	E0 7	ACR 7	Channel Control	Disable Class III, Priority 2, 3, 4 interrupts	
70 0 0 1 0	E0 8	CCR,0,10	Channel Control	Master clear ch. x	
70 0 0 1 4	E0 4	CCR,4,14	Channel Control	Enable ch. x external interrupts	
70 0 0 1 5	E0 5	CCR,5,15	Channel Control	Disable ch. x external interrupts	
70 0 0 1 6	E0 6	CCR,6,16	Channel Control	Enable ch. x Class III, Priority 2, 3, 4 interrupts	
70 0 0 1 7	E0 7	CCR,7,17	Channel Control	Disable ch. x Class III, Priority 2, 3, 4 interrupts	
72 0 a m			User Macro - I/O	Reserved for User Macro	
72 1 a m			User Macro - I/O	Reserved for User Macro	
COMMAND INSTRUCTION					
71 2 a 02	E6 a 2	ICK,a,y	Initiate Input Chain	Y - Channel A Chain Pointer; initiate input chain	
71 2 a 06	E6 a 6	OCK,a,y	Initiate Output Chain	Y - Channel A Chain Pointer; initiate output chain	
71 3 a 3 m	E7 a m	WIM,a,y,m	Write Control Memory	Chan. a (CM _n - CM ₇)	See I/O
72 3 a m	E8 a m	RIM,a,y,m	Read Control Memory	Chan. a (CM _n - CM ₇)	Page 9
76 0 a m	F8 a m	RCM,a,y	Serial Interface Control	Set or clear ch. a I/O discrete function	
76 3 a 00	F8 a m	SST,a	Channel Serial Status	Channel A Serial Status bits - Y per Page 10	
CHAIN INSTRUCTION					
70 3 0 0 0 0	E3 0 0	IO 0,y	Input Data	$(Y, Y+1) - \text{BWC, BAP; initiate transfer}$	
70 3 0 1 0 0	E3 1 0	IO 1,y	Output Data	$(Y, Y+1) - \text{BWC, BAP; initiate transfer}$	
70 3 0 2 0 0	E3 2 0	IO 2,y	External Function	$(Y, Y+1) - \text{BWC, BAP; initiate transfer}$	
70 3 0 3 0 0	E3 3 0	IO 3,y	Force External Function	$(Y, Y+1) - \text{BWC, BAP; initiate transfer}$	
71 2 0 0 0 0	E6 0 0	LCM,m,y	Local Control Memory	Y - CM _n (See I/O Memory) initiate input chain, m = 2	
71 2 0 0 0 1	E7 0 0	LCM,m,y	Local Control Memory	$(Y) - CM_n$ (See I/O Memory)	
72 3 0 0 0 0	E8 0 0	SCM,m,y	Store Control Memory	$CM_n - Y$ (See I/O Memory)	
73 0 0 0 0 0 0	EC 0 0	HCR	Half Chaining		
73 0 0 1 0 0 0	EC 1 0	IPR	Interrupt Processor	Generate chain interrupt	
73 0 0 1 0 0 1	EC 1 1	IFR	Zero Flag	0 - Y, 15, 14	
73 0 0 1 0 0 2	EC 2 0	SF,y	Set Flag	1 - Y, 15, 14	
74 2 0 0 0 0 0	F2 0 0	SJMC,0	Serial Jump on Met Condition	Unconditional Y - CAP	
74 2 0 1 0 0 0	F2 1 0	SJMC,1,y	Serial Jump on Met Condition	IF flag status not set, Y - CAP	
74 2 0 2 0 0 0	F2 2 0	SJMC,2,y	Serial Jump on Met Condition	IF monitor flag set, Y - CAP	
76 0 0 0 0 0 0	F4 0 0	SFSC,m	Search For Sync	Perform functions assigned to m-bits per Page 10	
76 0 0 0 0 0 1	F4 0 1	SFSC,m	Search For Sync	Set or clear discrete function per Page 10	
76 0 0 0 0 0 0	F8 0 0	CSST,y	Store Serial Status	Serial Status bits - Y; See Page 10	

3 a,m,y must be even

TRIGONOMETRIC AND HYPERBOLIC FUNCTIONS
(Operation Code 37)

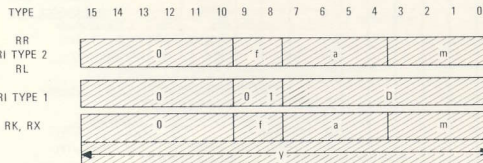
x, y Cartesian coordinates. Radix point assumed to be the same
 θ Angle of rotation Trigonometric mode (BAMS) Bit 15 = 180°
 θ Angle of rotation Hyperbolic mode Radix point assumed between bits 15 and 14
 $0.46672g$
 $1.15217g$

Note: 0 results are ±1 LSB

CODING FORMAT	FUNCTION	INPUT PARAMETERS		OUTPUT RESULTS	
		R_{g+1}	R_{g+2}	$Y \rightarrow R_g$	$W \rightarrow R_{g+2}$
37 0 a 00	Vf a Trigonometric vector	x	0	0	$W = R_{g+2}$ $W = \theta = \tan^{-1} \frac{y}{x}$
37 0 a 01	RF a Trigonometric rotate	x	θ	$Y = \frac{y \cos \theta + x \sin \theta}{K}$	$W = \theta = \tan^{-1} \frac{y}{x}$ $W = \theta = \tan^{-1} \frac{Y}{X}$
37 0 a 02	VFP a Trig. vector with prescale	x	0	0	$W = \theta = \tan^{-1} \frac{y}{x}$
37 0 a 03	RFP a Trig. rotate with prescale	x	θ	$Y = \frac{y \cos \theta + x \sin \theta}{K}$	$W = \theta = \tan^{-1} \frac{y}{x}$ $W = \theta = \tan^{-1} \frac{Y}{X}$
37 0 a 04	VH a Hyperbolic vector	x	0	0	$W = v = \tanh^{-1} \frac{y}{x}$
37 0 a 05	RH a Hyperbolic rotate	x	v	$Y = \frac{y \cosh v + x \sinh v}{K}$	$W = v = \tanh^{-1} \frac{y}{x}$ $W = v = \tanh^{-1} \frac{Y}{X}$
37 0 a 06	VHP a Hyp. vector with postscale	x	0	0	$W = v = \tanh^{-1} \frac{y}{x}$
37 0 a 07	RHP a Hyp. rotate with postscale	x	v	$Y = \frac{y \cosh v + x \sinh v}{K}$	$W = v = \tanh^{-1} \frac{y}{x}$ $W = v = \tanh^{-1} \frac{Y}{X}$
37 0 a 01	RF a Sin θ ; Cos θ	0	0.46672g	$Y = \sin \theta$	$X = \frac{x \cosh v + y \sinh v}{K}$ $W = v = \tanh^{-1} \frac{y}{x}$
37 0 a 03	RFP a Sin θ ; Cos θ	0	1	$Y = \sin \theta$	$X = \cos \theta$ $W = 0$
37 0 a 01	RF a Polar to Cartesian without prescale	0	R	$Y = \frac{R \sin \theta}{K}$	$X = \frac{R \cos \theta}{K}$ $W = 0$
37 0 a 03	RFP a Polar to Cartesian with prescale	0	R	$Y = R \sin \theta$	$X = R \cos \theta$ $W = 0$
37 0 a 06	VHP a Log _e x	x-1	x+1	0	$W = 1/2 \log_e x = \tanh^{-1} \frac{x-1}{x+1}$
37 0 a 07	RHP a Exponential	1	v	$Y = e^v = \cosh v + \sinh v$	$X = e^v = \cosh v + \sinh v$ $W = 0$

Optional Math Pac Instructions

INSTRUCTION WORD FORMAT



DEFINITION OF FIELDS

- 0 Operation (Function) Code
 f Format Designator
 00 → Format RR, Register to Register or RL-1 Format
 01 → Format RI, Register Indirect Memory or RL-2 Format
 10 → Format RK, Register-Literal Constant or RL-3 Format
 11 → Format RX, Register-Indexed Address, Constant or RL-4 Format
 a General Register or Subfunction Designator
 m General Register or Subfunction Designator
 4-bit Unsigned Literal Constant in RL Format
 D Signed Deviation Value (Two's Complement)
 y Address or Arithmetic Constant

LEGEND

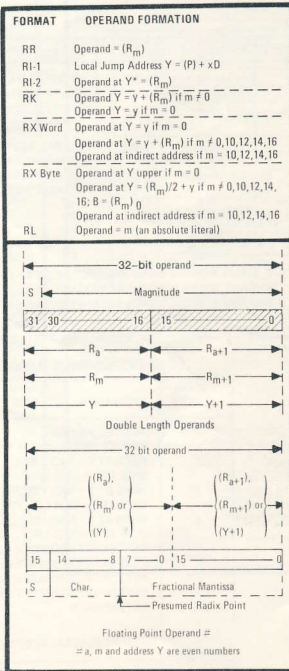
- B Byte pointer, 0 → Upper, 1 → Lower
 C Carry
 CC Condition Code
 OV Overflow
 IW Indirect Word
 J Designator Field in IW
 x General Register Designator in IW1
 Y Contents of Second Instruction Word or IW2
 Y Effective Operand Address or Constant
 Y* Effective Operand Address in R_m
 TM I/O Transfer Mode
 00 - Abort Input Transfer
 01 - 6-bit Byte Transfer
 10 - 16-bit Word Transfer
 11 - 32-bit Dual Word Transfer
 BWC Buffer Word Count*
 BAP Buffer Address Pointer
 CM Control Memory Word
 CAP Chain Address Pointer
 RTC Real-Time Clock
 () Contents of register or address
 r (R_0) 5-0
 u (R_0) 13-8 } AN/UYK-20
 v (R_0) 7-0 } AN/UYK-20A
 u (R_0) 15-8 }
 : Compare
 : 2's Complement

PAGE SETS SR 1 Bits 5-4

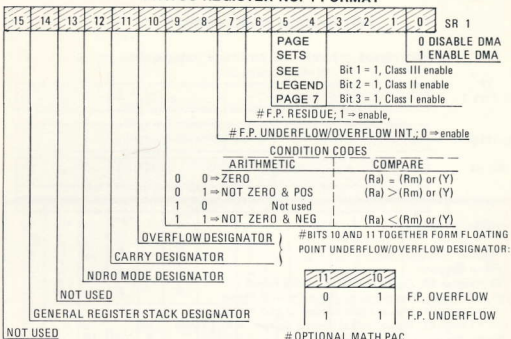
- 00 Page Set 0
 01 Page Set 1
 10 Page Set 2
 11 Page Set 3

OR	XDR	AND
V 0 1	V 0 1	Δ 0 1
0 0 1	0 0 1	0 0 0
1 1 1	1 1 0	1 0 1

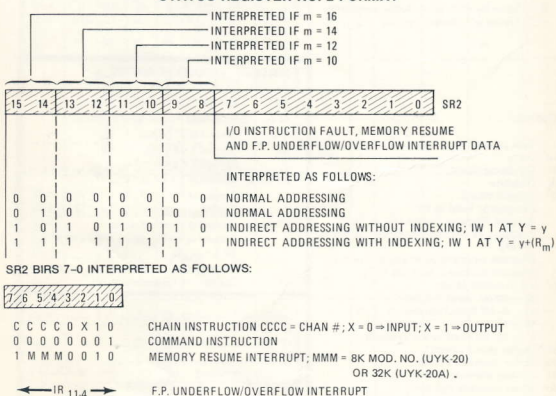
*NOTE: If BWC = zero (0000), indicates the maximum number of transfers (4096)



STATUS REGISTER NO. 1 FORMAT



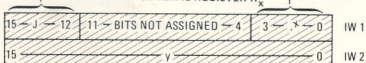
STATUS REGISTER NO. 2 FORMAT



INDIRECT ADDRESSING

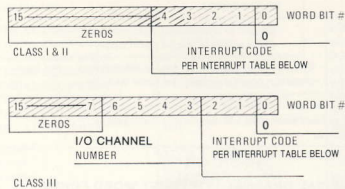
OCTAL J VALUE	OPERAND/IW1, LOCATION
0	WORD AT Y = (IW2)
1	BYTE AT UPPER HALF OF Y = (IW2)
2	WORD AT Y = (IW2) + (R _m)
3	BYTE AT Y = (IW2) + (R _m)/2
4	WORD AT Y = (IW2) + (R _m)*2
5	WORD AT Y = (IW2) + (R _m + 1)
6	BYTE AT Y = (IW2) + (R _m + 1)/2
7	NEXT IW 1 AT ADDRESS Y = (IW2)
4	NEXT IW 1 AT ADDRESS Y = (IW2) + (R _m)
5	NEXT IW 1 AT ADDRESS Y = (IW2) + (R _m + 1)
6	NEXT IW 1 AT ADDRESS Y = (IW2) + (R _m)*2
7	NEXT IW 1 AT ADDRESS Y = (IW2) + (R _m)/2
10-17	NOT ASSIGNED

SPECIFIES GENERAL REGISTER R_m



* B = LSB of register

INTERRUPT ENTRANCE ADDRESS INDEX



ASSIGNED MEMORY ADDRESS

Function	Address Assignment to Class		
	III	II	I
Store P addresses	110	120	130
Store SR # 1 addresses	111	121	131
Store SR # 2 addresses	112	122	132
Store RTC lower addresses	113	123	133
P Reload addresses	114	124	134
SR # 1 Reload addresses	115	125	135
SR # 2 Reload addresses	116	126	136
Store RTC upper addresses	117	127	137
T/I/O Command cells	140-141		
Auto start entrance	177		
External interrupt word storage	200-217		
NDRO	00-77, 300-477		

INTERRUPT PRIORITY

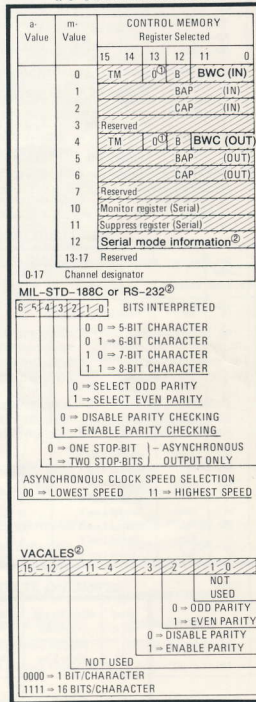
Class	Priority Within Class	Interrupt	Binary
			Interrupt Code Generated
Class I, Hardware Errors	1	Power Fault	0000
	2	Memory Resume	0001
Class II, Software Interrupts	1	CP Instruction Fault	0000
	2	I/O Instruction Fault	0001
	3	# F.P. Overflow/Underflow Interrupt	0010
	4	Executive Return Instruction	0011
Class III, I/O Interrupts	5	RTC Overflow	0100
	6	Monitor Clock	0101
	7	Write Protect (20A Only)	1100
	1	Intercomputer Time Out	11
	2	External Interrupt or Discrete Interrupt *	00
	3	Output Chain Interrupt	10
	4	Input Chain Interrupt	01

* Serial MIL-STD-188C, VACALEs, or EIA-STD-RS-232C Channels ≠ Optional Math Pac function

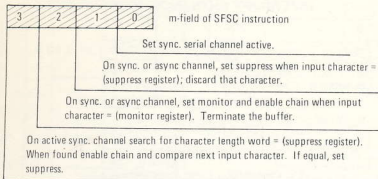
AN/UYK-20A ONLY^①

CM ₂ 13	CHANNEL NUMBER	PAGE SET
0	N/A	00
1	0 - 7 ₆	10
1	10 - 17 ₆	11

I/O CONTROL MEMORY



SFSC OPERATIONS



Bits 2 and 3 used for VACALES "Search for Sync"

SERIAL CHANNEL INTERRUPT WORD FORMAT

BITS	MIL-STD-188	RS-232	VACALES
0-7	ALWAYS ONES	ALWAYS ONES	ALWAYS ONES
8	1 → B DISCRETE TURNED ON	1 → RING INDICATOR ON	1 → B DISCRETE TURNED ON
9	1 → C DISCRETE TURNED OFF	1 → RECEIVED LINE SIGNAL DETECTOR OFF	1 → CARRIER DETECT TURNED OFF
10	1 → I DISCRETE TURNED ON	1 → I DISCRETE TURNED ON	1 → ALARM INDICATE TURNED ON
11	ALWAYS ONE	ALWAYS ONE	1 → SYNC ERROR TURNED ON
12	ALWAYS ONE	ALWAYS ONE	1 → TRANSMIT FULL ON TURNED OFF
13-15	ALWAYS ONES	ALWAYS ONES	ALWAYS ONES

SERIAL I/O DISCRETE FUNCTIONS

Octal m-Value	Function	MIL-STD-188C/VACALES		EIA-STD-RS232		
		Discrete	Line Designator (188C)	Line Designator (Vacalet)	Discrete	Line Designator
0	Set	Loop test (internal)	—	—	Loop test (internal)	—
1	Clear	Loop test (internal)	—	—	Loop test (internal)	—
2	NoOp	Not used	—	—	Spare	—
3	NoOp	Not used	—	—	Spare	—
4	Set	Control Line 6	J	J	J (non-std.)	—
5	Clear	Control Line 6	J	J	J (non-std.)	—
6	Set	Control Line 5	H	TRAN. PREP	Disable Ring Indicator Interrupt (internal)	—
7	Clear	Control Line 5	H	TRAN. PREP	Enable Ring Indicator Interrupt (internal)	—
10	Clear	Control Line 4	G	G	Request to Send	CA
11	Set	Control Line 4	G	G	Request to Send	CA
12	Clear	Control Line 3	F	F	New Sync	—
13	Set	Control Line 3	F	F	New Sync	—
14	Clear	Control Line 2	D	D	Data Terminal Ready	CD
15	Set	Control Line 2	D	D	Data Terminal Ready	CD
16	Clear	Control Line 1	A	LOOP BACK	Loop Test (external)	—
17	Set	Control Line 1	A	LOOP BACK	Loop Test (external)	—

SERIAL I/O STATUS INTERPRETATION

Word Bit #	MIL-STD-188 Function	EIA-STD-RS232 Function	VACALES FUNCTION
2 ⁰	Parity Error	Parity Error	—
2 ¹	Overrun	Overrun	Overrun
2 ²	Break	Break	Parity Error
2 ³	E Active	Clear to Send	Sync Error

LIST OF NOMENCLATURED ITEMS

UNIT NAME	DESIGNATION	PART NUMBER
CABINET, ELECTRICAL EQUIPMENT ²	CY-7445A/UYK-20(V)	90536-7101970-12
CABINET, ELECTRICAL EQUIPMENT ^{1 2}	CY-7781/UYK-20(V)	90536-7157853-10
CABINET, ELECTRICAL EQUIPMENT ³	CY-7446A/UYK-20X(V)	90536-7101970-13
CABINET, ELECTRICAL EQUIPMENT ^{1 3}	CY-7771/UYK-20X(V)	90536-7157853-09
CABINET, ELECTRICAL EQUIPMENT ²	CY-7976/UYK-20A(V)	90536-7101970-14
CABINET, ELECTRICAL EQUIPMENT ³	CY-7977/UYK-20AX(V)	90536-7101970-15
CABINET, ELECTRICAL EQUIPMENT ^{1 2}	TBD	90536-7157853-08
CABINET, ELECTRICAL EQUIPMENT ^{1 3}	TBD	90536-7157853-07
CONTROL-MONITOR ²	C-9674A/UYK-20(V)	90536-7101985-10
CONTROL-MONITOR ^{1 2}	C-10690/UYK-20(V)	90536-7157869-04
CONTROL-MONITOR ³	C-9675A/UYK-20X(V)	90536-7101985-09
CONTROL-MONITOR ^{1 3}	C-10633/UYK-20X(V)	90536-7157869-03
CONTROL-MONITOR ²	C-9674A/UYK-20(V)	90536-7101985-08
POWER SUPPLY ²	PP-7032(V)/UYK-20(V)	90536-7150350-02
POWER SUPPLY ²	PP-7107(V)/UYK-20(V)	90536-7150355-02
POWER SUPPLY ²	PP-7108(V)/UYK-20(V)	90536-7150351-03
POWER SUPPLY ³	PP-7109(V)/UYK-20X(V)	90536-7150352-04
POWER SUPPLY ³	PP-7110(V)/UYK-20X(V)	90536-7150354-04
POWER SUPPLY ³	PP-7111(V)/UYK-20X(V)	90536-7150353-03
PROCESSOR-VERIFIER UNIT ²	CP-1188B(V)/UYK-20(V)	90536-7128031-18
PROCESSOR-VERIFIER UNIT ³	CP-1189B(V)/UYK-20X(V)	90536-7128031-19
PROCESSOR-VERIFIER UNIT ²	CP-1512(P)/UYK-20A(V)	90536-7310550-00
PROCESSOR-VERIFIER UNIT ³	CP-1513(P)/UYK-20AX(V)	90536-7310550-01
CORE MEMORY UNIT (8K)	MU-632/UYK-20(V)	90536-712802-00
CORE MEMORY UNIT (32K)	MU-731/UYK-20A(V)	90536-7310022-18
CORE MEMORY-CONTROL UNIT ²	C-9531A(V)/UYK-20(V)	90536-7128029-20
CORE MEMORY-CONTROL UNIT ³	C-9670A(V)/UYK-20X(V)	90536-7128029-21
CORE MEMORY-CONTROL UNIT ³	C-9631A(V)/UYK-20(V)	90536-7128029-22
CORE MEMORY-CONTROL UNIT ³	C-9670A(V)/UYK-20X(V)	90536-7128029-23
CORE MEMORY-CONTROL UNIT ²	C-11087(V)/UYK-20A(V)	90536-7310014-06
CORE MEMORY-CONTROL UNIT ³	C-11088(V)/UYK-20AX(V)	90536-7310014-07
INTERFACE KIT, FAST, SERIAL	MK-1720/UYK-20(V)	90536-7101802-06
INTERFACE KIT, SERIAL	MIL-188C	—
COMMUNICATIONS ASYNC/SYNC	MK-2051/UYK-20(V)	90536-7313567-00
INTERFACE KIT, SERIAL COMMUNICATION	MK-2048/UYK-20(V)	90536-7313568-00
ASYNC/SYNC RS232	MK-2097/UYK-20(V)	90536-7132194-00-01
INTERFACE KIT, SLOW	MK-2098/UYK-20(V)	90536-7132195-00-01
INTERFACE KIT, FAST, NEGATIVE	MK-2099/UYK-20(V)	90536-7132196-00-01
INTERFACE KIT, FAST, POSITIVE	MK-2099/UYK-20(V)	90536-7132196-00-01
INTERFACE KIT, VARIABLE CHARACTER	MK-1806/UYK-20(V)	90536-7132198-01
LENGTH, SERIAL, VACALES)	MK-2100/UYK-20(V)	90536-7132197-00
INTERFACE KIT, SLOW PIC, DUAL	MK-2130/UYK-20(V)	90536-7320276-01
INTERFACE KIT, LOW LEVEL SERIAL	MK-2130/UYK-20(V)	90536-7320276-01
MAINTENANCE KIT, ELECTRONIC	MK-1958/UYK-20(V)	90536-7128073-01
EQUIPMENT	MU-634/UYK-20(V)	90536-7150465-01
REGISTER, COMPUTER, DUAL	MU-634/UYK-20(V)	90536-7150465-01
MEMORY KIT, READ	MK-1901(V)/UYK-20(V)	90536-7136820-00
(AVAILABLE BOOTSTRAP LISTINGS)	MK-1959/UYK-20(V)	90536-7157900-01
ADAPTER KIT, EXTERNAL MOUNTING	MK-1960/UYK-20(V)	90536-7157900-01
ADAPTER KIT, EXTERNAL MOUNTING	MK-1960/UYK-20(V)	90536-7157900-01
OSCILLATOR, REAL TIME CLOCK	O-1781/UYK-20(V)	90536-7128200-02
MONITOR	O-1782/UYK-20(V)	90536-7137130-02
OSCILLATOR, REAL TIME CLOCK	To Be Assigned (FIELD)	90536-7321442-00
MONITOR	To Be Assigned (FACTORY)	90536-7321442-01

Ⓛanglely Rack Ⓛ400 Hz Ⓛ60 Hz

NOTE: For Micro Memory Items, see page 12.

LIST OF AN/UYPK-20(V) MICROMEMORY ITEMS

NAME	DESIGNATION	PART NUMBER
PROGRAM KIT, MICROMEMORY BASIC/ NO MATH PAC	MK-1723/UYPK-20(V)	90536-7128071-04
PROGRAM KIT, MICROMEMORY BASIC/ MATH PAC	MK-1723/UYPK-20(V)	90536-7128071-05
MICROMEMORY UNIT, GROWTH, PROGRAM ONE	MU-791/UYPK-20(V)	90536-7136291-01
MICROMEMORY UNIT, GROWTH, PROGRAM TWO	MU-792/UYPK-20(V)	90536-7136905-01
MICROMEMORY UNIT, GROWTH, PROGRAM THREE	MU-793/UYPK-20(V)	90536-7137070-01
MICROMEMORY UNIT, GROWTH, PROGRAM FOUR	MU-794/UYPK-20(V)	90536-7131052-01
MICROMEMORY UNIT, PROGRAM STANDARD	MU-799/UYPK-20(V)	90536-7125133-01

LIST OF AN/UYPK-20A(V) MICROMEMORY ITEMS

NAME	DESIGNATION	PART NUMBER
PROGRAM KIT, MICROMEMORY BASIC/ NO MATH PAC	MK-2134/UYPK-20A(V)	90536-7310548-00
PROGRAM KIT, MICROMEMORY BASIC/MATH PAC	MK-2134/UYPK-20A(V)	90536-7310548-01
MICROMEMORY UNIT, GROWTH, PROGRAM I	MU-795/UYPK-20A(V)	90536-7310524-01
MICROMEMORY UNIT, GROWTH, PROGRAM II	MU-796/UYPK-20A(V)	90536-7310526-01
MICROMEMORY UNIT, GROWTH, PROGRAM III	MU-797/UYPK-20A(V)	90536-7310538-01
MICROMEMORY UNIT, GROWTH, PROGRAM IV	MU-798/UYPK-20A(V)	90536-7315270-01
MICROMEMORY UNIT, GROWTH, STANDARD	MU-800/UYPK-20A(V)	90536-7310522-01

CURRENT LINE REPLACEABLE ASSEMBLIES

CARD	NAME	NSNs	LOCATION
90536-7092187-01	MICRO P REGISTER + DISPLAY	7010-01-084-8743	A03,04,05
90536-7092195-01	CONDITION REGISTER	7010-00-522-3450	B08
90536-7092201-01	REPEAT CONTROL + DISPLAY	7010-01-084-8742	A06
90536-7125129-01	MICRO MEMORY 0000-1777	7010-01-127-1757	B05*
90536-7125136-01	MICRO MEMORY 6000-7777	7010-00-522-3702	B02
90536-7125237-01	EMULATE CONTROL 1 & 2	7010-01-100-3315	C17*
90536-7125241-01	INST REG 0-7	7010-01-076-0613	C13
90536-7125276-01	MULTIPLY, DIVIDE, & MICRO CONTROL	7010-01-100-3316	B07
90536-7125290-01	SOURCE & DESTINATION TRANSLATOR	7010-00-522-3719	B15
90536-7125307-01	I/O CONTROL MEMORY	7010-01-075-5597	A20,21,22,23
90536-7125311-01	P, BKPT, MEMORY ADDRESS REG	7010-00-397-7808	C07,08
90536-7125380-01	STATUS REG 1 & 2 BITS 8-15	7010-00-522-3732	C15
90536-7125406-01	PAGE REGISTERS & CONTROL	7010-01-100-3317	C09*
90536-7125417-01	ALU CONTROL II & CONSOLE CONTROL	7010-00-578-2413	B09
90536-7125500-01	SHIFT MATRIX	7010-00-522-3735	A09,10
90536-7125926-01	PWR INTERRUPT, MASTER CLEAR	7010-00-522-3751	C22*
90536-7125980-01	I/O MODE & MATH PAC SELECT	7010-01-017-8793	C23*
90536-7126125-01	TWO BIT MULTIPLY	7010-00-522-3759	A07,08
90536-7126130-01	SHIFT MATRIX INPUT REGS.	7010-00-522-3760	A12
90536-7126156-01	MEMORY INTERFACE	7010-01-100-3318	C05,06
90536-7126160-01	RTC & MON CLK CONT, RESUME, DUAL CH	7010-00-522-3955	A14
90536-7126167-01	JUMP INTERRUPTS & INPUT ADDR	7010-01-084-8773	C19*
90536-7126172-01	I/O TRANSLATOR	7010-01-084-8785	B21
90536-7126175-01	I/O PRIORITY	7010-00-522-3987	B20
90536-7126181-01	I/O CONTROL, I/O TIMING	7010-00-522-4004	B18
90536-7126200-02	20 MHz OSC 1 KHz CLOCK	TBD	B23
90536-7136266-01	ALU CONTROL	7010-01-100-3320	B10
90536-7136295-01	NDRO CONTROL PANEL INTERFACE	7010-01-006-8468	B06
90536-7136351-01	MICRO CONTROL 15	7010-01-100-3321	B17
90536-7150210-01	ARITHMETIC LOGIC UNIT	7010-01-140-7114	B11,12,13,14
90536-7150220-01	MEMORY CONTROL	7010-00-522-3749	C10*
90536-7150295-01	MASTER CLOCK, CONDITION REG	7010-00-522-3752	B16
90536-7150397-01	SHIFT MATRIX CONTROL	7010-01-053-4303	A13
90536-7150401-01	EMULATE CONTROL 3 & 4	7010-01-100-3323	C18
90536-7150405-01	TRANSLATOR CONTROL	7010-01-054-2891	B19
90536-7150415-01	STATUS REG 1 & 2 BITS 0-7	7010-01-050-1708	C16
90536-7150421-01	I/O INTERRUPT STORAGE	7010-01-100-3324	B22
90536-7150465-01	GENERAL REGISTERS (32)	5999-01-131-4654	C14
90536-7150475-01	I/O DATA DRIVE & MONITOR CLOCK	7010-01-100-3325	A19
90536-7150480-01	MICRO MEMORY SEL & MISC	7010-01-100-3326	A15

*SEE PAGE 15 FOR AN/UYPK-20A.

CURRENT LINE REPLACEABLE ASSEMBLIES (continued)

CARD	NAME	NSNs	LOCATION
	<u>I/O Options</u>		
90536-7119380-01	-3V FAST TYPE I	7010-00-522-3519	
90536-7132152-01	-3V FAST TYPE III	7010-01-126-7298	
90536-7132154-01	-3V FAST TYPE II	7010-00-522-3526	
90536-7119395-01	-15V SLOW TYPE I	7010-00-522-3529	
90536-7132150-01	-15V SLOW TYPE II	7010-00-522-3532	
90536-7132146-11	-15V SLOW TYPE III	7010-01-130-0093	
90536-7119410-01	+3.5V ANEW TYPE I	7010-00-522-3546	
90536-7132156-01	+3.5V ANEW TYPE III	7010-00-522-3554	
90536-7132158-01	+3.5V ANEW TYPE II	7010-01-168-8386	
90536-7119432-02	NTDS SERIAL 2 CHAN RCVR	7010-LL-HHB-8165	
90536-7132344-06	NTDS SERIAL 2 CHAN DRVR	TBD	
90536-7132110-01	-15 VOLT SLOW PIC TYPE I	7010-01-037-9654	
90536-7132148-11	-15 VOLT SLOW PIC TYPE II	7010-01-171-4553	
90536-7132140-01	-15 VOLT SLOW PIC TYPE IA	7010-01-037-9655	
90536-7132121-01	VACALES TYPE III	7010-01-037-9658	
90536-7132126-01	VACALES TYPE IA	7010-01-150-4425	
90536-7132131-01	VACALES TYPE II	7010-01-150-4426	
90536-7132136-01	VACALES TYPE I	7010-01-037-9657	
90536-7312528-00	COMMON RS-232/188C RCVR	7010-01-166-3843	
90536-7312530-00	COMMON MIL-188C I/O DRVR	7010-00-522-3590	
90536-7312670-00	COMMON RS-232-C I/O DRVR	7010-01-167-2553	
90536-7316476-02	LOW LEVEL SERIAL TYPE I	7010-01-168-8576	
90536-7316478-04	LOW LEVEL SERIAL TYPE II	TBD	
	<u>CP OPTIONS</u>		
90536-7125175-01	INST REG 08-15, ECW w/MATH PAC	7010-00-522-3704	C12
90536-7126066-01	CORDIC EXTENSION w/MATH PAC	7010-01-017-8766	A16
90536-7136226-01	MULTIPLY CONTROL w/MATH PAC	7010-01-127-1758	A11
90536-7136291-01	MPG 1 MICROMEMORY 2000-3777	7010-01-084-8798	B04*
90536-7136905-01	MPG 2 MICROMEMORY 2000-3777	TBD	B04*
90536-7137000-01	MICROMEMORY 4000-5777 w/MATH PAC	7010-00-578-2303	B03
90536-7137070-01	MPG 3 MICROMEMORY 2000-3777	0099-LL-MC2-3342	B04*
90536-7137130-02	20 MHz OSC, 32 KHz CLOCK	TBD	B23
90536-7313052-01	MPG 4 MICROMEMORY 2000-3777	TBD	B04*
90536-7125133-01	MICRO MEMORY 2000-3777 w/O MICRO GROWTH	7010-01-084-8787	B04*
90536-7125157-01	INST REG 08-15, ECW ROM w/O MATH PAC	7010-00-578-2302	C12
90536-7126142-01	MULTIPLY w/O MATH PAC	7010-01-127-1756	A11
	<u>CP CABLE ASSY</u>		
90536-7101963-01	CABLE ASSY CP-TO MEM W3	7010-01-037-9651	C03
90536-7101966-01	CABLE ASSY CP-TO MEM W4	7010-01-037-9652	C04
90536-7133909-01	CABLE ASSY CP-MAINT PANEL W2	7010-00-604-9079	A02
90536-7133910-02	CABLE ASSY CP-MAINT PANEL W1	7010-00-604-8858	A01
90536-7134942-00	CABLE ASSY CP-MEM INT W6 DMA	7010-01-037-9653	C01
90536-7134998-00	CABLE ASSY CP-MEM INT W7 DMA	7010-01-026-8023	C02

*SEE PAGE 15 FOR AN/UYK-20A.

CURRENT LINE REPLACEABLE ASSEMBLIES (continued)

CARD	NAME	NSNs	LOCATION
	<u>LANGLEY RACK CP CABLE ASSY</u>		
90536-7101963-02	CABLE ASSY CP TO MEM W3	5995-01-101-5840	C03
90536-7101966-02	CABLE ASSY CP TO MEM W4	5995-01-101-5843	C04
90536-7133909-02	CABLE ASSY CP TO MAINT PNL W2	5995-01-099-2449	A02
90536-7133910-03	CABLE ASSY CP TO MAINT PNL W1	5995-01-101-5839	A01
90536-7134942-01	CABLE ASSY CP TO MEM W6 (DMA)	5995-01-062-6245	C01
90536-7134998-01	CABLE ASSY CP TO MEM W7 (DMA)	5995-01-062-6246	C02
	<u>MEMORY</u>		
90536-7128082-00	CORE ARRAY 8K	7010-01-016-0411	
90536-7150490-00	CONTROL w/DMA	7010-00-525-1215	
90536-7134994-03	CONTROL w/O DMA	7010-01-084-8786	
90536-7150486-00	DATA w/DMA	7010-01-066-7586	
90536-7101824-03	DATA w/O DMA	7010-01-084-8774	
	<u>EXPANDED MEMORY CP CARDS</u>		
90536-7310510-01	EMULATE CONTROL 1 & 2	0028-LL-MC2-3788	C17
90536-7310512-01	I/O MODE & MATH PACK SEL	0028-LL-MC2-3789	C23
90536-7310514-01	QC=40 JUMPS, INT'S, INPUT ADD REG	TBD	C19
90536-7310516-02	MEMORY CONTROL	TBD	C10
90536-7310518-01	PAGE REG'S & CONTROL	0028-LL-MC2-3792	C09
90536-7310520-01	MICROMEMORY 0000-1777	TBD	B05
90536-7310522-01	MICROMEMORY 2000-3777	TBD	B04
90536-7310524-01	MPG 1 MICROMEMORY 2000-3777	TBD	B04
90536-7310526-01	MPG 2 MICROMEMORY 2000-3777	TBD	B04
90536-7310534-04	PAGE SET SELECTION	TBD	C20
90536-7310536-03	POWER INT & MASTER CLEAR	0028-LL-MC2-3794	C22
90536-7310538-01	MPG 3 MICROMEMORY 2000-3777	TBD	B04
90536-7315270-01	MPG 4 MICROMEMORY 2000-3777	TBD	B04
	<u>EXPANDED MEMORY CARDS</u>		
90536-7310022-18	CORE ARRAY 32K	7010-01-168-8593	
90536-7313550-13	DATA MOD	7010-01-167-2555	
90536-7312682-07	CONTROL CARD	7010-01-167-2554	
	<u>FAN ASSEMBLIES</u>		
90536-7309623-00	400 Hz STD CABINET	TBD	
90536-7309623-01	60 Hz STD CABINET	4140-01-130-0472	
90536-7310594-00	400 Hz CABINET (LANGLEY RACK)	0028-LL-MC2-6152	
90536-7310594-01	60 Hz CABINET (LANGLEY RACK)	0028-LL-MC2-3349	
90536-7308013-00	400 Hz MEMORY	4140-01-008-2026	
90536-7308013-01	60 Hz MEMORY	4140-01-037-9620	
90536-7308028-00	400 Hz CP/IO	4140-01-034-7819	
90536-7308028-01	60 Hz CP/IO	4140-01-130-0471	
	<u>POWER SUPPLIES</u>		
90536-7150350-02	400 Hz, 115 VAC, 3 ϕ	TBD	
90536-7150351-03	400 Hz, 115 VAC, 1 ϕ	TBD	
90536-7150352-04	60 Hz, 115 VAC, 3 ϕ	7010-01-125-2309	
90536-7150353-03	60 Hz, 115 VAC, 1 ϕ	6130-01-129-5997	
90536-7150354-04	60 Hz, 208 VAC, 3 ϕ	TBD	
90536-7150355-02	400 Hz, 208 VAC, 3 ϕ	TBD	

7314639-01 CURRENT AN/UYK-20 PC CARD PLACEMENT MAP

PART NO. 90536-7314639							
38		TYPE I					38
38		TYPE II	I/O GROUP 0				38
37		TYPE IA	(CHAN 8, 1, 2, 3)				37
36		TYPE IB					36
35		TYPE III					35
34			TYPE I		I/O GROUP 1		34
33			TYPE II		(CHAN 4, 5, 6, 7)		33
32			TYPE IA				32
32			TYPE IB				32
31			TYPE III				31
30		TYPE I	I/O GROUP 2				30
29		TYPE II	(CHAN 10, 11, 12, 13)				29
28		TYPE IA					28
27		TYPE IB					27
26			TYPE I		I/O GROUP 3		26
25			TYPE II		(CHAN 14, 15, 16, 17)		25
24			TYPE IA				24
24			TYPE IB				24
23	●	712580	● I KHZ: 7126200	● 32 KHZ: 7137130	●	7125307	● 23
22	●	712526	●	7150421	●	7125307	● 22
21	●		●	7126172	●	7125307	● 21
20	●		●	7126175	●	7125307	● 20
19	●	7126187	●	7150405	●	7150475	● 19
18	●	7150401	●	7126181	●		● 18
17	●	7125227	●	7136351	●		● 17
16	●	7150415	●	7150295	●	W/O MP: VACANT	● W/MP: 7126066
15	●	7150480	●	7150210	●	7150460	● 15
14	●	7150405	●	7150210	●	7126160	● 14
13	●	7125241	●	7150210	●	7150397	● 13
12	●	W/O MP: 7125157	● W/MP: 7125175	● 7150210	●	7126130	● 12
11	●	ROOTSTRAP-VAR	●	7150210	●	W/O MP: 7126142	● W/MP: 7136226
10	●	7150220	●	7136246	●	7125500	● 10
9	●	7125406	●	7125417	●	7125500	● 9
8	●	7125311	●	7092195	●	7126125	● 8
7	●	7125211	●	7125276	●	7126125	● 7
6	●	7126156	●	7136295	●	7092201	● 6
5	●	7126156	●	7125129	●	7092187	● 5
4	●	CABLE ASSY (W/L: 7101966)	● W/O M/PG: 7125133	● W/M/PG: VAR	●	7092187	● 4
3	●	CABLE ASSY (W/L: 7101963)	● W/O M/PG: VACANT	● W/MP: 7137000	●	7092187	● 3
2	●	CABLE ASSY (W/L: 7134998)	●	7125136	●	CABLE ASSY (W/L: 7133909)	● 2
1	●	CABLE ASSY (W/L: 7134942)	● UNUSABLE	●	●	CABLE ASSY (W/L: 7133910)	● 1

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7318218-00 CURRENT AN/UYK-20A CARD PLACEMENT MAP

PART NO. 90639-7318218							
39		TYPE I					39
38		TYPE II	I/O GROUP 0				38
37		TYPE IA	(CHAN 8, 1, 2, 3)				37
36		TYPE IB					36
35		TYPE III					35
34			TYPE I		I/O GROUP 1		34
33			TYPE II		(CHAN 4, 5, 6, 7)		33
32			TYPE IA				32
31			TYPE IB				31
30			TYPE III				30
29		TYPE I	I/O GROUP 2				29
28		TYPE II	(CHAN 10, 11, 12, 13)				28
27		TYPE IA					27
26		TYPE IB					26
25			TYPE I		I/O GROUP 3		25
24			TYPE II		(CHAN 14, 15, 16, 17)		24
24			TYPE IA				24
24			TYPE IB				24
23	●	7310512	● I KHZ: 7126200	● 32 KHZ: 7137130	●	7125307	● 23
22	●	7310526	●	7150421	●	7125307	● 22
21	●		●	7126172	●	7125307	● 21
20	●	7310534	●	7126175	●	7125307	● 20
19	●	7310514	●	7150405	●	7150475	● 19
18	●	7150401	●	7126181	●		● 18
17	●	7310510	●	7136351	●		● 17
16	●	7150415	●	7150295	●	W/O MP: VACANT	● W/MP: 7126066
15	●	7125380	●	7125290	●	7150480	● 15
14	●	7310518	●	7150210	●	7126160	● 14
13	●	7125241	●	7150210	●	7150397	● 13
12	●	W/O MP: 7125157	● W/MP: 7125175	● 7150210	●	7126130	● 12
11	●	ROOTSTRAP-VAR	●	7150210	●	W/O MP: 7126142	● W/MP: 7136226
10	●	7310516	●	7136246	●	7125500	● 10
9	●	7125311	●	7125417	●	7125500	● 9
8	●	7125311	●	7092195	●	7126125	● 8
7	●	7125311	●	7125276	●	7126125	● 7
6	●	7126156	●	7136295	●	7092201	● 6
5	●	7126156	●	7125129	●	7092187	● 5
4	●	CABLE ASSY (W/L: 7101966)	● W/O M/PG: 7310522	● W/M/PG: VAR	●	7092187	● 4
3	●	CABLE ASSY (W/L: 7101963)	● W/O M/PG: VACANT	● W/MP: 7137000	●	7092187	● 3
2	●	CABLE ASSY (W/L: 7134998)	●	7125136	●	CABLE ASSY (W/L: 7133909)	● 2
1	●	CABLE ASSY (W/L: 7134942)	● UNUSABLE	●	●	CABLE ASSY (W/L: 7133910)	● 1

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7314638-01 CURRENT INPUT/OUTPUT PC CARD ASSEMBLIES

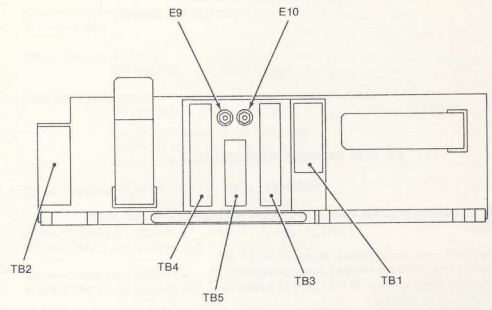
INTERFACE OPTIONS (7 CARD GROUPS)	TYPE			FEATURE KIT NO.	TYPE	E10 I.A.	E10 III
	I	II	III				
MS-209(UK-20(V))	7329344-0	7319395	7319395	7329346		7119432	7324644
MS-1803(UK-20(V))	7329344-0	7319395	7319395	7119431		7119432	7326296
MS-209(UK-20(V))	7329354-0	7319380	7329354	7329352		7329258	7312230
MS-1804(UK-20(V))	7329354-0	7319380	7319380	7119385		7329258	7312230
MS-209(UK-20(V))	7329356-0	7319410	7329356	7329358		7119437	7319441
MS-1805(UK-20(V))	7329356-0	7319410	7319410	7119415			
MS-2100(UK-20(V))	7329374-0	7329374	7329374	7329376			
MS-1807(UK-20(V))	7329374-0	7329374	7329374	7119401			
MS-1807(UK-20(V))	7329376-0	7329376	7329376	7329378			
MS-1806(UK-20(V))	7329376-0	7329376	7329376	7329378			

CARD TYPE	CARD NO.	FUNCTION SELECT	HUMPER		HUMPER	
			MODEL	311(81)	MODEL	311(81)
MS-1806(A, 232C) TYPE I	7312206	SYNC-ASYNC 100 OHM	SYNC(10)	PN5 16.4.15	ASync(AD)	PN5 13.8.11
		SYNC-ASYNC 14N OHM	SYNC(14)	PN5 11.4.12	ASync(AD)	PN5 13.8.11
		MS-1806(A, 232C)	MS-1806(A, 232C)	PN5 8.8.9	MS-1806(A, 232C)	PN5 8.8.8
		01 I.H.L.	PN5 5.6.6	01 I.H.L.	PN5 4.5.5	PN5 8.8.2
MS-1806(A, 232C) TYPE II	7312207	SYNC-ASYNC 100 OHM	ASync(AD)	PN5 16.4.12	SYNC(15)	PN5 13.8.11
		01 I.H.L.	PN5 5.6.6	01 I.H.L.	PN5 4.5.5	PN5 8.8.2
MS-1806(A, 232C) TYPE II	7312207	FUNCTION SELECT	01P	PN5 11.8.10	01P	PN5 13.8.11
		BOARD RELY	01P	PN5 11.8.10	01P	PN5 13.8.11

INTERFACE OPTIONS (7 CARD GROUPS)	FEATURE KIT NO.	TYPE	TYPE	TYPE	TYPE	TYPE
MS-1806(A, 232C)	7312206	7312206	7312206	7312206	7312206	7312206
MS-1806(A, 232C)	7312207	7312207	7312207	7312207	7312207	7312207
MS-1806(A, 232C)	7312208	7312208	7312208	7312208	7312208	7312208
MS-1806(A, 232C)	7312209	7312209	7312209	7312209	7312209	7312209
MS-1806(A, 232C)	7312210	7312210	7312210	7312210	7312210	7312210
MS-1806(A, 232C)	7312211	7312211	7312211	7312211	7312211	7312211
MS-1806(A, 232C)	7312212	7312212	7312212	7312212	7312212	7312212
MS-1806(A, 232C)	7312213	7312213	7312213	7312213	7312213	7312213
MS-1806(A, 232C)	7312214	7312214	7312214	7312214	7312214	7312214
MS-1806(A, 232C)	7312215	7312215	7312215	7312215	7312215	7312215

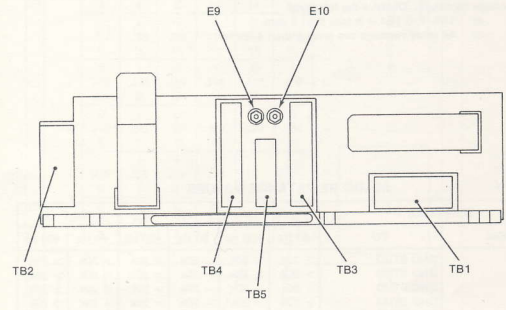
INTERFACE OPTIONS (7 CARD GROUPS)	FEATURE KIT NO.	TYPE	TYPE	TYPE	TYPE	TYPE
MS-1806(A, 232C)	7312206	7312206	7312206	7312206	7312206	7312206
MS-1806(A, 232C)	7312207	7312207	7312207	7312207	7312207	7312207
MS-1806(A, 232C)	7312208	7312208	7312208	7312208	7312208	7312208
MS-1806(A, 232C)	7312209	7312209	7312209	7312209	7312209	7312209
MS-1806(A, 232C)	7312210	7312210	7312210	7312210	7312210	7312210
MS-1806(A, 232C)	7312211	7312211	7312211	7312211	7312211	7312211
MS-1806(A, 232C)	7312212	7312212	7312212	7312212	7312212	7312212
MS-1806(A, 232C)	7312213	7312213	7312213	7312213	7312213	7312213
MS-1806(A, 232C)	7312214	7312214	7312214	7312214	7312214	7312214
MS-1806(A, 232C)	7312215	7312215	7312215	7312215	7312215	7312215

POWER SUPPLY DATA



FRONT

POWER SUPPLY CHASSIS FOR:
 PP-7109(V)UYK-20X(V) (60 HZ 115 VAC 3φ) 90536-7150352-04, NSN 7010-01-125-2309
 PP-7110(V)UYK-20X(V) (60 HZ 208 VAC 3φ) 90536-7150354-04



FRONT

POWER SUPPLY CHASSIS FOR:
 PP-7032(V)UYK-20(V) (400 HZ 115 VAC 3φ) 90536-7150350-02
 PP-7107(V)UYK-20(V) (400 HZ 208 VAC 3φ) 90536-7150355-02
 PP-7108(V)UYK-20(V) (400 HZ 115 VAC 1φ) 90536-7150351-03
 PP-7111(V)UYK-20X(V) (60 HZ 115 VAC 1φ) 90536-7150353-03, NSN 6130-01-129-5897

LOGIC VOLTAGES

OUTPUT POWER	VOLTAGE LIMITS (VDC)		LOAD CURRENT (AMPERES)		TESTPOINT
	MIN.	MAX.	MIN.	MAX.	
+5 VDC (CP/IOC)	4.8	5.4	30	42	PS1-E9
+5 VDC (MEMORY)	4.75	5.5	6	16	PS1-TB4-6
+15 VDC	14.1	16.4	1	12	PS1-TB4-2
-5.2 VDC	-4.9	-5.6	2	10	PS1-TB3-1
+12 VDC	11.2	12.6	0	1	PS1-TB3-3
-16 VDC	-15	-16.8	0	3	PS1-TB3-5

Check all voltages between TP listed and E10.

*The +15 volt regulator is temperature compensating and the +15 volt output will vary linearly with temperature from approximately 14.1 V at 60°C to 16.4 V at 0°C for UYK-20A the range is 16.1 V at 60°C to 16.7 V at 0°C. Check all voltages between TP listed and E10.

AC AND DC TEST PROCEDURES

WARNING

FAILURE TO disconnect power cable at J35 results in dangerous voltages within the cabinet.

1. Ensure DPS main power cable is disconnected at J35.
2. Ensure all logic modules and 64K memory are installed.
3. Set Control Panel switches to the following positions:

POWER BLOWER	ON/OFF	to ON
POWER LOGIC	ON/OFF	to ON
CIRCUIT BREAKER	ON/OFF	to ON
BATTLE SHORT	ON/OFF	to ON

4. Using a VOM, observe reading as specified in the following table. Record all reading for future reference.
5. Using a VOM, measure from each power supply output voltage terminal to all other output voltage terminals. Observe the following:
 - a) TB3-1 to TB4-4 is less than 1 ohm.
 - b) All other readings are greater than 4 ohms.

AC-DC RESISTANCE VALUES

TERMINALS		115 V 1φ		115 V 3φ		208 V 3φ	
FROM	TO	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz
J35-A	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-B	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-C	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-D	GND STUD	> 20k	> 20k	> 20k	> 20k	> 20k	> 20k
J35-G	GND STUD	1	< 1	1	< 1	1	< 1
J35-A	J35-B	> 30	> 15	> 100	> 50	> 200	> 90
J35-A	J35-C	> 30	> 20k	> 20	> 20k	> 200	> 100
J35-A	J35-D	> 20k	> 20k	> 20k	> 20k	> 100	> 50
J35-B	J35-C	1	> 20k	150	60	200	90
J35-B	J35-D	> 20k	> 20k	> 20k	> 20k	> 80	> 30
J35-C	J35-D	> 20k	1	> 20k	> 20k	> 100	> 50
P.S. TB4-6	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-4	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-3	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-2	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. E09	P.S. E10	> 1	> 1	> 1	> 1	> 1	> 1
P.S. TB3-1	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB3-3	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB3-5	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB5-2	P.S. E10	> 2	> 2	> 2	> 2	> 2	> 2
P.S. TB4-5	P.S. E10	1	1	1	1	1	1
P.S. TB4-7	P.S. E10	1	1	1	1	1	1
P.S. TB5-3	P.S. E10	1	1	1	1	1	1
CPU TB1-6	MEM TB1-3	1	1	1	1	1	1
CPU TB1-7	MEM TB1-4	1	1	1	1	1	1
CPU TB1-6	P.S. TB2-2	1	1	1	1	1	1
CPU TB1-7	P.S. TB2-1	1	1	1	1	1	1

I/O CONNECTOR PANEL

INPUT/OUTPUT CONNECTOR MATING KITS
J01 THRU J32

90536-7101943-02 INPUT } PARALLEL
-03 OUTPUT } 2U45 CABLE

90536-7101943-12 INPUT } PARALLEL
-13 OUTPUT } 2U19 CABLE

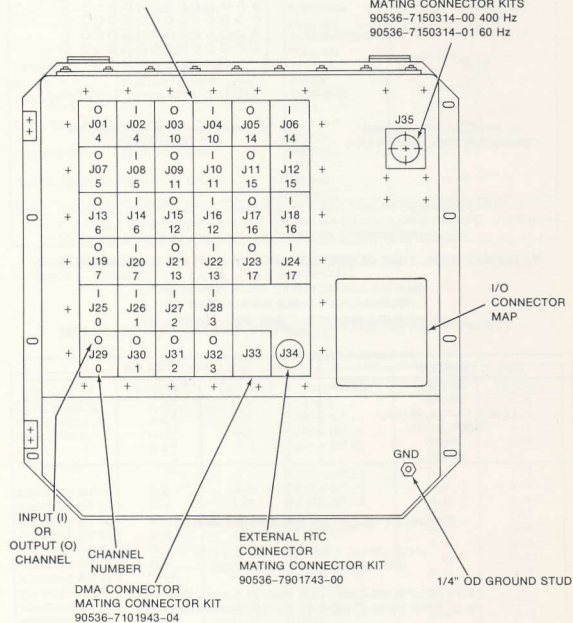
The 05 kit is used for the 188C and VACALES serial I/O. The 06 kit is used for the RS232 serial I/O.

90536-7101943-17 INPUT } PARALLEL
-18 OUTPUT } 2U-30 CABLE

90536-7316994-00 ADAPTER } INPUT PARALLEL OR
90536-7150267-00 MATING KIT } COMMON SERIAL

90536-7316994-01 ADAPTER } OUTPUT PARALLEL OR
90536-7150267-01 MATING KIT } COMMON SERIAL

INPUT POWER CONNECTOR
MATING CONNECTOR KITS
90536-7150314-00 400 Hz
90536-7150314-01 60 Hz



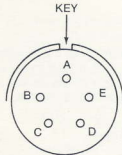
CAUTION

CONNECTOR CAPS WITH GASKETS MUST BE INSTALLED ON UNUSED CONNECTORS TO MAINTAIN RFI/EMI INTEGRITY.

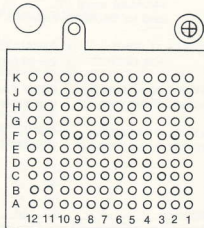
I/O CONNECTOR GASKET - P/N 90536-7101924-00
CONNECTOR CAP KIT P/N 90536-7150304-00, NSN 7010-01-100-3220
RTC CAP P/N 90536-7908845-00

CABINET CONNECTORS (J1 THRU J33) ARE ASSEMBLED WITH INDIVIDUALLY REPLACEABLE PINS AND BUSHINGS THAT ARE FIELD REPAIRABLE. SEE TECHNICAL MANUAL FOR PROCEDURE.
PIN/BUSHING P/N IS 90536 - 7902636-01, NSN 5940-00-516-1702
PIN P/N IS 90536-7076100-02 NSN 5999-00-005-3847
BUSHING P/N IS 90536-7050017-00 NSN 5999-00-003-8209

RTC AND I/O CONNECTOR PIN LOCATION



A. EXTERNAL RTC MATING CONNECTOR PIN LOCATION (J34)



B. I/O CONNECTOR PIN LOCATION (J01-J33)

EXTERNAL REAL-TIME CLOCK CONNECTOR (J34) PIN ASSIGNMENTS

(MATING CONNECTOR KIT 90536-7901743-00)
 (RECOMMENDED CABLE 90536-7128045-00)
 (RFI/EMI RTC PROTECTIVE CAP: 90536-7906845-00)

FUNCTION	CONNECTOR PIN
SPARE	A
SPARE	B
CLOCK SIGNAL RETURN	C
CLOCK SIGNAL	D
SPARE	E
SPARE	F

SERIAL CONNECTOR PIN ASSIGNMENTS

NTDS SERIAL TYPE D CONNECTOR KITS
 (WITHOUT MATING CONNECTORS)

RG11; INPUT 90536-7150391-00, OUTPUT 90536-7150391-01
 RG12; INPUT 90536-7150391-02, OUTPUT 90536-7150391-03

NATO SERIAL TYPE E LOW LEVEL CONNECTOR KITS
 (WITHOUT MATING CONNECTORS)

TRF8; INPUT 90536-7320185-00, OUTPUT 90536-7320185-01
 TRF58; INPUT 90536-7320185-00, OUTPUT 90536-7320185-01

SIGNAL	RETURN
B 08	A 08

MIL-STD-188C, VACALES, AND RS-232C SERIAL CHANNEL I/O CONNECTOR PIN ASSIGNMENTS

MATING CONNECTOR KITS 90536-7101943-05, MIL-STD-188 AND VACALES, AND 90536-7101943-06, RS-232

NOTE: SERIAL I/O JUMPER PLUG 90536-7150233-00 REQUIRED FOR END-AROUND TESTING

MIL-STD-188C	FUNCTION		CONNECTOR PIN	
	RS-232C	VACALES	GROUP A*	GROUP B**
A	LOOP TEST	LOOP BACK	D-8	G-4
B	RING INDICATOR	B	D-4	D-12
C	RECEIVED LINE SIGNAL DETECTOR	CARRIER DETECT	C-4	C-12
D	DATA TERMINAL READY	D	C-8	H-4
E	CLEAR TO SEND	SYNC ERROR	D-5	G-1
F	NEW SYNC	F	D-7	G-3
G	REQUEST TO SEND	G	C-7	H-3
H	-	TRANSMITTER PREP	D-6	G-2
I	I (NOT USED)	ALARM INDICATE	D-3	D-11
J	J (NOT USED)	J	C-6	H-2
K	DATA SET READY	RECEIVER FULL ON	C-3	C-11
L	TRANSMITTER ON FULL (NOT USED)	TRANSMITTER FULL ON	D-2	D-10
TRANSMIT CLOCK	TRANSMITTER SIGNAL ELEMENT TIMING	TRANSMIT CLOCK		B-5
TRANSMIT DATA	TRANSMITTED DATA	TRANSMIT DATA		A-5
RECEIVE CLOCK	RECEIVER SIGNAL ELEMENT TIMING	RECEIVE CLOCK		A-7
RECEIVE DATA	RECEIVE DATA	RECEIVE DATA		B-7
SIGNAL GROUND	SIGNAL GROUND	SIGNAL GROUND		A-6

NOTE: REMAINING PINS NOT USED. GROUP A OR B PINS MAY BE CONNECTED INTERNAL TO THE CABLE CONNECTOR TO ALLOW ITS USE ON EITHER A OR B GROUPS. FUNCTION TO PIN RELATIONSHIP REMAINS THE SAME FOR COMMON SERIAL I/O.

* GROUP A: CHANNELS 0,1; 4,5; 10,11; AND 14,15 (OCTAL)

** GROUP B: CHANNELS 2,3; 6,7; 12,13; AND 16,17 (OCTAL)

DIRECT MEMORY ACCESS CONNECTOR (J33) PIN ASSIGNMENTS

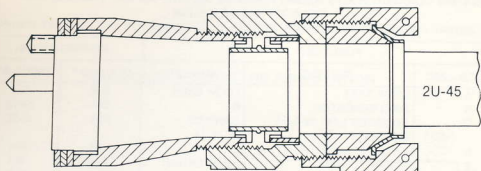
MATING CONNECTOR KIT 90536-7101943-04

FUNCTION	CONNECTOR PIN		FUNCTION	CONNECTOR PIN	
	SIGNAL	RETURN		SIGNAL	RETURN
READ INITIATE	K-8	K-7	DATA BIT 00	K-2	K-1
WRITE INITIATE	J-8	J-7	DATA BIT 01	J-2	J-1
FULL CYCLE	H-8	H-7	DATA BIT 02	H-2	H-1
DATA	G-8	G-7	DATA BIT 03	G-2	G-1
AVAILABLE			DATA BIT 04	F-2	F-1
ADDRESS BIT 00	F-8	F-7	DATA BIT 05	E-2	E-1
ADDRESS BIT 01	E-8	E-7	DATA BIT 06	D-2	D-1
ADDRESS BIT 02	D-8	D-7	DATA BIT 07	C-2	C-1
ADDRESS BIT 03	C-8	C-7	*ADDR BIT 16	B-5	B-4
ADDRESS BIT 04	B-8	B-7	ZWL	A-2	A-1
ADDRESS BIT 05	A-8	A-7		C-12	C-11
ADDRESS BIT 06	K-11	K-10	DATA BIT 08	K-5	K-4
ADDRESS BIT 07	J-11	J-10	DATA BIT 09	J-5	J-4
ADDRESS BIT 08	H-11	H-10	DATA BIT 10	H-5	H-4
ADDRESS BIT 09	G-11	G-10	DATA BIT 11	G-5	G-4
ADDRESS BIT 10	F-11	F-10	DATA BIT 12	F-5	F-4
ADDRESS BIT 11	E-11	E-10	DATA BIT 13	E-5	E-4
ADDRESS BIT 12	D-11	D-10	DATA BIT 14	D-5	D-4
ADDRESS BIT 13	C-11	C-10	DATA BIT 15	C-5	C-4
ADDRESS BIT 14	B-11	B-10	*ADDR BIT 17	B-2	B-1
ADDRESS BIT 15	A-11	A-10	ZWU	A-5	A-4

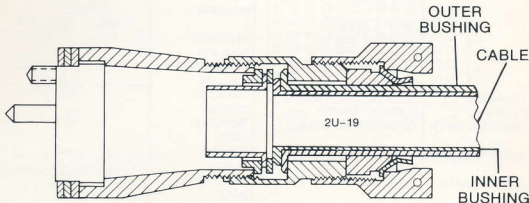
Note: Remaining pins not used.

*AN/UYK-20A only

DPS I/O CONNECTORS



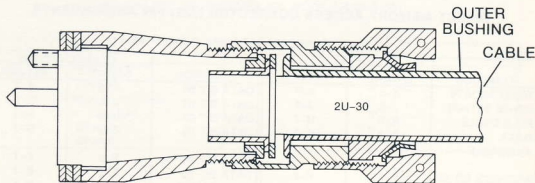
90536-7101943-02 (INPUT) NSN 5935-01-023-1213
90536-7101943-03 (OUTPUT) NSN 5935-01-023-1214
CONNECTOR STANDARD PARALLEL



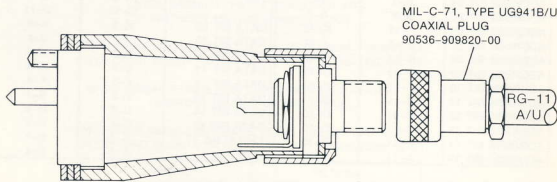
90536-7101943*-12 (INPUT) NSN 5935-01-108-3946
90536-7101943*-13 (OUTPUT) NSN 5935-01-112-1118
CONNECTOR STANDARD PARALLEL

*SAME KIT IS USED FOR 8-BIT PARALLEL
USING 2U-19 CABLE AND BOTH BUSHINGS

THE MIL-STD-188C AND VACALES CONNECTOR KIT 90536-7101943-05 AND RS-232C
CONNECTOR KIT 90536-7101943-06 ARE SIMILAR TO THE PARALLEL 2U-19 KITS AND CAN
BE USED WITH ANY MULTIWIRED CABLE.

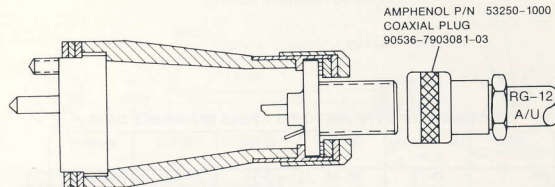


90536-7101943-17 (INPUT)/-18 (OUTPUT)
CONNECTOR STANDARD PARALLEL

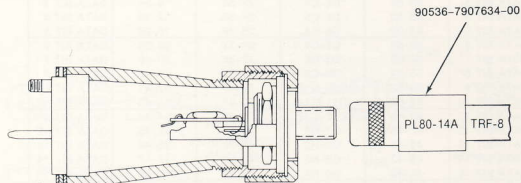


90536-7150391-00 (INPUT) NSN 5935-01-161-2976
90536-7150391-01 (OUTPUT) NSN 5935-01-161-2977
CONNECTOR STANDARD NTDS SERIAL (TYPE D) RG-11 CONFIGURATION

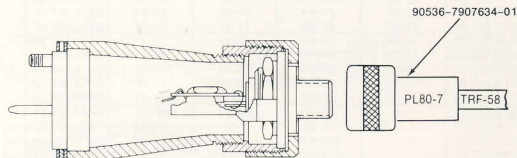
DPS I/O CABLES AND CONNECTORS



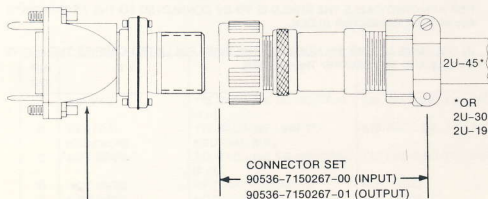
90536-7150391-02 (INPUT) NSN 5935-01-161-2978
90536-7150391-03 (OUTPUT) NSN 5935-01-161-2979
CONNECTOR STANDARD NTDS SERIAL (TYPE D) RG-12 CONFIGURATION



90536-7320185-00 (INPUT)/-01 (OUTPUT)
CONNECTOR STANDARD LLS (TYPE E) I/O TRF-8 CONFIGURATION



90536-7320185-00 (INPUT)/-01 (OUTPUT)
CONNECTOR STANDARD LLS (TYPE E) I/O TRF-58 CONFIGURATION



90536-7316994-00 INPUT
90536-7316994-01 OUTPUT
MIL-C-36999 SERIES III
CONNECTOR ADAPTER

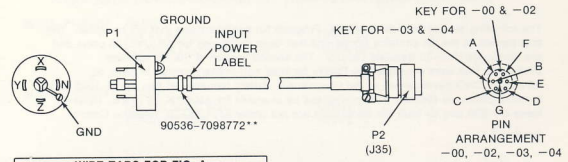
POWER CONNECTOR DATA

I/O CONNECTOR TYPE PIN TO PIN CROSS REFERENCE DATA

INPUT	MIL-C-38999 79 PIN	120 PIN	90 PIN	85 PIN	OUTPUT
IDR	79-78	B5-A5	1-11	1-6	ODA
IDA	77-76	B6-A6	2-12	2-7	ODR
EIR	75-74	B7-A7	3-13	3-8	EFA
EIA	73-72	B8-A8	4-14	4-9	EFR
DATA BIT 0	71-70	D1-C1	9-19	13-21	DATA BIT 0
DATA BIT 1	69-68	D2-C2	10-20	14-22	DATA BIT 1
DATA BIT 2	67-66	D3-C3	22-33	15-23	DATA BIT 2
DATA BIT 3	65-64	D4-C4	23-34	16-24	DATA BIT 3
DATA BIT 4	63-62	D5-C5	24-35	17-25	DATA BIT 4
DATA BIT 5	61-60	D6-C6	25-36	18-26	DATA BIT 5
DATA BIT 6	59-58	D7-C7	26-37	29-39	DATA BIT 6
DATA BIT 7	57-56	D8-C8	27-38	30-40	DATA BIT 7
DATA BIT 8	55-54	D9-C9	28-39	31-41	DATA BIT 8
DATA BIT 9	53-52	D10-C10	29-40	32-42	DATA BIT 9
DATA BIT 10	51-50	D11-C11	30-41	33-43	DATA BIT 10
DATA BIT 11	49-48	D12-C12	31-42	34-44	DATA BIT 11
DATA BIT 12	47-46	G1-H1	32-43	35-45	DATA BIT 12
DATA BIT 13	45-44	G2-H2	47-58	36-46	DATA BIT 13
DATA BIT 14	43-42	G3-H3	48-59	37-47	DATA BIT 14
DATA BIT 15	41-40	G4-H4	49-60	49-58	DATA BIT 15
DATA BIT 16	39-38	G5-H5	50-61	50-59	DATA BIT 16
DATA BIT 17	37-36	G6-H6	51-62	51-60	DATA BIT 17
DATA BIT 18	35-34	G7-H7	52-63	52-61	DATA BIT 18
DATA BIT 19	33-32	G8-H8	53-64	53-62	DATA BIT 19
DATA BIT 20	31-30	G9-H9	54-65	54-63	DATA BIT 20
DATA BIT 21	29-28	G10-H10	55-66	55-64	DATA BIT 21
DATA BIT 22	27-26	G11-H11	56-67	56-65	DATA BIT 22
DATA BIT 23	25-24	G12-H12	57-68	57-66	DATA BIT 23
DATA BIT 24	23-22	J1-K1	70-80	67-75	DATA BIT 24
DATA BIT 25	21-20	J2-K2	71-81	68-76	DATA BIT 25
DATA BIT 26	19-18	J3-K3	72-82	69-77	DATA BIT 26
DATA BIT 27	17-16	J4-K4	73-83	70-78	DATA BIT 27
DATA BIT 28	15-14	J5-K5	74-84	71-79	DATA BIT 28
DATA BIT 29	13-12	J6-K6	75-85	72-80	DATA BIT 29
DATA BIT 30	11-10	J7-K7	76-86	73-81	DATA BIT 30
DATA BIT 31	9-8	J8-K8	77-87	5-12	DATA BIT 31
DATA BIT 32		J9-K9	5-15	10-11	DATA BIT 32
DATA BIT 33		J10-K10	6-16	82-83	DATA BIT 33
DATA BIT 34		J11-K11	7-17	19-27	DATA BIT 34
DATA BIT 35		J12-K12	8-18	84-85	DATA BIT 35
SPARE	5-6	B2-A2	21-46	28-20	SPARE
SPARE	3-4	B3-A3	44-79	38-48	SPARE
SPARE	1-2	B4-A4			SPARE
SPARE		B9-A9			SPARE
SPARE		B10-A10			SPARE
SHIELD	7	B1	45-69	74	SHIELD

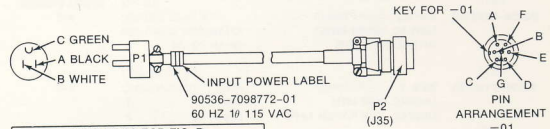
NOTE: FOR ARMORED CABLE THE SHIELD IS TO BE CONNECTED TO THE APPROPRIATE PIN IN THE CONNECTOR BLOCK.

IN COLUMNS LISTING PIN NUMBERS THE FIRST PIN LISTED CARRIES THE ACTIVE SIGNAL AND THE SECOND THE RETURN.



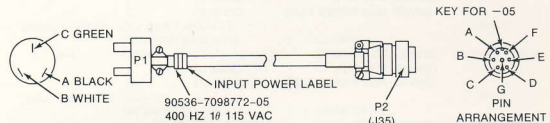
ORIGIN	WIRE COLOR	DESTINATION
P1-X	BLACK	P2-A
P1-Y	RED	P2-B
P1-Z	ORANGE	P2-C
P1-N	WHITE	P2-D
P1-GND	GREEN	P2-G

-00 400 HZ 3Ø 115 VAC
-02 400 HZ 3Ø 208 VAC
-03 60 HZ 3Ø 115 VAC
-04 60 HZ 3Ø 208 VAC



ORIGIN	WIRE COLOR	DESTINATION
P1-A	BLACK	P2-A
P1-B	WHITE	P2-B
P1-C	GREEN	P2-G

90536-7098772-01
60 HZ 1Ø 115 VAC



ORIGIN	WIRE COLOR	DESTINATION
P1-A	BLACK	P2-A
P1-B	WHITE	P2-B
P1-C	GREEN	P2-G

90536-7098772-05
400 HZ 1Ø 115 VAC

POWER CONNECTOR (J35) PIN ASSIGNMENTS:
MATING CONNECTOR KITS: 90536-7150314-00, 400 HZ; MS 3106R20-15S
90536-7150314-01, 60 HZ; MS 3106R20-15S2

PIN NO.	1 Ø	3 ØY (208V)	3 ØΔ
A	115 VAC	115 VAC LINE TO NEUTRAL (Ø A)	115 VAC LINE TO LINE (Ø A)
B	NEUTRAL (COMMON)	115 NEUTRAL LINE TO NEUTRAL (Ø B)	115 VAC LINE TO LINE (Ø B)
C	NOT USED	115 VAC LINE TO NEUTRAL (Ø C)	115 VAC LINE TO LINE (Ø C)
D	NOT USED	NEUTRAL (COMMON)	NOT USED
E	NOT USED	NOT USED	NOT USED
F	NOT USED	NOT USED	NOT USED
G	SAFETY GROUND	SAFETY GROUND	SAFETY GROUND

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS

The following list contains all the NDRO Program Kit configurations that are available. The first section of the list contains bootstraps that were developed for AN/UJK-20 users and are under AN/UJK-20 Baseline Control. The second section of the list contains bootstraps that were developed by Sperry for their non-military users. In order to minimize NDRO development to the Government, Sperry has allowed that the U-1600 and U-1600 Expanded Memory (EM) bootstraps be available for AN/UJK-20 users. However, these U-1600 and U-1600 EM bootstraps are not under AN/UJK-20 Baseline Control.

Section 1

BOOTSTRAPS DEVELOPED FOR AN/UJK-20(V) AND AN/UJK-20A(V) COMPUTERS

PART NUMBER	BOOT NAME DEVICE-1 NAME DEVICE-2 NAME	OCTAL CHAN NO	BOOT STRAP SWITCH	PX10563 SEC. NO.	
90536-7125150	EWDR PERTEC MTU 556 BPI REMEM 6375 PAPER TAPE	CHAN 07	1	3-1	
		CHAN 04	2		
90536-7136150	CVTSC UNIVAC 1840M MTU INTERCOMPUTER	CHAN 01	1	3-2	
		CHAN 00-04	2		
90536-7136155	SYS-1 UNIVAC 1540 MTU UNIVAC 1532 PAPER TAPE	CHAN 17	1	3-3	
		CHAN 16	2		
90536-7136160	IOIC UNIVAC 1540 MTU INTERCOMPUTER	CHAN 00	1	3-4	
		CHAN 03-07	2		
90536-7136165	ESMDE UNIVAC 1540 MTU UNIVAC 1532 PAPER TAPE	CHAN 01	1	3-5	
		CHAN 00	2		
90536-7136170	STANDARD UNIVAC 1540 MTU UNIVAC 1532 PAPER TAPE	CHAN 00	1	3-6	
		CHAN 01	2		
90536-7136186	SSIXS(A) CIPHER MARK I MTU SYSTEM INDUST. 3500-33 DISK	CHAN 15	1	3-7	
		CHAN 17	2		
90536-7136190	SSIXS(B) CIPHER DATA PRO. C-200 CASS. REMEM 6375 PAPER TAPE	CHAN 00	1	3-8	
		CHAN 01	2		
90536-7136195	OW-75(A) UNIVAC 1840M MTU UNIVAC 1538 PAPER TAPE	CHAN 03	1	3-19	
		CHAN 02	2		
90536-7136205	SAMAC KENNEDY 9000 MTU EEOO PAPER TAPE	CHAN 11	1	3-11	
		CHAN 07	2		
90536-7136210	SSQ-72 DIGITRONICS 2540 PTR	CHAN 10	1-2	3-12	
90536-7136216	TPN22 KENNEDY 9000 MTU	CHAN 03	1-2	3-27	
90536-7136220	CFP UNIVAC 1532 PAPER TAPE	CHAN 10	1-2	3-14	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136230	GARD N.A.F.I. PAPER TAPE TT-187.5 LEVEL PTP RDR	CHAN 10	1	3-15	
		CHAN 07	2		
90536-7136235	ADSCS CJ-172 DEAC MTU KENNEDY 9000 MTU	CHAN 10	1	3-30	
		CHAN 11	2		
90536-7136245	SSS(A) UNIVAC 1840M MTU UNIVAC 1532 PAPER TAPE	CHAN 16	1	3-18	
		CHAN 04	2		
90536-7136250	SSS(B) KENNEDY 9000 MTU UNIVAC 1004 CARD RDR	CHAN 14	1	3-32	
		CHAN 15	2		
90536-7136256	MK-48 UNIVAC 1544 MTU 601 CARD READER	CHAN 11-15	1	3-35	
		CHAN 06	2		
90536-7136260	E.W. SUITE(A) UNISERVO VI-C MTU	CHAN 14	1-2	3-22	
90536-7136270	PMO-403 UNIVAC 1544 MTU UNIVAC 610 CASSETTE	CHAN 10	1	3-33	
		CHAN 14	2		
90536-7136275	SPS-48 UNIVAC 1243 MTU UNIVAC 1231 PAPER TAPE	CHAN 02	1	3-25	
		CHAN 01	2		
90536-7136281	CLARINET MIRACLE KENNEDY 9000 MTU INTERCOMPUTER	CHAN 00	1	3-21	
		CHAN 04	2		
90536-7136305	CDS-DN UNIVAC 1243 MTU UNIVAC 1231 PAPER TAPE	CHAN 02-06	1	3-23	
		CHAN 01	2		
90536-7136310	CDS-SD UNIVAC 1540 MTU UNIVAC 1243 MTU	CHAN 13-17	1	3-24	
		CHAN 13-17	2		
90536-7136315	E.W. SUITE(B) INTELLIGENT MEM DISK	CHAN 17	1-2	3-29	
90536-7136320	DASS REMEM 6375 PAPER TAPE KENNEDY 2330 CARTRIDGE	CHAN 01	1	3-36	
		CHAN 02	2		
90536-7136325	CMSGT CIPHER DATA PRO C-200 CASS. SINGER CL107MA-A DISK	CHAN 00	1	3-37	
		CHAN 04	2		
90536-7136330	ICAD UNIVAC 1240 MTU CIPHER C-2000 CASSETTE	CHAN 04	1	3-28	
		CHAN 00	2		
90536-7136335	HWLS UNIVAC 610 CASSETTE UNIVAC 1532 PAPER TAPE	CHAN 14	1	3-38	
		CHAN 04	2		

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136355	CDSSD(A)			3-49
	UNIVAC 1540 MTU	CHAN 13-17	1	
	UNIVAC 1243 MTU	CHAN 13-17	2	
90536-7136360	MAGIS(A)			3-40
	UNIVAC 1840M MTU	CHAN 10	1	
	INTERCOMPUTER	CHAN 13	2	
90536-7136376	ESMSP			3-42
	UNIVAC 1532 PAPER TAPE	CHAN 14	1	
	UNIVAC 1540 MTU	CHAN 15	2	
90536-7136385	MK-68			3-39
	MK-68 GFCS PTR	CHAN 03	1-2	
90536-7136390	MK-48(B)			3-41
	UNIVAC 1544 MTU	CHAN 11-15	1	
	CDC 844 DISK	CHAN 13-17	2	
90536-7136396	SOSUS-1			3-16
	CAELUS 206-2 DISK	CHAN 17	1	
	KENNEDY 9000 MTU	CHAN 11	2	
90536-7136400	SSMP(A)			3-13
	UNIVAC 1532 PAPER TAPE	CHAN 01	1	
	KENNEDY 9000 MTU	CHAN 11	2	
90536-7136405	NSRDC			3-9
	TRI DATA 120 CARTRIDGE	CHAN 10	1	
	KENNEDY 9000 MTU	CHAN 14	2	
90536-7136410	SANGUINE(A)			3-10
	PERTEC MTU 800 BPI	CHAN 00	1	
	REMX RR-0302 PAPER	CHAN 01	2	
90536-7136417	NAVMACS			3-20
	UNIVAC 1532 PAPER TAPE	CHAN 15	1	
	UNIVAC CARTRIDGE MCTS	CHAN 16	2	
90536-7136420	LAMPS			3-31
	MOHAWK DATA SCI 2021 CART.	CHAN 04	1	
	UNIVAC 1540 MTU	CHAN 12	2	
90536-7136425	STMA			3-44
	UNIVAC 1870 CASSETTE	CHAN 04	1	
	KENNEDY 9000 MTU	CHAN 14	2	
90536-7136430	ISABPS			3-47
	TT/187 PAPER TAPE READER	CHAN 07	1	
	SYSTEM INDUSTRIES 3500 DISK	CHAN 17	2	
90536-7136435	SRD-19			3-46
	UNIVAC 1870 CASSETTE	CHAN 04	1-2	
90536-7136440	SANGUINE(B)			3-43
	AN/UGC-48A PAPER TAPE	CHAN 10	1	
	KENNEDY 2330 CARTRIDGE	CHAN 05	2	
90536-7136445	SANGUINE(C)			3-26
	KENNEDY 9000 MTU	CHAN 00	1	
	KENNEDY 2330 CARTRIDGE	CHAN 05	2	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136450	PAIR			3-45
	UNIVAC 1840M MTU	CHAN 00	1	
	UNIVAC 1532 PAPER TAPE	CHAN 01	2	
90536-7136455	WSC-2			3-53
	NAVY ANTENNA CONTROL	CHAN --	1-2	
90536-7136460	DDR			3-50
	UNIVAC DDR MTU READ	CHAN 00	1	
90536-7136465	CMTU			3-48
	AN/USH-26 CMTU	CHAN 00	1	
90536-7136475	SSES			3-34
	UNIVAC 1840M MTU	CHAN 00	1	
	TT-187 PAPER TAPE	CHAN 07	2	
90536-7136480	MK86			3-54
	UNIVAC 1540 MTU	CHAN 00	1	
	UNIVAC 1532 PAPER TAPE	CHAN 10	2	
90536-7136490	CLASSIC CALIPER(B)			3-99
	DDC 7310 DISK	CHAN 04	1	
	AN/USH-26 CMTU	CHAN 14	2	
90536-7136500	SSE5(B)			3-17
	KENNEDY 9000 MTU	CHAN 14	1	
	UNIVAC 1532 PAPER TAPE	CHAN 04	2	
90536-7136506	TRIDENT			3-51
	INTERCOMPUTER	CHAN 00	1	
	INTERCOMPUTER	CHAN 01	2	
90536-7136510	TRIDENT(B)			3-63
	INTERCOMPUTER	CHAN 00	1	
	OJ-172 DEAC MTU	CHAN 02	2	
90536-7136515	SEAFARER(A)			3-56
	AN/USH-26 CMTU	CHAN 05	1	
	KENNEDY 9000 MTU	CHAN 00	2	
90536-7136520	SEAFARER(B)			3-52
	AN/USH-26 CMTU	CHAN 05	1	
	UNIVAC 1532 PAPER TAPE	CHAN 00	2	
90536-7136527	ITAOC			3-95
	UNIVAC 1840M MTU	CHAN 03	1	
	PERTEC FLOPPY DISK	CHAN 03	2	
90536-7136531	ITBOIP			3-72
	UNIVAC 1232A PAPER TAPE	CHAN 17	1	
	UNIVAC 1540 MTU	CHAN 12-16	2	
90536-7136535	NTDS			3-55
	UNIVAC 1540 MTU	CHAN 03-07	1	
	UNIVAC 1231 PAPER TAPE	CHAN 01	2	
90536-7136540	ATLTP4			3-60
	CIPHER C-2000 CASSETTE	CHAN 16	1	
	KENNEDY 9000 MTU	CHAN 00	2	
90536-7136545	ATLTP4(B)			3-68
	CIPHER DATA PRO C-200 CART.	CHAN 16	1	
	SINGER CL107MA-A DISK	CHAN 17	2	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136550	IRR UNISERVO VI-C MTU	CHAN 13	1-2	3-64
90536-7136555	IRR(B) SINGER CL107MA-A DISK POTTER MTU	CHAN 16 CHAN 14	1 2	3-75
90536-7136560	SOSUS-2 AN/USH-26 CMTU	CHAN 12	1	3-57
90536-7136566	SOSUS-3 AN/USH-26 CMTU INTERCOMPUTER	CHAN 00 CHAN 04	1 2	3-62
90536-7136570	SOSUS-4 AN/USH-26 CMTU SYSTEM INDUSTRIES 9500	CHAN 12 CHAN 11-15	1 2	3-61
90536-7136575	SURTASS UNIVAC 1870 CASSETTE SINGER LIBRASCOPE	CHAN 07 CHAN 17	1 2	3-81
90536-7136581	NTDS(B) UNIVAC 1243 MTU UNIVAC 1231 PAPER TAPE	CHAN 03-07 CHAN 01	1 2	3-69
90536-7136588	NAVMACS(B) AN/USH-26 CMTU RD-397 PAPER TAPE	CHAN 00 CHAN 01	1 2	3-59
90536-7136592	GYSFJP5 UNIVAC 1870 PAPER TAPE UNIVAC 1870 CASSETTE	CHAN 06 CHAN 06	1 2	3-77
90536-7136595	SQR-XX(B) AN/USH-26 CMTU KENNEDY 9000 MTU	CHAN 01 CHAN 14	1 2	3-58
90536-7136625	SQR-XX WANGCO DISK KENNEDY 9000 MTU	CHAN 17 CHAN 14	1 2	3-66
90536-7136631	SURTASS(B) UNIVAC 1870 CASSETTE SYSTEM INDUSTRIES 9500	CHAN 07 CHAN 11-15	1 2	3-74
90536-7136636	S58FC1G AN/USH-26 CMTU UNIVAC 1540 MTU	CHAN 17 CHAN 16	1 2	3-65
90536-7136640	JALBFP5 REMEX 6375 PAPER TAPE KENNEDY 9000 MTU	CHAN 00 CHAN 04	1 2	3-67
90536-7136650	SPS-48(B) OJ-172 DEAC PAPER TAPE OJ-172 DEAC MTU	CHAN 02-06 CHAN 02-06	1 2	3-70
90536-7136656	SPS-48(C) UNIVAC 1231 PAPER TAPE UNIVAC 1840M MTU	CHAN 01 CHAN 02-06	1 2	3-71

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136663	PDS AN/USH-26 CMTU UNIVAC 1240 MTU	CHAN 03 CHAN 07	1 2	3-73
90536-7136667	MK23TAS AN/USH-26 CMTU KENNEDY 9000 MTU	CHAN 01 CHAN 00	1 2	3-78
90536-7136671	CANADA AN/USH-26 CMTU WANGCO DISK	CHAN 10 CHAN 17	1 2	3-79
90536-7136675	TSCT WANGCO DISK KENNEDY 9000 MTU	CHAN 17 CHAN 13	1 2	3-76
90536-7136685	AEGIS UNIVAC 1840M MTU INTERCOMPUTER	CHAN 10 CHAN 01-05	1 2	3-82
90536-7136690	TFCC UNIVAC 1840 MTU IBM RD-281 DISK	CHAN 01 CHAN 00	1 2	3-133
90536-7136825	SPS-48(D) UNIVAC 1243 MTU UNIVAC 1231 PAPER TAPE	CHAN 02-06 CHAN 01	1 2	3-85
90536-7136830	AEGIS(B) AN/USH-26 CMTU	CHAN 05	1	3-84
90536-7136835	LAMPS(A) OJ-172 DEAC MTU UNIVAC 1840M MTU	CHAN 02-06 CHAN 03-07	1 2	3-86
90536-7136841	JALBEA UNIVAC 1870 PAPER TAPE UNIVAC 1870 CASSETTE	CHAN 00 CHAN 00	1 2	3-83
90536-7136846	PLRS UNISERVO VI-C MTU AN/USH-26 CMTU	CHAN 00 CHAN 06	1 2	3-97
90536-7136851	SSSMP(B) AN/USH-26 CMTU SINGER LIBRASCOPE	CHAN 01 CHAN 17	1 2	3-88
90536-7136855	ATLTP4(C) WANGCO DISC KENNEDY 9000 MTU	CHAN 10 CHAN 00	1 2	3-87
90536-7136860	NCSL-CME CIPHER MTU DDC M6200-128 DISK	CHAN 00 CHAN 01	1 2	3-93
90536-7136865	IRI(C) UNIVAC 1540 MTU UNIVAC 1532 PAPER TAPE	CHAN 00 CHAN 16	1 2	3-90
90536-7136870	IRI(D) UNISERVO VI-C MTU SINGER CL107MA DISK	CHAN 13 CHAN 17	1 2	3-92

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136876	ISABPS(B) TT/187 PAPER TAPE READER SYSTEM INDUSTRIES 3500 DISK	CHAN 01	1	3-89
		CHAN 17	2	
90536-7136880	MAGIS(C) UNIVAC 1840M MTU INTERCOMPUTER	CHAN 04	1	3-105
		CHAN 07	2	
90536-7136888	NAVMACS(C) AN/USH-26 CMTU RD-397 PAPER TAPE	CHAN 16	1	3-91
		CHAN 15	2	
90536-7136891	TACINTEL AN/USH-26 CMTU SYSTEM INDUSTRIES 3500 DISK	CHAN 00	1	3-94
		CHAN 17	2	
90536-7136896	OUTBOARD AN/USH-26 CMTU INTERCOMPUTER	CHAN 14	1	3-96
		CHAN 02	2	
90536-7136900	CCIS UNIVAC 1532 PAPER TAPE UNIVAC 610 CASSETTE	CHAN 00	1	3-98
		CHAN 05	2	
90536-7136915	SQR-19 AN/USH-26 CMTU IBM RASS DISK (AN/UYPH-7(V))	CHAN 01	1	3-134
		CHAN 17	2	
90536-7136920	AEGIS(C) AN/USH-26 CMTU UNIVAC 1840M MTU	CHAN 10	1	3-120
		CHAN 14	2	
90536-7136925	MK-68(B) UNIVAC 1840M MTU SPERRY GYRO PAPER TAPE	CHAN 00	1	3-101
		CHAN 13	2	
90536-7136930	SURTASS(C) KENNEDY 9000 MTU SYSTEM INDUSTRIES 9500 DISK	CHAN 07	1	3-100
		CHAN 13-17	2	
90536-7136935	AEGIS(D) UNIVAC 1840M MTU CDC 9762 DISK	CHAN 07	1	3-104
		CHAN 13-17	2	
90536-7136941	SPS-48(E) AN/USH-26 DRIVE 0 AN/USH-26 DRIVE 1	CHAN 01	1	3-80
		CHAN 01	2	
90536-7136946	COMDAC AN/USH-26 CMTU CL107MB SINGER DISK	CHAN 10	1	3-102
		CHAN 11	2	
90536-7136952	LAMPS(B) AN/USH-26 DRIVE 0 AN/USH-26 DRIVE 1 1540 MTU (SELECTED FROM M. PANEL)	CHAN 01	1	3-106
		CHAN 01	2	
90536-7136955	PDTS(B) UNIVAC 1243 MTU AN/USH-26 CMTU	CHAN 16	1-2	3-103
		CHAN 03-07	1	
90536-7136955	PDTS(B) UNIVAC 1243 MTU AN/USH-26 CMTU	CHAN 03-07	1	3-103
		CHAN 01	2	
90536-7136960	SEAFARER(C) KENNEDY 9000 MTU AN/USH-26 CMTU	CHAN 00	1	3-108
		CHAN 11	2	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7136965	SEAFARER(D) AN/USH-26 CMTU CL107MA SINGER DISK	CHAN 04	1	3-130
		CHAN 07	2	
90536-7136970	RAPLOC UNIVAC 610 CASSETTE KENNEDY 9000 MTU	CHAN 00	1	3-109
		CHAN 13	2	
90536-7136975	ISPE AN/USH-26 CMTU SONAR DATA BUFFER	CHAN 17	1	3-107
		CHAN 16	2	
90536-7136980	RAPLOC(A) UNIVAC 1840M MTU INTERCOMPUTER	CHAN 03-07	1	3-131
		CHAN 00-04	2	
90536-7137025	TYQ AN/USH-26 CMTU PERTEC FLOPPY DISC	CHAN 03	1	3-112
		CHAN 03	2	
90536-7137035	AEGIS(E) AN/USH-26 CMTU UNIVAC 1840M MTU	CHAN 03	1	3-119
		CHAN 07	2	
90536-7137045	LINK-11 AN/USH-26 CMTU OJ-172 DEAC MTU	CHAN 01	1	3-115
		CHAN 03-07	2	
90536-7137055	NIPS UNIVAC 1840M MTU UNIVAC 1532 PAPER TAPE	CHAN 06	1	3-121
		CHAN 12	2	
90536-7313450	AEGIS(F) AN/USH-26 CMTU UNIVAC 1532 PAPER TAPE	CHAN 16	1	3-110
		CHAN 00	2	
90536-7313455	CANADA(B) AN/USH-26 CMTU REMEX 6375 PAPER TAPE	CHAN 10	1	3-111
		CHAN 12	2	
90536-7313598	TARTAR OJ-172 DEAC MTU OJ-172 DEAC PAPER TAPE	CHAN 17	1	3-117
		CHAN 17	2	
90536-7313603	SYS-1(B) AN/USH-26 CMTU UNIVAC 1545 DISK	CHAN 17	1	3-126
		CHAN 07	2	
90536-7313608	SYS-CG AN/USH-26 CMTU PDP-11/70 MTU	CHAN 01	1	3-116
		CHAN 00	2	
90536-7313613	CVNS UNIVAC 1540 MTU UNIVAC 1532 PAPER TAPE	CHAN 10	1	3-114
		CHAN 00	2	
90536-7313618	SYS-1(A) AN/USH-26 CMTU KENNEDY 9000 MTU	CHAN 17	1	3-113
		CHAN 16	2	
90536-7315663	VLS AN/USH-26 CMTU UNIVAC 1532 PAPER TAPE	CHAN 01	1	3-118
		CHAN 04	2	

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7315840	SEANYMPH GENISCO MD CLR-20 MTU DDC MDMS-20 6300 DISK	CHAN 13 CHAN 17	1 2	3-122
90536-7317896	NAVMACS(D) RD-433 DISK UNIT INTERCOMPUTER	CHAN 16 CHAN 14	1 2	3-124
90536-7317902	NAVMACS(E) AN/USH-26 CMTU INTERCOMPUTER	CHAN 16 CHAN 14	1 2	3-125
90536-7319065	SQR-19(A) AN/USH-26 CMTU INTERCOMPUTER	CHAN 01 CHAN 04 OR 05	1 2	3-123
90536-7319072	NR-1 KENNEDY 9000 MTU DDC MDMS-20 6300 DISK	CHAN 02 CHAN 17	1 2	3-132
90536-7319748	SNSNTIF AN/USH-26 CMTU OJ-172 DEAC MTU	CHAN 01 CHAN 03-07	1 2	3-128
90536-7320706	CVNS(A) AN/USH-26 CMTU UNIVAC 1532 PTP RDR	CHAN 10 CHAN 15	1 2	3-129
90536-7321211	SURTASS(D) AN/UYH-3 DISK AN/USH-26 CMTU	CHAN 13 CHAN 14	1 2	3-127
90536-7321528	SHINPADS AN/UYC-501 SERIAL DATA BUS	CHAN 12-16	1/2	3-150
90536-7321624	OFLABT EM* UNIVAC 1543 MTU READ EM UNIVAC 1543 MTU WRITE EM	CHAN 10 CHAN 10	1 2	3-144
90536-7321935	MAPS AN/USH-26 CMTU MICROPOLIS DISK	CHAN 00 CHAN 15	1 2	3-145
90536-7321986	OUTBOARD(A) EM* AN/UYH-7(V) DISK EM AN/UYH-7(V) DISK EM AN/USH-26 CMTU EM	CHAN 15 CHAN 07 CHAN 03	1 2 1	3-146
90536-7322652	QCSC AN/USH-26 CMTU UNIVAC 1545 DISK	CHAN 00 CHAN 17,16	1 2	3-151
90536-7322814	IRR (E) CL107MA DISK UNIT AN/USH-26 CMTU	CHAN 17,16 CHAN 14	1 2	3-152
90536-7323578	MK-68(C) UNIVAC 1840M MTU RAYMOND 6415 CART.	CHAN 00 CHAN 05	1 2	3-158

* All bootstraps identified with an EM (Expanded Memory) are useable on either the U-1600EM or AN/UYK-20A computers. All bootstraps will run on either an expanded memory DPS or a DPS without expanded memory (within their limitations).

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7323584	NAVMACS(F) REV A RD-433 DISK UNIT INTERCOMPUTER	CHAN 16,17 CHAN 14,15	1 2	3-153
90536-7323874	NAVMACS (G) REV A INTERCOMPUTER AN/USH-26 CMTU	CHAN 14 CHAN 16	1 2	3-154
90536-7324696	TARTAR (A) EM* UNIVAC 1870 CASSETTE EM AN/USH-26 CMTU EM UNIVAC 1870 PTP RDR EM	CHAN 00 CHAN 02 CHAN 00	1 2 FROM M.P.	3-159
90536-7324757	IRR (F) CL107MA DISK UNIT AN/USH-26 CMTU	CHAN 17,16 CHAN 14	1 2	3-160
90356-7327092	B20F15 AN/USH-26 CMTU RD-358 (U1840M) MTU	CHAN 03 CHAN 13-17	1 2	3-165
90536-7327170	RANDDG AN/USH-26 CMTU OJ-172 DEAC MTU	CHAN 17 CHAN 16	1 2	3-166
90536-7327704	NAVMACS (H) AN/USH-26 CMTU RD-358 (U1840M) MTU	CHAN 01 CHAN 12-16	1 2	3-167
Section 2				
<u>BOOTSTRAPS DEVELOPED FOR SPERRY U-1600 AND U-1600EM COMPUTERS</u>				
90536-7136695	TCCF ORIG U1600 UNIVAC 1640 MCTU UNIVAC 1645 DISK	CHAN 14 CHAN 17	1 2	3-135
90536-7136985	THOMCSF ORIG U-1600 UNIVAC 1545 DISK UNIVAC 1543 MTU	CHAN 10 CHAN 00	1 2	3-136
90536-7137040	OUKPGC ORIG U-1600 UNIVAC 1545 DISK UNIVAC 1870 CASSETTE	CHAN 00 CHAN 12	1 2	3-137
90536-7137060	COLLINS-FRG ORIG U-1600 INTERCOMPUTER ASR-33 PAPTP-READER	CHAN 03 CHAN 10	1 2	3-138
90536-7309295	ELGRECO ORIG U-1600 UNIVAC 1545 DISK UNIVAC CASSETTE	CHAN 17 CHAN 15	1 2	3-139
90536-7314180	GOVISR ORIG U-1600 UNIVAC 1545 DISK UNIVAC 1543 MTU	CHAN 06 CHAN 07	1 2	3-140
90536-7314830	JP3C ORIG U-1600 UNIVAC 1540 MTU SI-9500 DISK	CHAN 12-16 CHAN 17	1 2	3-141

* All bootstraps identified with an EM (Expanded Memory) are useable on either the U-1600EM or AN/UYK-20A computers. All bootstraps will run on either an expanded memory DPS or a DPS without expanded memory (within their limitations).

AVAILABLE NDRO PROGRAM KIT CONFIGURATIONS (continued)

90536-7316139	EZIF ORIG U-1600 UNIVAC 1870 PAPPT RDR UNIVAC 1870 CASSETTE	CHAN 05	1	3-142
		CHAN 05	2	
90536-7321618	PINSBT ORIG U-1600 EM* AN/USH-26 CMTU-READ EM AN/USH-26 CMTU-WRITE EM	CHAN 12	1	3-143
		CHAN 12	2	
90536-7322151	SCDSBT ORIG U-1600 EM* UNIVAC 1545 LARK DISK EM UNIVAC 1543 MTU EM	CHAN 17	1	3-147
		CHAN 16	2	
90536-7322535	TCCF(A) ORIG U-1600 UNIVAC 1640 CART. UNIVAC 1645 DISK	CHAN 13	1	3-148
		CHAN 17	2	
90536-7322536	PLRSEM ORIG U-1600 EM* UNISERVO VI-C MTU EM AN/USH-26 CMTU EM.	CHAN 00	1	3-149
		CHAN 06	2	
90536-7323179	TESS ORIG U-1600 EM* AN/UYH-3 DISK EM UNIVAC 1540 MTU EM	CHAN 15	1	3-155
		CHAN 04	2	
90536-7323371	MHQBT ORIG U-1600 EM* UNIVAC 1545 DISK EM UNIVAC 1543 MTU EM	CHAN 06	1	3-156
		CHAN 05	2	
90536-7323538	OUKCSMT ORIG U-1600 UNIVAC 1543 MTU UNIVAC 1870 CASSETTE	CHAN 00	1	3-157
		CHAN 10	2	
90536-7324054	BRD358T ORIG U-1600 UTS-40 FLOPPY DISK UNIVAC 1840 MTU	CHAN 14	1	3-163
		CHAN 00	2	
90536-7324131	IAFBT ORIG U-1600 EM* UNIVAC 1545 DISK EM E-SYSTEMS G953 MTU EM	CHAN 06	1	3-162
		CHAN 07	2	
90536-7324685	MELCOBT ORIG U-1600 EM* UNIVAC 1545 DISK EM UNIVAC 1543 MTU EM	CHAN 10	1	3-161
		CHAN 04	2	
90536-7325196	MHQLII ORIG U-1600 EM* UNIVAC 1545 (LARK) DISK EM UNIVAC 1545 (LARK) DISK EM UNIVAC 1543 MTU EM	CHAN 04	1	3-164
		CHAN 05	2	
		CHAN 06	FROM	
			M.P.	

* All bootstraps identified with an EM (Expanded Memory) are useable on either the U-1600EM or AN/UYK-20A computers. All bootstraps will run on either an expanded memory DPS or a DPS without expanded memory (within their limitations).

COMMON SERIAL I/O OPERATING MODE SELECTION INSTRUCTIONS

DESCRIPTION - Common serial I/O consists of two new serial interface kits which supersede all existing MIL-188C and RS-232C Interface Kits (refer to the following table).

COMMON SERIAL I/O KITS

DESCRIPTION	MIL-188C	RS-232C
KIT PART NUMBER	90536-7313567-00	90536-7313568-00
NOMENCLATURE	MK-2051/UYK-20(V)	MK-2048/UYK-20(V)
CARD TYPE I OR IA	90536-7312528-00	90536-7312528-00
CARD TYPE II OR III	90536-7312530-00	90536-7312670-00

The new cards use field alterable contact jumpers to permit interchangeability at the circuit card level. Use a needle-nose pliers to install and remove contact jumpers (90536-7098775-01).

INTERCHANGEABILITY AT THE CARD LEVEL - The common serial I/O Kit Type I/IA card replaces all previous Type I/IA cards and the Type II/III cards replace all previous Type II/III cards. Use the following procedure to replace an existing card.

- Remove existing card, locate the card part number in Table Type I or IA or Table Type II or III, and determine appropriate jumper locations.
- Install contact jumpers in TB1(J3) for Type I/IA cards to match the configuration shown in Table Type I or IA. For Type II/III cards install contact jumpers in TB1(J3) and TB2(J4) as shown in Table Type II or III. The Configuration Definition Table defines symbols used in Table Type I or IA and Table Type II or III. See page 40 for TB locations.
- Place new common serial card in the card jack occupied by the old card.

GROUP INSTALLATION - Group installation provides additional jumper selectable options. To select any mode place a jumper over the symbol representing that mode (see Table Type I or IA and Table Type II or III). Selection of sync/async can be incorporated at the channel level. For example, to make the odd channel sync mode, place a contact jumper over (SO) on Type I or IA and over (SO) on Type II or III. To make even channel async mode, place contact jumper over (AE) on Type I or IA and over (AE) on Type II or III. Two new asynchronous baud rates, 4800 and 9600, have been added. Also, an option has been added to allow the forced use of a single jumpered asynchronous baud rate independent of programmed selection, i.e., if only 9600 baud rate is selected, the two channel group will operate at 9600 baud rate regardless of programmed selection. Four baud rates may be selected for maximum use. A zero/one fill option is provided for input characters less than 8 bits in length. When running diagnostics, the zero/one fill option must be in the one's fill mode.

CONFIGURATION DEFINITION

TYPE I OR IA		
SYMBOL	MODE	J3(TB1)
SO	ODD CHANNEL SYNC	PINS 14 AND 15
AO	ODD CHANNEL ASYNC	PINS 13 AND 14
SE	EVEN CHANNEL SYNC	PINS 11 AND 12
AE	EVEN CHANNEL ASYNC	PINS 10 AND 11
RS	RS232C INTERFACE	PINS 8 AND 9
ML	MIL-188C INTERFACE	PINS 7 AND 8
1F	ONE'S FILL	PINS 5 AND 6
0F	ZERO FILL	PINS 4 AND 5
SP	SPARE JUMPER	PINS 1 AND 2

TYPE II OR III					
SYMBOL	MODE	J3(TB1)	SYMBOL	MODE	J4(TB2)
AE	EVEN CHANNEL ASYNC	PINS 11 AND 12	.75	75 BPS	PINS 15 AND 16
SE	EVEN CHANNEL SYNC	PINS 10 AND 11	1.5	150 BPS	PINS 13 AND 14
AO	ODD CHANNEL ASYNC	PINS 8 AND 9	3	300 BPS	PINS 11 AND 12
SO	ODD CHANNEL SYNC	PINS 7 AND 8	6	600 BPS	PINS 9 AND 10
SP	SPARE JUMPER	PINS 1 THROUGH 6	12	1200 BPS	PINS 7 AND 8
			24	2400 BPS	PINS 5 AND 6
			48	4800 BPS	PINS 3 AND 4
			96	9600 BPS	PINS 1 AND 2

TYPE I OR IA JUMPER LOCATIONS

	90536 PART NUMBER	NATIONAL STOCK NUMBER	TB1 1&2 SP	TB1 4&5 OF	TB1 5&6 1F	TB1 7&8 ML	TB1 8&9 RS	TB1 10&11 AE	TB1 11&12 SE	TB1 13&14 AO	TB1 14&15 SO	CONNECTOR PINS SYMBOL
MIL-188C SYNC	7119437	7010 00 522 3583	SP		X	X			X		X	
MIL-188C ASYNC	7133227	7010 00 522 4259	SP		X	X		X		X		
RS232C SYNC	7119446	7010 00 522 3598	SP		X		X		X		X	
RS232C ASYNC	7133306	7010 00 525 1389	SP		X		X	X		X		

TYPE II OR III JUMPER LOCATIONS

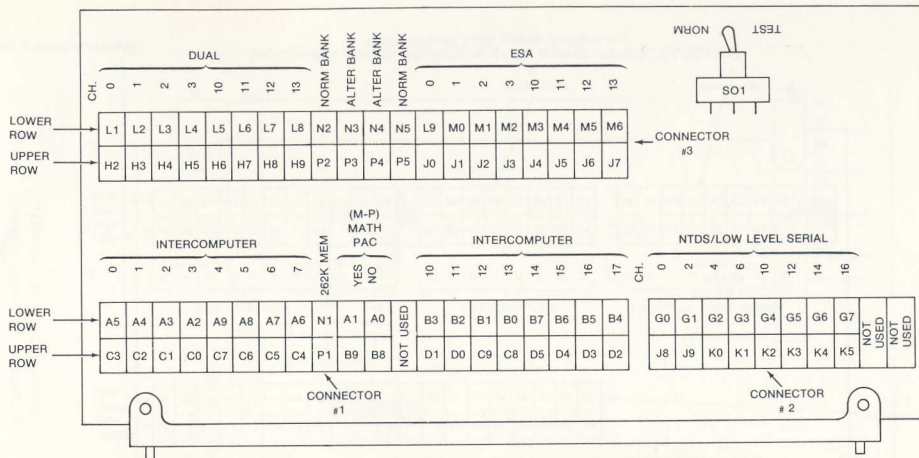
	90536 PART NUMBER	NATIONAL STOCK NUMBER	TB1 1-6 SP	TB1 7&8 SO	TB1 8&9 AO	TB1 10&11 SE	TB1 11&12 AE	TB2 1&2 96	TB2 3&4 48	TB2 5&6 24	TB2 7&8 12	TB2 9&10 6	TB2 11&12 3	TB2 13&14 1.5	TB2 15&16 .75
MIL-188C ASYNC	7133231	7010 00 522 4265	SP		X		X	N/A	N/A			X	X	X	X
MIL-188C ASYNC	7133235	7010 00 522 4269	SP		X		X	N/A	N/A		X		X	X	X
MIL-188C ASYNC	7133240	7010 00 522 4289	SP		X		X	N/A	N/A	X			X	X	X
MIL-188C ASYNC	7133245	7010 00 522 4304	SP		X		X	N/A	N/A		X	X		X	X
MIL-188C ASYNC	7133250	7010 00 522 4308	SP		X		X	N/A	N/A	X		X		X	X
MIL-188C ASYNC	7133255	7010 00 522 4344	SP		X		X	N/A	N/A	X	X			X	X
MIL-188C ASYNC	7133260	7010 00 522 4375	SP		X		X	N/A	N/A		X	X	X		X
MIL-188C ASYNC	7133265	7010 00 522 4396	SP		X		X	N/A	N/A	X		X	X		X
MIL-188C ASYNC	7133271	7010 00 522 4410	SP		X		X	N/A	N/A	X	X		X		X
MIL-188C ASYNC	7133275	7010 00 525 1216	SP		X		X	N/A	N/A		X	X	X	X	
MIL-188C ASYNC	7133280	7010 00 525 1254	SP		X		X	N/A	N/A	X		X	X	X	
MIL-188C ASYNC	7133285	7010 00 525 1314	SP		X		X	N/A	N/A	X	X	X	X		

N/A IMPLIES NOT AVAILABLE

TYPE II OR III JUMPER LOCATIONS (continued)

	90536 PART NUMBER	NATIONAL STOCK NUMBER	TB1 1-6 SP	TB1 7&8 SO	TB1 8&9 AO	TB1 10&11 SE	TB1 11&12 AE	TB2 1&2 96	TB2 3&4 48	TB2 5&6 24	TB2 7&8 12	TB2 9&10 6	TB2 11&12 3	TB2 13&14 1.5	TB2 15&16 .75
MIL-188C ASYNC	7133291	7010 00 525 1383	SP		X		X	N/A	N/A	X	X	X			X
MIL-188C ASYNC	7133295	7010 00 525 1386	SP		X		X	N/A	N/A	X	X	X		X	
MIL-188C ASYNC	7133300	7010 00 525 1388	SP		X		X	N/A	N/A	X	X		X	X	
RS232C ASYNC	7133310	7010 00 578 2336	SP		X		X	N/A	N/A			X	X	X	X
RS232C ASYNC	7133315	5999 01 065 8309	SP		X		X	N/A	N/A		X		X	X	X
RS232C ASYNC	7133320	7010	SP		X		X	N/A	N/A	X			X	X	X
RS232C ASYNC	7133325	7010	SP		X		X	N/A	N/A		X	X		X	X
RS232C ASYNC	7133330	7010 01 003 6382	SP		X		X	N/A	N/A	X		X		X	X
RS232C ASYNC	7133335	7010 01 003 6386	SP		X		X	N/A	N/A	X	X		X	X	X
RS232C ASYNC	7133340	7010	SP		X		X	N/A	N/A		X	X	X		X
RS232C ASYNC	7133345	7010	SP		X		X	N/A	N/A	X		X	X		X
RS232C ASYNC	7133350	7010 01 003 6383	SP		X		X	N/A	N/A	X	X		X	X	X
RS232C ASYNC	7133355	5999 01 065 8310	SP		X		X	N/A	N/A		X	X	X	X	
RS232C ASYNC	7133360		SP		X		X	N/A	N/A	X		X	X	X	
RS232C ASYNC	7133365	7010 01 003 6380	SP		X		X	N/A	N/A	X	X	X		X	
RS232C ASYNC	7133370	7010 00 525 1414	SP		X		X	N/A	N/A	X	X	X			X
RS232C ASYNC	7132100	7010 01 003 6387	SP		X		X	N/A	N/A	X	X	X		X	
RS232C ASYNC	7132105	7010 00 578 2338	SP		X		X	N/A	N/A	X	X		X	X	
MIL-188C SYNC	7119441	7010 00 522 3590	SP	X			X	N/A	N/A						
RS232C SYNC	7119450	7010 00 578 2300	SP	X			X	N/A	N/A						

N/A IMPLIES NOT AVAILABLE



AN/UYK-20A I/O MODE SELECTION CARD JUMPER CONTACT LOCATION
COMPONENT SIDE (90536-7310512-01)

SEE PAGES 45 AND 46 FOR JUMPER PLACEMENT

NOTE: PINS P1 AND N1 OF CONNECTOR NUMBER 1 MUST ALWAYS BE JUMPED IN THE AN/UYK-20A(V).

I/O MODE SELECTION CARD JUMPER LOCATIONS*

CHAN.	CONNECTOR 3	CONNECTOR 3	CONNECTOR 3	CONNECTOR 1	CONNECTOR 2	CONNECTOR 3
	NORM (16-BIT)	DUAL (32-BIT)	ESA** (32-BIT)	IC*** (16,32)	NTDS/LOW LEVEL SERIAL (32-BIT)	VACALES, 188C, OR 232C
0	Jumper L1 to H2	Remove L1 to H2	Jumper L9 to J0	Jumper A5 to C3	Jumper G0 to J8	Jumper L1 to H2
1	Jumper L2 to H3	Remove L2 to H3	Jumper M0 to J1	Jumper A4 to C2	-	Jumper L2 to H3
2	Jumper L3 to H4	Remove L3 to H4	Jumper M1 to J2	Jumper A3 to C1	Jumper G1 to J9	Jumper L3 to H4
3	Jumper L4 to H5	Remove L4 to H5	Jumper M2 to J3	Jumper A2 to C0	-	Jumper L4 to H5
4	See 0	See 0	See 0	Jumper A9 to C7	Jumper G2 to K0	See 0
5	See 1	See 1	See 1	Jumper A8 to C6	-	See 1
6	See 2	See 2	See 2	Jumper A7 to C5	Jumper G3 to K1	See 2
7	See 3	See 3	See 3	Jumper A6 to C4	-	See 3
10 _B	Jumper L5 to H6	Remove L5 to H6	Jumper M3 to J4	Jumper B3 to D1	Jumper G4 to K2	Jumper L5 to H6
11 _B	Jumper L6 to H7	Remove L6 to H7	Jumper M4 to J5	Jumper B2 to D0	-	Jumper L6 to H7
12 _B	Jumper L7 to H8	Remove L7 to H8	Jumper M5 to J6	Jumper B1 to C9	Jumper G5 to K3	Jumper L7 to H8
13 _B	Jumper L8 to H9	Remove L8 to H9	Jumper M6 to J7	Jumper B0 to C8	-	Jumper L8 to H9
14 _B	See 10 _B	See 10 _B	See 10 _B	Jumper B7 to D5	Jumper G6 to K4	See 10 _B
15 _B	See 11 _B	See 11 _B	See 11 _B	Jumper B6 to D4	-	See 11 _B
16 _B	See 12 _B	See 12 _B	See 12 _B	Jumper B5 to D3	Jumper G7 to K5	See 12 _B
17 _B	See 13 _B	See 13 _B	See 13 _B	Jumper B4 to D2	-	See 13 _B

*Volume 3, Part 1, Figures 9-152 and 9-153.

**Jumper in the selected dual channel position must be removed.

***If IC channel is also to be dual or ESA, IC jumper only the lower channel of the pair.

NOTE: PINS P1 AND N1 OF CONNECTOR NUMBER 1 MUST ALWAYS BE JUMPED IN THE AN/UYK-20A(V).

I/O MODE SELECTION CARD JUMPER REQUIREMENTS FOR AN/UJK-20 AND AN/UJK-20A

MODE SELECTED	CONNECTOR NUMBER	MODE SELECTION REQUIREMENTS						MATH PAC		TEST MODE SWITCH		252K MEM	NORM BANK/ ALTER BANK
		IC	NTDS/LOW SERIAL LEVEL	DUAL JUMPER	ES	YES	NO	YES	NO	NORM	TEST		
NORMAL	3	NO JUMPER	NO JUMPER	JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
NTDS/LOW LEVEL	2	NA	JUMPER	NO JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
SERIAL	3	(1)	NO JUMPER	NO JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
DUAL**	3	(1)	NO JUMPER	NO JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
ESA	(1)	NA	NO JUMPER	NO JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
MATH PAC	1	NA	NA	NA	NO JUMPER	NO JUMPER	A1-B9	NO JUMPER	NA	NA	NOTE 5	NOTE 5	
NO MATH PAC	1	NA	NA	NA	NO JUMPER	NO JUMPER	A1-B9	NO JUMPER	NA	NA	NOTE 5	NOTE 5	
188C or VACALLES	3	NO JUMPER	NO JUMPER	JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
252C	3	NO JUMPER	NO JUMPER	JUMPER	NO JUMPER	NO JUMPER	NA*	NA*	X	X			
TEST MODE	SWITCH	(2)	(2)	(2)	NA	NA	NA*	NA*	(2)	(2)			
EXPANDED	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NOTE 4	NOTE 4	
MEMORY OPTION	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NOTE 3	NOTE 3	

X Denotes Select.

NA Denotes Not Applicable.

* If Math Pac Option is available, connector 1 contacts A1-B9 must be jumpered. If Math Pac Option is not available, connector 1 contacts A0-B8 must be jumpered.

** All unused dual channels must have jumpers installed, connector 3.

(1) If IC mode is desired with dual or ESA, on IC select only the lower numbered channel.

(2) If test position is selected, all channels will be forced into IC mode except the upper half of dual/ESA channels.

(3) NORM BANK - for normal numbering of memory banks (stacks 0,1,2,3 - BANK 0; stacks 4,5,6,7 - BANK 1) Jumper contacts N2 to P2 and N5 to P5.
ALTER BANK - for INTERLEAVING numbering of memory banks (stacks 0,2,4,6 - BANK 0; stacks 1,3,5,7 - BANK 1) Jumper contacts N3 to P3 and N4 to P4. (ALTER is to be used only with expanded memory.)

(4) If DPS is an AN/UJK-20A, contact N1 must always be jumpered to P1.

(5) Expanded memory does not affect the jumpering of the other options, they remain the same as for the DPS with standard memory.

AN/UJK-20 RETROFIT DEFINITION

The AN/UJK-20 is currently being retrofitted to correct anomalies inherent to hardware design. Retrofit I and II are complete. To identify the current retrofit status of an AN/UJK-20 the Field Change (FC) plate will be stamped with MPL or FCO numbers. It should be noted, however, that all AN/UJK-20 computers delivered after the last serial number of the respective MPLs will have been retrofitted in the factory and will not be stamped with the MPL or FCO number.

Example: AA817 will not be stamped with MPL-1534, MPL-1592 or MPL-1698.

The retrofit number, MPL or FCO number, and serial number effected by the MPL are identified in the table below:

RET. I MPL-1534

Serials A1-A325, A327, A328, A330-A342, A344-A347, A413, A436, A490

RET. II MPL-1592

Serials A1-A442, A444-A461, A463-488, A490-A504, A507, A512-A515, A517, A519, A520, A525-A527, A530, A533, A535, A544-A546, A552, A556, A567, A574, A581, A586, A635.

RET. III MPL-1698

Serials A1-A816

RET. IV FCO-151513

Serials A1-A794 with DMA, A1-AA1204 with NTDS Serial I/O, A1-AA1619 with 3 Phase - 60 Hz. Pwr. Sup., A160, A770, A795-AA1084, AA1092, AA1095, AA1099, AA1104, AA1110, AA1111, AA1115, AA1120, AA1166, AA1204.

RET. V

FCO 190706 Serials A1-AA1500 with PIC I/O

FCO 190707 Serials AA1501-AA1672 with PIC I/O

FCO 205294 Serials A1-B2600 with NTDS Serial I/O

All correspondence on retrofit status should be directed to Sperry Field Change Coordinator:

Sperry
SR 584
P.O. Box 6000
Clearwater, FL 33518
Attn: Frank Brown
Telephone: (813) 855-5711

AN/UYK-20 PUBLICATIONS, EQUIPMENT, AND PROGRAM TAPES AVAILABLE

QTY PER EQUIP.	NOMENCLATURE		REQUIRED USE
	NAME	DESIGNATION	
1	TECHNICAL MANUAL VOL. 1	SE610-AV-MMO-010 (NSN 0910-LP-043-7680)	TECHNICAL DOCUMENTATION REFERENCE DATA
1	TECHNICAL MANUAL VOL. 2	SE610-AV-MMO-020 (NSN 0910-LP-043-7690)	
1	TECHNICAL MANUAL VOL. 3 PART 1 Vol. 3 PART 2	SE10-AV-MMO-030 (NSN 0910-LP-043-7700) SE610-AV-MMO-040 (NSN 0910-LP-043-7800)	EQUIPMENT DIAGRAMS
1	TECHNICAL MANUAL VOL. 4	SE10-AV-MMO-050 (NSN 0910-LP-043-7900)	DIAGNOSTIC OP PROCEDURES
1	TECHNICAL MANUAL VOL. 5	SE10-AV-MMO-060 (NSN 0910-LP-043-8000)	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL VOL. 6	SE10-AV-MMO-070 (NSN 0910-LP-043-8100)	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL VOL. 7	SE10-AV-MMO-080 (NSN 0910-LP-043-8200)	CONFIDENCE TESTS
1	HARDWARE USER'S GUIDE	PX13202 (TE610-AD-GYD-010)	
1	CP/MEMORY DIAGNOSTIC PROGRAM TAPE	TE610-AD-SWP-010	TROUBLESHOOTING
1	I/O DIAGNOSTIC PROGRAM TAPE	TE610-AD-SWP-020	TROUBLESHOOTING
1	OPTIONS DIAGNOSTIC PROGRAM TAPE	TE610-AD-SWP-030	TROUBLESHOOTING
*	MICRO GROWTH 1 DIAGNOSTIC TAPE	TE610-AD-SWP-080	TROUBLESHOOTING MICRO GROWTH 1 CARD
*	MICRO GROWTH 2 DIAGNOSTIC TAPE	TE610-AD-SWP-090	TROUBLESHOOTING MICRO GROWTH 2 CARD
*	MICRO GROWTH 3 DIAGNOSTIC TAPE	TE610-AD-SWP-100	TROUBLESHOOTING MICRO GROWTH 3 CARD
*	MICRO GROWTH 4 DIAGNOSTIC TAPE	TE610-AD-SWP-110	TROUBLESHOOTING MICRO GROWTH 4 CARD
1	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150225-00 OR -7126394-00	I/O END-AROUND JUMPERING (CHANNELS 0-3)
2	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150226-00 OR -7126394-00	I/O END-AROUND JUMPERING (CHANNELS 4-17)
1	SINGLE CHANNEL JUMPER PLUG, SERIAL	90536-7150233-00	I/O JUMPERING OF SERIAL CHANNELS (1888C, RS232C, VACALSES)
*	32-BIT (DUAL) CHANNEL JUMPER PLUG, PARALLEL	90536-7126375-00 (INPUT) 90536-7126375-01 (OUTPUT)	TO PERMIT 32-BIT (DUAL PARALLEL) CHANNEL OPERATION
1	HEX-HEAD DRIVER LOGIC CARD EXTRACTOR	90536-7903056-01	OPEN CABINET REMOVE CP
1	MEMORY CARD EXTRACTOR	90536-7109093-00	REMOVE I/O AND MEMORY PC CARDS
REF DATA	OUTLINE AND INSTALLATION DWG DRAWING LIST	NAVSEA RE-E5033644 (90536-7126400)	
	ELOCK DIAGRAM	NAVSEA RE-B5033696 (90536-7127660)	
	CABLE RUN SHEETS SUMMARY OF INSTALL MTLs	NAVSEA RE-D5033642 (90536-7127661) NAVSEA RE-A5033640 (90536-7127663) NAVSEA RE-C5033641 (90536-7127664)	
	I/O SHEETS	NAVSEA RE-D5033643 (90536-7127665)	

*ITEMS ARE REQUIRED ONLY IF THOSE OPTIONS ARE CONFIGURED INTO THE DPS. THE DOCUMENTS, TAPES, AND EQUIPMENT LISTED ARE AVAILABLE FROM:

1. COMMANDER
NAVAL SEA SYSTEMS COMMAND
DEPARTMENT OF THE NAVY
WASHINGTON, D.C. 20362-5101
ATTN: PMS 408421
2. COMMANDING OFFICER
NAVAL ELECTRONIC SYSTEMS ENGINEERING ACTIVITY
ST. INGOES, MD 20684
ATTN: CODE 0271
AN/UYK-20 ISEA
3. SPERRY
P.O. BOX 43525
ST. PAUL, MN, 55164
ATTN: AN/UYK-20 PROG. MGR.

AN/UYK-20A PUBLICATIONS, EQUIPMENT, AND PROGRAM TAPES AVAILABLE

QTY PER EQUIP.	NOMENCLATURE		REQUIRED USE
	NAME	DESIGNATION	
1	TECHNICAL MANUAL VOL. 1	SE610-A3-MMO-010	TECHNICAL DOCUMENTATION REFERENCE DATA
1	TECHNICAL MANUAL VOL. 2	SE610-A3-MMO-020	
1	TECHNICAL MANUAL VOL. 3	SE610-A3-MMO-030	EQUIPMENT DIAGRAMS
1	TECHNICAL MANUAL VOL. 4	SE610-A3-MMO-040	DIAGNOSTIC OP PROCEDURES
1	TECHNICAL MANUAL VOL. 5	SE610-A3-MMO-050	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL VOL. 6	SE610-A3-MMO-060	DIAGNOSTIC LISTINGS
1	TECHNICAL MANUAL VOL. 7	SE610-A3-MMO-070	CONFIDENCE TESTS
1	HARDWARE USER'S GUIDE	PX14235 (SE610-A3-GYD-010)	
1	CP/MEMORY DIAGNOSTIC PROGRAM TAPE	TE610-AL-SWP-010	TROUBLESHOOTING
1	I/O DIAGNOSTIC PROGRAM TAPE	TE610-AL-SWP-020	TROUBLESHOOTING
1	OPTIONS DIAGNOSTIC PROGRAM TAPE	TE610-AL-SWP-030	TROUBLESHOOTING
*	MICRO GROWTH 1 DIAGNOSTIC TAPE	TE610-AL-SWP-080	TROUBLESHOOTING MICRO GROWTH 1 CARD
*	MICRO GROWTH 2 DIAGNOSTIC TAPE	TE610-AL-SWP-090	TROUBLESHOOTING MICRO GROWTH 2 CARD
*	MICRO GROWTH 3 DIAGNOSTIC TAPE	TE610-AL-SWP-100	TROUBLESHOOTING MICRO GROWTH 3 CARD
*	MICRO GROWTH 4 DIAGNOSTIC TAPE	TE610-AL-SWP-110	TROUBLESHOOTING MICRO GROWTH 4 CARD
1	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150225-00 OR -7126394-00	I/O END-AROUND JUMPERING (CHANNELS 0-3)
2	SINGLE CHANNEL JUMPER PLUG, PARALLEL	90536-7150226-00 OR -7126394-00	I/O END-AROUND JUMPERING (CHANNELS 4-17)
1	SINGLE CHANNEL JUMPER PLUG, SERIAL	90536-7150233-00	I/O JUMPERING OF SERIAL CHANNELS (1888C, RS232C, VACALSES)
*	32-BIT (DUAL) CHANNEL JUMPER PLUG, PARALLEL	90536-7126375-00 (INPUT) 90536-7126375-01 (OUTPUT)	TO PERMIT 32-BIT (DUAL PARALLEL) CHANNEL OPERATION
1	HEX-HEAD DRIVER LOGIC CARD EXTRACTOR	90536-7903056-01	OPEN CABINET REMOVE CP
1	MEMORY CARD EXTRACTOR	90536-7109093-00	REMOVE I/O AND MEMORY PC CARDS
REF DATA	OUTLINE AND INSTALLATION DWG DRAWING LIST	NAVSEA RE-E5033644 (90536-7126400)	
	BLOCK DIAGRAM	NAVSEA RE-B5033696 (90536-7127660)	
	CABLE RUN SHEETS SUMMARY OF INSTALL MTLs	NAVSEA RE-D5033642 (90536-7127661) NAVSEA RE-A5033640 (90536-7127663) NAVSEA RE-C5033641 (90536-7127664)	
	I/O SHEETS	NAVSEA RE-D5033643 (90536-7127665)	

*ITEMS ARE REQUIRED ONLY IF THOSE OPTIONS ARE CONFIGURED INTO THE DPS. THE DOCUMENTS, TAPES, AND EQUIPMENT LISTED ARE AVAILABLE FROM:

1. COMMANDER
NAVAL SEA SYSTEMS COMMAND
DEPARTMENT OF THE NAVY
WASHINGTON, D.C. 20362-5101
ATTN: PMS 408421
2. COMMANDING OFFICER
NAVAL ELECTRONIC SYSTEMS ENGINEERING ACTIVITY
ST. INGOES, MD 20684
ATTN: CODE 0271
AN/UYK-20 ISEA
3. SPERRY
P.O. BOX 43525
ST. PAUL, MN, 55164
ATTN: AN/UYK-20 PROG. MGR.

AN/UYSK-20 REPLACEABLE ASSEMBLIES LIST - PART 1, REVISION B, 04/30/85

PART NUMBER	SUPERCEDES	SUPERCEDED BY	PART NUMBER	SUPERCEDES	SUPERCEDED BY
905411-04	-	7150314-00	7119436-01	7119435-01	7119437-01
905411-06	-	7150314-01	7119437-01	7119436-01	7132528-00
7092030-01	-	7092031-01	7119440-01	-	7119441-01
7092031-01	7092030-01	7092032-01	7119441-01	7119440-01	7132530-00
7092032-01	7092031-01	7125960-01	7119445-01	-	7119446-01
7092175-01	-	7092176-01	7119446-01	7119445-01	7132528-00
7092176-01	7092175-01	7150210-01	7119450-01	-	7132527-00
7092181-01	-	7136285-01	7125125-01	-	7125126-01
7092185-01	-	7092187-01	7125126-01	7125125-01	7125127-01
7092187-01	7092185-01	-	7125127-01	7125126-01	7125128-01
7092195-01	-	-	7125128-01	7125127-01	7125129-01
7092200-01	-	7092201-01	7125129-01	7125128-01	-
7092201-01	7092200-01	-	7125130-01	-	7125131-01
7101802-00	-	7101802-01	7125131-01	7125130-01	7125132-01
7101802-01	7101802-00	7101802-02	7125132-01	7125131-01	7125133-01
7101802-02	7101802-01	7101802-03	7125133-01	7125132-01	-
7101802-03	7101802-02	7101802-04	7125134-01	7125133-01	7125136-01
7101802-04	7101802-03	7101802-05	7125135-01	7125134-01	-
7101802-05	7101802-04	7101802-06	7125135-01	7125135-01	7125156-01
7101802-06	7101802-05	-	7125156-01	7125155-01	7125157-01
7101803-00	-	7313567+00	7125157-01	7125156-01	-
7101805-00	-	7132194-00	7125175-01	-	7125236-01
7101805-01	-	7132194-01	7125235-01	-	7125237-01
7101806-00	-	7132195-00	7125236-01	7125235-01	-
7101806-01	-	7132195-01	7125237-01	7125236-01	-
7101807-00	-	7132196-00	7125240-01	-	7125241-01
7101807-01	-	7132196-01	7125241-01	7125240-01	-
7101824-01	-	7101824-02	7125275-01	-	7125276-01
7101824-02	7101824-01	7101824-03	7125276-01	7125275-01	-
7101824-03	7101824-02	-	7125290-01	-	7125306-01
7101840-00	-	7135560-00	7125305-01	-	7125307-01
7101840-01	-	7135561-00	7125306-01	7125305-01	7125306-01
7101840-02	-	7150352-00	7125307-01	7125306-01	-
7101885-00	-	7135563-00	7125310-01	7125309-01	7125311-01
7101943-00	-	7150331-01	7125311-01	7125310-01	-
7101943-01	-	7150331-01	7125330-01	-	7150415-01
7101943-02	-	-	7125338-01	-	7125386-01
7101943-03	-	-	7125386-01	7125385-01	7125387-01
7101943-04	-	-	7125387-01	7125386-01	7150400-01
7101943-05	-	-	7125405-01	-	7125406-01
7101943-06	-	-	7125406-01	7125405-01	-
7101943-10	-	-	7125416-01	-	7125417-01
7101943-11	-	-	7125417-01	7125416-01	-
7101943-12	-	-	7125500-01	-	7125501-01
7101943-13	-	-	7125510-01	-	7150400-01
7101943-14	-	-	7125665-01	-	7125666-01
7101943-15	-	-	7125666-01	7125665-01	7150220-01
7101943-16	-	-	7125925-01	-	7125926-01
7101943-17	-	-	7125926-01	7125925-01	-
7101943-18	-	-	7125960-01	7092032-01	7150320-01
7101963-01	-	-	7125961-01	7125960-01	-
7101963-02	-	-	7125962-01	-	7126006-01
7101963-03	-	-	7125963-01	-	7126007-01
7101966-01	-	-	7125964-00	-	7137000-01
7101966-02	-	-	7135565-00	7126006-01	-
7101990-00	-	7135564-00	7126006-01	-	7126007-01
7101995-00	-	7135565-00	7126007-01	7126006-01	-
7118316-01	-	7150465-01	7126010-01	-	7126011-01
7119380-01	-	-	7126011-01	7126010-01	-
7119385-01	-	-	7132152-01	7126125-01	-
7119390-01	-	-	7132154-01	7126130-01	-
7119395-01	-	-	-	7126135-01	7126136-01
7119400-01	7119400-01	7119401-01	7126136-01	7126135-01	-
7119401-01	-	7132146-01	7126137-01	7126136-01	-
7119405-01	-	7132150-01	7126140-01	-	7126141-01
7119410-01	-	-	7126141-01	7126140-01	7126142-01
7119415-01	-	7132156-01	7126142-01	7126141-01	-
7119420-01	-	7132158-01	7126145-01	-	7126146-01
7119425-01	-	7119426-01	7126146-01	7126145-01	7126147-01
7119426-01	7119425-01	7150325-01	7126147-01	7126146-01	7136295-01
7119430-01	-	7119431-01	7126136-01	7126135-01	-
7119431-01	-	7119430-01	7126137-01	7126136-01	-
7119432-01	-	7119432-01	7126140-01	-	7150475-01
7119433-01	-	7119433-01	7126141-01	-	7126156-01
7119434-01	-	7119434-01	7126142-01	-	-
7119435-01	-	7119435-01	7126155-01	-	-
7119436-01	-	7119436-01	7126156-01	-	-

AN/UYSK-20 REPLACEABLE ASSEMBLIES LIST - PART 1, REVISION B, 04/30/85

PART NUMBER	SUPERCEDES	SUPERCEDED BY	PART NUMBER	SUPERCEDES	SUPERCEDED BY
7126160-01	-	-	7132136-01	7126161-01	7132135-01
7126165-01	-	-	7126166-01	7126165-01	7132140-01
7126166-01	7126165-01	-	7126167-01	7126166-01	7132146-01
7126167-01	7126166-01	-	7126171-01	-	7132146-01
7126170-01	-	-	7126172-01	7126171-01	7132148-01
7126171-01	7126170-01	-	7126173-01	7126172-01	7132148-11
7126172-01	7126171-01	-	7126181-01	-	7132150-01
7126175-01	-	-	7126182-01	-	7132152-01
7126180-01	-	-	7126183-01	7126182-01	7119390-01
7126181-01	7126180-01	-	7126184-01	-	7119391-01
7126185-01	-	-	7126185-01	7126184-01	7119415-01
7126186-01	7126185-01	-	7126186-01	7126185-01	7119420-01
7126190-01	-	-	7126187-01	7126186-01	7132194-00
7126191-01	7126190-01	-	7126188-01	7126187-01	7101805-01
7126195-01	-	-	7126189-01	7126188-01	7101806-00
7126196-01	7126195-01	-	7126190-01	7126189-01	7101806-01
7126200-01	-	-	7126191-01	7126190-01	7101807-00
7126200-02	7126200-01	-	7126192-01	7126191-01	7101807-01
7126205-01	-	-	7126193-01	7126192-01	7132199-01
7126206-01	7126205-01	-	7126194-01	7126193-01	-
7126207-01	7126206-01	-	7126195-01	7126194-01	7132199-00
7126275-00	-	-	7126196-01	7126195-01	7132199-01
7126375-01	-	-	7126197-01	7126196-01	7132225-01
7126382-00	-	-	7126198-01	7126197-01	7132226-01
7126383-00	-	-	7126199-01	7126198-01	7132227-01
7126384-00	-	-	7126200-01	7126199-01	7132228-00
7126386-00	-	-	7126201-01	7126200-01	7132321-01
7126068-00	-	-	7126202-01	7126201-01	7132530-00
7126068-01	-	-	7126203-01	7126202-01	7132530-01
7126068-02	-	-	7126204-01	7126203-01	7132530-02
7126068-03	-	-	7126205-01	7126204-01	7132530-03
7126068-04	-	-	7126206-01	7126205-01	7132530-04
7126068-05	-	-	7126207-01	7126206-01	7132530-05
7126068-06	-	-	7126208-01	7126207-01	7132530-06
7126068-07	-	-	7126209-01	7126208-01	7132530-07
7126068-08	-	-	7126210-01	7126209-01	7132530-08
7126068-09	-	-	7126211-01	7126210-01	7132530-09
7126068-10	-	-	7126212-01	7126211-01	7132530-10
7126068-11	-	-	7126213-01	7126212-01	7132530-11
7126068-12	-	-	7126214-01	7126213-01	7132530-12
7126068-13	-	-	7126215-01	7126214-01	7132530-13
7126068-14	-	-	7126216-01	7126215-01	7132530-14
7126069-00	-	-	7126217-01	7126216-01	7132530-15
7126070-00	-	-	7126218-01	7126217-01	7132530-16
7126070-01	-	-	7126219-01	7126218-01	7132530-17
7126070-02	-	-	7126220-01	7126219-01	7132530-18
7126070-03	-	-	7126221-01	7126220-01	7132530-19
7126070-04	-	-	7126222-01	7126221-01	7132530-20
7126070-05	-	-	7126223-01	7126222-01	7132530-21
7126070-06	-	-	7126224-01	7126223-01	7132530-22
7126070-07	-	-	7126225-01	7126224-01	7132530-23
7126070-08	-	-	7126226-01	7126225-01	7132530-24
7126070-09	-	-	7126227-01	7126226-01	7132530-25
7126070-10	-	-	7126228-01	7126227-01	7132530-26
7126070-11	-	-	7126229-01	7126228-01	7132530-27
7126070-12	-	-	7126230-01	7126229-01	7132530-28
7126070-13	-	-	7126231-01	7126230-01	7132530-29
7126070-14	-	-	7126232-01	7126231-01	7132530-30
7126073-01	7126073-01	-	7126233-01	7126232-01	7132530-31
7126082-00	7126382-00	-	7126234-01	7126233-01	7132530-32
7132100-01	-	-	7126235-01	7126234-01	7132530-33
7132105-01	-	-	7126236-01	7126235-01	7132530-34
7132110-01	-	-	7126237-01	7126236-01	7132530-35
7132115-01	-	-	7126238-01	7126237-01	7132530-36
7132120-01	-	-	7126239-01	7126238-01	7132530-37
7132121-01	7132120-01	-	7126240-01	7126239-01	7132530-38
7132125-01	-	-	7126241-01	7126240-01	7132530-39
7132126-01	7132125-01	-	7126242-01	7126241-01	7132530-40
7132130-01	-	-	7126243-01	7126242-01	7132530-41
7132131-01	7132130-01	-	7126244-01	7126243-01	7132530-42
7132135-01	-	-	7126245-01	7126244-01	7132530-43

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PART NUMBER	SUPERCEDES	SUPERCEDED BY	PART NUMBER	SUPERCEDES	SUPERCEDED BY
7134942-01	-	-	7136405-01	-	-
7134974-02	-	7308013-01	7136410-01	-	-
7134974-03	-	7308013-00	7136415-01	-	7136416-01
7134994-00	7133934-02	7134994-01	7136416-01	7136415-01	7136417-01
7134994-01	7134994-00	7134994-02	7136417-01	7136416-01	-
7134994-02	7134994-01	7134994-03	7136420-01	-	-
7134994-03	7134994-02	-	7136425-01	-	-
7134998-00	-	-	7136430-01	-	-
7134998-01	-	-	7136435-01	-	-
7135560-00	7101840-00	7150350-00	7136440-01	-	-
7135561-00	7101875-00	7150351-00	7136445-01	-	-
7135563-00	7101855-00	7150353-00	7136450-01	-	-
7135564-00	7101990-00	7150354-00	7136455-01	-	-
7135565-00	7101995-00	7150355-00	7136460-01	-	-
7135570-00	-	7135570-02	7136465-01	-	-
7135570-01	-	7135570-03	7136475-01	-	-
7135570-02	7135570-00	7150383-00	7136480-01	-	-
7135570-03	7135570-01	7150383-01	7136490-01	-	-
7136150-01	-	-	7136500-01	-	-
7136155-01	-	-	7136505-01	-	7136506-01
7136160-01	-	-	7136506-01	7136505-01	-
7136165-01	-	-	7136510-01	-	-
7136170-01	-	-	7136515-01	-	-
7136185-01	-	7136186-01	7136520-01	-	-
7136186-01	7136185-01	-	7136525-01	-	7136526-01
7136190-01	-	-	7136526-01	7136525-01	7136527-01
7136195-01	-	-	7136527-01	7136526-01	-
7136205-01	-	-	7136530-01	-	7136531-01
7136210-01	-	-	7136531-01	7136530-01	-
7136215-01	-	7136216-01	7136535-01	-	-
7136216-01	7136215-01	-	7136540-01	-	-
7136220-01	-	-	7136545-01	-	-
7136225-01	-	7136226-01	7136550-01	-	-
7136226-01	7136225-01	-	7136555-01	-	-
7136230-01	-	-	7136560-01	-	-
7136235-01	-	-	7136565-01	-	7136566-01
7136245-01	-	-	7136566-01	7136565-01	-
7136250-01	-	-	7136570-01	-	-
7136255-01	-	7136256-01	7136575-01	-	-
7136256-01	7136255-01	-	7136580-01	-	7136581-01
7136260-01	-	-	7136581-01	7136580-01	-
7136265-01	7092181-01	7136266-01	7136585-01	-	7136586-01
7136266-01	7136265-01	-	7136586-01	-	7136587-01
7136270-01	-	-	7136587-01	7136586-01	7136588-01
7136275-01	-	-	7136588-01	-	7136589-01
7136280-01	-	7136281-01	7136590-01	-	7136591-01
7136281-01	7136280-01	-	7136591-01	7136590-01	7136592-01
7136285-01	-	-	7136592-01	7136591-01	-
7136290-01	-	7136291-01	7136595-01	-	-
7136291-01	7136290-01	-	7136625-01	-	-
7136295-01	7126147-01	-	7136630-01	-	7136631-01
7136305-01	-	-	7136631-01	7136630-01	-
7136310-01	-	-	7136635-01	-	7136636-01
7136315-01	-	-	7136636-01	-	7136637-01
7136320-01	-	-	7136640-01	7136635-01	-
7136325-01	-	-	7136650-01	-	-
7136330-01	-	-	7136655-01	-	7136656-01
7136335-01	-	-	7136656-01	7136655-01	-
7136350-01	7126191-01	7136351-01	7136660-01	-	7136661-01
7136351-01	7136350-01	-	7136661-01	7136660-01	7136662-01
7136355-01	-	-	7136662-01	7136661-01	7136663-01
7136360-01	-	-	7136663-01	7136662-01	-
7136370-01	-	-	7136665-01	-	7136666-01
7136371-01	7136370-01	7136371-01	7136666-01	7136665-01	7136667-01
7136375-01	-	7136376-01	7136667-01	7136666-01	-
7136385-01	-	-	7136671-01	7136670-01	-
7136390-01	-	-	7136675-01	-	-
7136395-01	-	-	7136685-01	-	-
7136396-01	7136395-01	-	7136690-01	-	-
7136400-01	-	-	7136695-01	-	-

AN/UJK-20 REPLACEABLE ASSEMBLIES LIST - PART 1, REVISION B, 04/30/85

PART NUMBER	SUPERCEDES	SUPERCEDED BY	PART NUMBER	SUPERCEDES	SUPERCEDED BY
7136825-01	-	-	7150351-01	7150351-00	7150351-02
7136830-01	-	-	7150352-01	7150351-01	7150351-03
7136835-01	-	-	7150351-03	7150351-02	-
7136840-01	-	-	7150352-00	7101880-00	7150352-01
7136841-01	7136840-01	7136841-01	7150352-01	7150352-00	7150352-02
7136845-01	-	7136846-01	7150352-02	7150352-01	7150352-03
7136850-01	7136845-01	-	7150352-03	7150352-02	7150352-04
7136851-01	7136850-01	7136851-01	7150352-04	7150352-03	-
7136855-01	-	-	7150353-00	7135563-00	7150353-01
7136860-01	-	-	7150353-01	7150353-00	7150353-02
7136865-01	-	-	7150353-02	7150353-01	7150353-03
7136870-01	-	-	7150353-03	7150353-02	-
7136875-01	-	-	7150354-00	7135564-00	7150354-01
7136876-01	-	7136876-01	7150354-01	7150354-00	7150354-02
7136877-01	-	-	7150354-02	7150354-01	7150354-03
7136880-01	-	-	7150354-03	7150354-02	7150354-04
7136885-01	-	7136886-01	7150355-01	7150355-00	7150355-01
7136886-01	7136885-01	7136887-01	7150355-02	7150355-01	-
7136887-01	7136886-01	7136888-01	7150355-01	7150355-02	7150355-01
7136888-01	7136887-01	-	7150355-02	7150355-01	-
7136890-01	-	7136891-01	7150383-00	7135570-02	7150383-02
7136891-01	7136890-01	-	7150383-01	7135570-03	7150383-03
7136895-01	-	-	7150383-02	7150383-00	7308028-00
7136896-01	7136895-01	7136896-01	7150383-03	7150383-01	7308028-01
7136900-01	-	-	7150391-00	7101943-00	-
7136905-01	-	-	7150391-01	7101943-01	-
7136915-01	-	-	7150391-02	-	-
7136920-01	-	-	7150391-03	-	-
7136925-01	-	-	7150395-01	7126137-01	7150396-01
7136930-01	-	-	7150396-01	7150395-01	7150397-01
7136935-01	-	-	7150397-01	7150396-01	-
7136940-01	-	-	7150400-01	7125387-01	7150401-01
7136941-01	7136940-01	-	7150401-01	7150400-01	-
7136945-01	-	7136946-01	7150405-01	7126196-01	-
7136950-01	7136946-01	-	7150415-01	7125389-01	-
7136951-01	7136950-01	7136951-01	7150420-01	7126186-01	7150421-01
7136952-01	7136951-01	7136952-01	7150421-01	7150420-01	-
7136955-01	-	-	7150460-01	7125510-01	7150465-01
7136960-01	-	-	7150465-01	7118316-01	-
7136965-01	-	-	7150465-01	7150460-01	-
7136966-01	-	-	7150475-01	7126151-01	-
7136967-01	-	-	7150480-01	7126207-01	-
7136975-01	-	-	7150486-00	7126384-00	-
7136980-01	-	-	7150490-00	7126386-00	-
7137000-01	7126071-01	-	715180-01	-	-
7137025-01	-	-	715780-00	-	7310594-01
7137035-01	-	-	7157864-01	-	7310594-00
7137045-01	-	-	7308013-00	7134974-03	-
7137070-01	-	-	7308013-01	7134974-02	-
7137130-01	-	-	7308028-00	7150383-02	-
7137130-02	7137130-01	7137130-02	7308028-01	7150383-03	-
7150210-01	7092176-01	-	7309295-01	-	-
7150220-01	7125666-01	-	7309623-00	7139343-00	-
7150267-00	-	-	7309623-01	7139343-01	-
7150267-01	-	-	7310022-18	-	-
7150295-01	7150322-01	-	7310510-01	-	-
7150304-00	-	-	7310512-01	-	-
7150314-00	905411-04	-	7310514-01	-	-
7150314-01	905411-06	-	7310516-01	-	7310516-02
7150320-01	7125961-01	7150322-01	7310516-02	7310516-01	-
7150322-01	7150320-01	7150295-01	7310518-01	-	-
7150325-01	7119426-01	7150326-01	7310520-01	-	-
7150326-01	7150325-01	7310690-01	7310522-01	-	-
7150338-03	-	-	7310524-01	-	-
7150350-00	7150350-00	7150350-01	7310526-01	-	-
7150350-01	7150350-00	7150350-02	7310534-01	-	7310534-02
7150350-02	7150350-01	7150350-02	7310534-02	7310534-01	7310534-03
7150351-00	7150351-00	7150351-01	7310534-03	7310534-02	7310534-04

AN/UJK-20 REPLACEABLE ASSEMBLIES LIST - PART 1, REVISION B, 04/30/85

PART NUMBER	SUPERCEDES	SUPERCEDED BY	PART NUMBER	SUPERCEDES	SUPERCEDED BY
7310536-01	-	7310536-02	7313568-00	7128070-01	-
7310536-02	7310536-01	7310536-03	7313568-00	7128070-02	-
7310536-03	7310536-02	-	7313568-00	7128070-03	-
7310538-01	-	-	7313568-00	7128070-04	-
7310594-00	7157864-01	-	7313568-00	7128070-05	-
7310594-01	7157864-00	-	7313568-00	7128070-06	-
7310690-01	7150326-01	7312344-01	7313568-00	7128070-07	-
7312344-01	7150690-01	7312344-02	7313568-00	7128070-08	-
7312344-02	7312344-01	7312344-03	7313568-00	7128070-09	-
7312344-03	7312344-02	-	7313568-00	7128070-10	-
7312344-04	7312344-03	7312344-04	7313568-00	7128070-11	-
7312344-05	7312344-04	7312344-05	7313568-00	7128070-12	-
7312344-06	7312344-05	-	7313568-00	7128070-13	-
7312528-00	7119446-01	-	7313568-00	7128070-14	-
7312528-00	7119437-01	-	7313568-01	-	-
7312528-00	7133227-01	-	7313603-01	-	-
7312528-00	7133306-01	-	7313608-01	-	-
7312530-00	7118441-01	-	7313613-01	-	-
7312530-00	7133231-01	-	7313618-01	-	-
7312530-00	7133235-01	-	7314830-01	-	-
7312530-00	7133240-01	-	7315270-01	-	-
7312530-00	7133245-01	-	7315663-01	-	-
7312530-00	7133250-01	-	7315840-01	-	-
7312530-00	7133255-01	-	7316476-00	-	7316476-01
7312530-00	7133260-01	-	7316476-01	7316476-00	7316476-02
7312530-00	7133265-01	-	7316476-02	7316476-01	-
7312530-00	7133271-01	-	7316476-00	7316476-01	-
7312530-00	7133275-01	-	7316478-01	-	7316478-01
7312530-00	7133280-01	-	7316478-01	-	7316478-02
7312530-00	7133285-01	-	7316478-02	7316478-01	7316478-03
7312530-00	7133291-01	-	7316478-03	7316478-02	7316478-04
7312530-00	7133295-01	-	7316478-04	7316478-03	-
7312530-00	7133295-01	-	7316994-01	-	-
7312530-00	7133300-01	-	7316994-01	-	-
7312670-00	7119450-01	-	7317896-01	-	-
7312670-00	7132100-01	-	7317902-01	-	-
7312670-00	7132105-01	-	7317906-01	-	7321211-01
7312670-00	7133310-01	-	7319065-01	-	-
7312670-00	7133315-01	-	7319072-01	-	-
7312670-00	7133320-01	-	7319748-01	-	-
7312670-00	7133325-01	-	7320276-00	-	7320276-01
7312670-00	7133330-01	-	7320276-01	7320276-00	-
7312670-00	7133335-01	-	7320637-01	-	7321244-01
7312670-00	7133340-01	-	7320706-01	-	-
7312670-00	7133345-01	-	7321211-01	7317908-01	-
7312670-00	7133350-01	-	7321244-01	7320637-01	7321824-01
7312670-00	7133355-01	-	7321528-01	-	-
7312670-00	7133360-01	-	7321618-01	-	-
7312670-00	7133365-01	-	7321624-01	7321244-01	-
7312670-00	7133370-01	-	7321935-01	-	-
7312682-06	-	7312682-07	7321986-01	-	-
7312682-07	7312682-06	-	7322151-01	-	-
7313052-01	-	-	7322535-01	-	-
7313450-01	-	-	7322536-01	-	-
7313567-00	7101803-00	-	7322652-01	-	-
7313567-00	7128068-00	-	7322814-01	-	-
7313567-00	7128068-01	-	7323146-01	-	7323584-01
7313567-00	7128068-01	-	7323152-01	-	7323561-01
7313567-00	7128068-02	-	7323179-01	-	-
7313567-00	7128068-03	-	7323371-01	-	-
7313567-00	7128068-04	-	7323538-01	-	-
7313567-00	7128068-05	-	7323561-01	7323152-01	7323874-01
7313567-00	7128068-06	-	7323578-01	-	-
7313567-00	7128068-07	-	7323584-01	7323146-01	-
7313567-00	7128068-08	-	7323745-01	7323561-01	-
7313567-00	7128068-09	-	7324131-01	-	-
7313567-00	7128068-10	-	7324757-01	-	-
7313567-00	7128068-11	-	7901743-00	-	-
7313567-00	7128068-12	-	7901743-01	-	-
7313567-00	7128068-13	-	7901743-02	-	-
7313567-00	7128068-14	-	7901743-03	-	-
7313568-00	7128068-00	-	7901743-04	-	-
7313568-00	7128070-00	-	7908845-00	-	-

AN/UJK-20/20A ABBREVIATED ENHANCED DIAGNOSTIC OPERATING PROCEDURES

The procedures contained in the following paragraphs provide abbreviated instructions necessary to execute the Diagnostic Programs. Any errors detected while executing these procedures are explained in SE10-AV-MM0-050 paragraphs 11-16 through 11-27 for the AN/UJK-20, and in SE10-A3-MM0-040 paragraphs 11-16 through 11-27 for the AN/UJK-20A.

Microdiagnostic Program Execution Procedure

1. Stop and Master Clear
2. Initial switch settings

ALTER MODE SET/CLR	SET
PROCESSOR DISABLE PT CLK	INT
PROCESSOR DISABLE ADV P	DOWN
PROCESSOR DISABLE INTER CMPTR TIME OUT	DOWN
BREAK PT READ/OFF	OFF
BREAK PT WRITE/OFF	OFF
3. Press DISPLAY SELECT CLR. DISPLAY NUMBER = 0
4. Press MODE MICRO STOP
5. Set DIAGNOSTIC DISPLAY switch down and DIAGNOSTIC JUMP switch to up
6. Press MA CLR
7. Press MODE RUN indicator
8. Press GENL REG
9. Press DISPLAY NUMBER indicator switches corresponding to octal value of bootstrap load channel.
10. Press PROG RUN
11. Press AUTO START SWITCH four times
12. If bootstrap load channel is a MIL-STD-188C or RS-232C or VACALES type channel, set ALTER MODE SET/CLR to CLR position.
13. Press DISPLAY SELECT CLR (initiates Microdiagnostics)
14. PROG RUN lite extinguish
15. REGISTER/DATA = 070707. For any other value see technical manual.

CP/MEMORY DIAGNOSTIC OPERATING PROCEDURES

1. Load CP/Memory Diagnostics
2. Press GEN REG and DISPLAY SELECT CLR. Display = 0
3. Press REG/DATA SET/CLR. Display (GR0) = 000000
4. Set PROGRAM STOP 1/OFF switch to OFF
5. Set PROGRAM STOP 2/OFF switch to 2
6. Set BOOTSTRAP 1/2 switch to down position
7. Press and observe GENL DSPL. Indicator lit
8. Press REGISTER/DATA SET /CLR
9. Press REGISTER/DATA SET (P Reg.) switches 6 and 8 (000500)
10. Set AUTO START/START switches to START
 PROG RUN indicator extinguished
 REGISTER/DATA = 000522
11. Set PROGRAM STOP 1/OFF switch to 1 and PROGRAM STOP 2/OFF switch to OFF
12. Set BOOTSTRAP 1/2 switch to up position
13. Set AUTO START/START to START
 PROG RUN extinguished
 REGISTER/DATA (P reg.) = 000532
14. Set AUTO START/START to START
 PROG RUN extinguished
 REGISTER/DATA (P reg.) = 000551
15. Press GENL REG
16. Press DISPLAY NUMBER switches for octal 04. Observe REGISTER/DATA (GR4) = 000000
17. Press DISPLAY NUMBER switches for octal 05. Observe REGISTER/DATA (GR5) = 000536
18. Press DISPLAY NUMBER switches for octal 07. Observe REGISTER/DATA (GR7) = 000546
19. Press GENL DSPL switch
20. Press DISPLAY SELECT CLR
21. AUTO START/START to START
 PROG RUN indicator extinguished
 REGISTER/DATA (P reg.) = 000563
22. Set GR0, GR1, and GR2 to CP/Memory Configuration as follows:

GR0	Bit 0	Math Pac installed
	Bit 1	Micro Growth installed
	Bit 2	General Register set 2 installed
	Bit 3	DMA installed
	Bits 4-15	Not used
GR1	Bits 0-7	Memory Stacks installed
GR2	Bits 0-7	Memory Stacks to be tested
23. Set both PROGRAM STOP switches to up position
24. Press GENL DSPL and DISPLAY SELECT CLR
25. Press AUTO START/START to START
 Observe PROG RUN extinguishes
 REGISTER/DATA (P reg.):
 AN/UJK-20 = 000761
 AN/UJK-20A = 000765
 FAULT PROG indicator lit

I/O DIAGNOSTIC PROGRAM OPERATING PROCEDURE

NOTE: If any common serial I/O channels are to be tested, ensure the zero/one fill option on the type 1/1A card (P/N 90536-7312528) is set to the one-fill mode (reference common serial mode selection instructions pages 39-42 of the Technical Summary).

1. Load I/O Diagnostic
2. Set switches to positions specified

INTERCMPTR TIME OUT
GENL DSPL
DISPLAY SELECT CLR

DOWN
SET
MOMENTARILY
PRESSED

BOOTSTRAP 1/2
PROGRAM STOP 1/OFF
PROGRAM STOP 2/OFF
TEST/NORMAL on I/O Mode Sel Card in DPS location 23C

1
1
2

MA CLR

TEST (LEFT POS)
MOMENTARILY
PRESSED

3. Set P = 500 Octal
4. Press START
5. Program stops at P = 510
6. Set GR0 through GR13 to I/O channel availability and configuration and RTC Rates as determined by the I/O CHANNEL SELECTION TABLE. (See page 59.)
7. Jumper channels
8. Select P Reg
9. Press START
10. Program stops at P = 001063 (001073 for AN/UJK-20A)
11. FAULT PROG should be lit.
12. Set the TEST/NORMAL switch on I/O Mode Select card in DPS location 23C to NORMAL (right position).

OPTIONS DIAGNOSTIC PROGRAM OPERATING PROCEDURE

A predetermined series of steps are required to initialize and execute the Options Diagnostic tests 1-6. These options are listed below in the order of execution.

TEST NUMBER	TEST NAME	MAX TIME (SEC)	
		UYK-20	UYK-20A
1	MATH PAC TEST	1	1
2	WORST CASE MEMORY TEST	45	90
3	SHIFTING BIT MEMORY TEST	30	160
4	GENERAL REGISTER GALPAT TEST	1	1
5	PAGE REGISTER GALPAT TEST	2	37
6	I/O CONTROL MEMORY GALPAT TEST	25	25
Total time approximately:		2 min.	6 min.

1. Load the Options Diagnostic.
2. Initial switch settings.

GENL DSPL
DISPLAY SELECT CLR
BOOTSTRAP 1/2
PROGRAM STOP 1/OFF
PROGRAM STOP 2/OFF
MA CLR

PRESS
PRESS
1
1
2
PRESS

3. Press and observe REGISTER/DATA indicator-switches (P register) = 000500.
4. Press AUTO START/START switch to START.
5. Observe PROG RUN indicator extinguished.
6. Observe REGISTER/DATA indicator-switches (P register) = 000512.
 - a. If correct, perform step 7.
 - b. If incorrect, suspect card is:

LOC A38	SWAP A34
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The program has reached a parameter stop. If using a preinitialized tape and no parameter changes are to be made, omit steps 7 and 8.

7. Set GR0 and GR1 to establish the appropriate equipment configuration to the program (see following Table).

EQUIPMENT CONFIGURATION PARAMETERS

GENERAL REGISTER CP/MEMORY PARAMETERS		CONFIGURATION
GR0	BIT 0	MATH PAC INSTALLED
	BIT 1	MICRO GROWTH INSTALLED
	BIT 2	GENERAL REGISTER SET 2 INSTALLED
	BIT 3	DMA INSTALLED
GR1	BIT 4-15	NOT USED
	BIT 0-7	MEMORY STACKS INSTALLED

8. Set GR3 and GR4 to select Options tests to be run and memory stack tests on which memory tests are to be run (see Table below).

OPTIONS TEST SELECTION

GENERAL REGISTER OPTIONS PARAMETERS		TEST SELECTED
GR3	BIT 0	MATH PAC TEST
	BIT 1	MEMORY WORST CASE TEST
	BIT 2	MEMORY SHIFTING BIT TEST
	BIT 3	GENERAL REGISTER GALPAT TEST
	BIT 4	PAGE REGISTER GALPAT TEST
GR4	BIT5	I/O CONTROL MEMORY GALPAT TEST
	BIT 0-7	OPTIONS MEMORY STACKS TO TEST

9. Press GENL DSPL indicator-switch.
10. Press DISPLAY SELECT CLR pushbutton.
11. Press AUTO START/START switch to START.
12. Observe PROG RUN indicator extinguished.
13. Observe REGISTER/DATA indicator switches (P register) = 000520.

The program has reached another parameter stop. If using a preinitialized tape and no parameter changes are to be made, omit step 14.

14. Set GR0 through GR13 corresponding to the IO CHANNEL SELECTION TABLE. (See page 59).
15. Press GENL DSPL indicator-switch.
16. Press DISPLAY SELECT CLR pushbutton.
17. Press AUTO START/START switch to START position.
18. Observe PROG RUN indicator extinguished.
19. Observe REGISTER/DATA indicator switches (P register) = 000652.

MICRO DIAGNOSTIC WITH END-AROUND JUMPERS OPERATING PROCEDURE

This procedure isolates and corrects malfunctions detected while attempting to bootstrap load diagnostic programs using micro diagnostic procedures.

NOTE

Test not applicable if load channel is MIL-STD-188C, RS232C, VACALES or NTDS serial type interface.

1. Set POWER LOGIC ON/OFF switch to OFF.
2. Set TEST/NORMAL switch (on card in DPS location 23C) to TEST (left).
3. Disconnect load device from DPS connect output of load channel connector to its own input connector (see Page 24) using test I/O jumper (P/N 90536-7150225-00, 90536-7150226-00, or 90536-7126394-00).

NOTE

If loading was attempted on a 32-bit parallel channel, connect channel n, and remove dual channel jumper plugs from channel n+4.

4. Set POWER LOGIC ON/OFF switch to ON.
5. Press DISPLAY SELECT CLEAR pushbutton.
6. Press MODE MICRO STEP indicator-switch.
7. Set DIAGNOSTIC DSPL switch to down position.
8. Set DIAGNOSTIC JUMP switch to up position.
9. Press MA CLR pushbutton.
10. Press MODE RUN indicator-switch.
11. Press GENL DSPL indicator-switch.
12. Set DISPLAY NUMBER to octal value of channel on which I/O jumper cable is installed.
13. Press PROG RUN indicator-switch.
14. Press AUTO START/START switch to START four times.
15. Press GENL REG indicator-switch.
16. Press DISPLAY SELECT CLEAR pushbutton.
17. PROG RUN indicator-switch extinguished. REGISTER/DATA = 070707.

I/O CHANNEL SELECTION TABLE FOR I/O DIAGNOSTIC PROGRAM EXECUTION

GENERAL REGISTER	I/O CONFIGURATION	CHANNEL NUMBER															
		17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0
		SET BITS TO SELECT CHANNELS USED IN EACH CONFIGURATION															
GR0	MIL-STD-1937 16-BIT PARALLEL CHANNELS (PIC, SERIAL, AND NEW)																
GR1	MIL-STD-1937 32-BIT PARALLEL CHANNELS (DUAL AND DUAL PIC)																
GR2	END-AROUND JUMPED CHANNELS FOR ALL CONFIGURED CHANNELS																
GR3	MIL-STD-188C SERIAL CHANNELS																
GR4	EIA-STD-RS-232C SERIAL CHANNELS (SYNC & ASYNC)																
GR5	ASYNCHRONOUS CHANNELS (188C AND RS-232C)																
GR6	MIL-STD-1937 NTDS SERIAL, LOW LEVEL SERIAL CHANNELS																
GR7	MIL-STD-1937 ESA CHANNELS																
GR10	MIL-STD-1937 NEW PIC CHANNELS (7132148, Type II)																
GR11	VACALES CHANNELS																
GR12*	INTERNAL 1 KHz - SET BIT 2																
	INTERNAL 32 KHz - SET BIT 7																
GR13	MIL-STD-1937 OLD PIC CHANNELS (7132115, TYPE II)																

* 1KHz Clock = 7126200 PCB in location B23.
32KHz Clock = 7137130 PCB in location B23.

AN/UYP-20 AND AN/UYP-20A CONFIGURATION

S/N _____ PROGRAM ACRONYM _____

This form identifies the various options available in the AN/UYP-20 and AN/UYP-20A. To adapt this document to a specific serial number fill in the appropriate data for that S/N.

1. CABINET OPTIONS: Mounting Feature: None
 Standard Configuration Base Mount
 Langley Rack Configuration Rack Mount
 Insert Mount

2. TOTAL MEMORY SIZE: AN/UYP-20(V) ONLY (MU-632)

8192		24576		40960		57344	
16384		32768		49152		65536	

3. TOTAL MEMORY SIZE: AN/UYP-20A(V) ONLY (MU-731)

32768		98304		163840		229376	
65536		131072		196608		262144	

4. DMA INSTALLED: (Mating Connector Included) STANDARD ON AN/UYP-20A

Yes _____ No _____

5. POWER SUPPLY:

	60 Hz	400 Hz
1 ϕ , 115V	(PP-7111)	(PP-7108)
3 ϕ , 115V Δ	(PP-7109)	(PP-7032)
3 ϕ , 208V Δ	(PP-7110)	(PP-7107)

6. RTC/MONITOR CLOCK OSCILLATOR:

1 KHZ (Standard) (O-1781) _____
 32 KHZ (Optional) (O-1782) _____

7. MICROPROGRAMMING GROWTH IMPLEMENTATION:

_____ None
 _____ Yes, MNEMONIC or P/N _____

8. MATHPAC INSTALLED:

Yes _____ No _____

9. The unit can be populated with up to sixteen I/O channels, select I/O type and mating connectors, channel allocation and operating modes using the tables below.

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
-15V (NTDS Slow)	MK-2097															
-3V (NTDS Fast)	MK-2098															
+3.5V (ANEW)	MK-2099															
15V (NTDS) WITH PIC ON THE LOWEST CHANNEL	MK-2100															
Parallel Channel Operating Mode																
16-bit Normal																
16-bit Intercomputer																
32-bit Normal																
32-bit Intercomputer																
32-bit ESA Normal																
32-bit ESA Intercomputer																
Parallel Connectors																
(Select one per Channel)	A = 2U45															
	B = 2U19															
	C = 2U-30															
	D = Connector Adapter															

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NTDS Serial Type D	MK-1720															
NTDS Serial Type D Connectors	A = RG-11U															
(Select one per Channel)	B = RG-12U															
VACALCS Serial	MK-1806															
Low Level Serial Type E	MK-2130															

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MIL-STD-188C Sync/MK-2051																
MIL-STD-188C Async/MK-2051																
RS-232C Sync/MK-2048																
RS-232C Async/MK-2048																
Asynchronous Serial	A = 75	E = 1200														
Baud Rates	B = 150	F = 2400														
(Select up to four (4) per group)	C = 300	G = 4800														
	D = 600	H = 9600														

10. BOOTSTRAP PROGRAM:

a. Existing Bootstrap Mnemonic or P/N _____

11. SUPPORT SOFTWARE

A. MTASS/M

a. Components

(1) CMS-2M

Symbol Table Size

_____4K _____8K _____12K _____16K

(2) CMS-2M IOP

_____4K _____8K _____12K _____16K

(3) Fortran/M

(Approval for use must be granted by NAVMAT 08Y.)

(4) MACRO/M Assembler

(5) System Generator

(6) Simulator/M

b. Host Machine

Operating System _____

c. Shipping Address _____

d. Technical Point of Contact _____

of Contact _____

Commercial Phone Number _____

e. Project Name _____

B. Executives

a. SDEX/20 (Supports AN/UYP-20, AN/UYP-20A)

(Check one)

Configuration

UYK-20

UYK-20A

b. SDEX/M (Includes SCS/M, CIOS/M)

(supports AN/UYP-20, AN/AJK-14, AN/UYP-20A, AN/UYP-44.)

(Check one in each column)

Configuration

UYK-20

UYK-20A

AJK-14

c. Shipping Address _____

d. Technical Point of Contact _____

Commercial Phone Number _____

e. Project Name _____

C. Level II

a. AN/UYP-20 or AN/UYP-20A Self Hosted Program Generation Software (Level 2 System)

Level 2 System (Operates on UYK-20 with 64K using up to 64K but does not handle expanded memory features or interruptions)

Level 2A (Expanded Memory) System (Operates on UYK-20A with 96K or more)

(1) CMS-2M Compiler

_____4K Symbol Table _____8K Symbol Table _____12K Symbol Table (AN/UYP-20A ONLY)

(2) FORTRAN/M Compiler (Requires waiver from TECPO, NAVMAT 08Y)

(3) GRAPHICS Package (Requires Plotter)

(4) LEVEL 2 System Interface

Device Type

Device Name

Channel No. (Decimal) and Type

Magnetic Tape

High Speed Printer

Card Reader

Card Punch

Paper Tape Reader

Paper Tape Punch

Operator Console

Disk

Other