PROGRAM DLY , STIME, INITN DATE PAGE 1 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
00	040A		JMP DLY	ALLOW INPUT CAPACITORS TO CHARGE
2	00		NOP	
3	2400		JMP INTCK	
5	00			
6	00			
7	00			
8	00			
9	00			
A	B805	DLY	MOV R0, 05	WAIT 100ms (5x20)
C	2306	LOOP3	MOV A, 06	20ms DELAY = 250 x 80 µS
E	62		MOVT, A	
F	55		STRT.T	
10	1614	LOOP2	JTF LOOP1	
2	0410		JMP LOOP2	
4	65	LOOP1	STOP TCNT	
5	E80C		DJNZ R0, LOOP3	
7	BPFF	STIME	MOV R7, FF	30 SEC = 6 x 250 x 250 x 80 µS
9	BE06		MOV R6, 06	
B	FE		MOV A, R6	
C	62		MOVT. A	
D	55		STRT.T	
E	9A3F	INITN	ANL P2, 3F	CLEAR ALARM SEE IF TX OR RX
20	0A		IN A P2	
1	B23F		JB5, LOOP1	JMP IF RX
3	8A40		ORL P2. 40	CHECK STILL TX
5	0A		IN A P2	
6	B22A		JB5 LOOP2	JMP IF OK
8	041E		JMP INITN	TRY AGAIN IF NO
A	9AEF	LOOP2	ANL P2, EF	8304 @ R
C	D5		SEL RB1	
D	0A		IN A P2	
E	3234		JB1 LOOP3	SELECT PARITY
30	BFFE		MOV R7, FE	MODE WD = 1111 1110 EVEN P
2	0436		JMP LOOP4	
4	BFDE	LOOP3	MOV R7, DE	MODE WD = 1101 1110 ODD P
6	BB33	LOOP4	MOV R3, 33	TX CWD. = 0011 0011
8	1468		CALL STUART	
A	C5		SEL RB0	
B	B808		MOV R0, 08	UART ADDR IN R0 (ALSO STACK ADDR)
D	2440		JMP DOUT	
F	8A40	LOOP1	ORL P2, 40	CHECK STILL RX
41	0A		IN A P2	
2	B21E		JB5 INITN	TRY AGAIN IF NO

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PROGRAM: INITN (CONT'D), WAIT DATE PAGE 2 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
4,4	8,A,1,0		ORLP2,10	8304 @ T
6	D,5		SEL RB1	
7	0,A		INA P2	
8	3,2,4,E		JB1 LOOP5	SELECT PARITY
A	B,F,5,E		MOV R7, 5E	MWD = ODD P + 1 STOP
C	0,4,5,0		JMP LOOP6	
E	B,F,7,E	LOOP5	MOV R7, 7E	MWD = EVEN P + 1 STOP
5,0	B,B,3,6	LOOP6	MOV R3, 36	Rx CWD = 0011 0110
2	1,4,6,8		CALL STUART	
4	C,5		SEL RB0	
5	B,8,0,8		MOV R0, 08	UART ADDR IN R0
7	A,5		CLR F1	
8	1,5	WAIT	DIS I	
9	1,6,5,E		JTF LOOP1	
B	0,5	LOOP2	ENI	
C	0,4,5,8		JMP WAIT	
E	3,4,7,0	LOOP1	CALL TIME	
6,0	0,4,5,B		JMP LOOP2	

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PROGRAM STUART ' DATE PAGE 3 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
6,8	D5	STUART	SEL RB1	
9	B8 7F		MOV R0, 7F	CONTROL ADDR IN R0
B	FB		MOV A, R3	WANT UART RESET
C	90		MOVX @R0, A	
D	23 40		MOV A, 40	RESET BIT
F	90		MOVX @R0, A	UART RESET
70	04 72		JMP NEXT	DELAY
2	FF	NEXT	MOV A, R7	
3	90		MOVX @R0, A	MWD OUT
4	FB		MOV A, R3	
5	90		MOVX @R0, A	CWD OUT
6	83		RET	

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PROGRAM RXIN DATE PAGE 4 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
80	80	RXIN	MOVXA @R0	GET DATA
1	AA		MOVR2, A	
2	D5	STATIN	SEL RB1	
3	80		MOVXA @R0	GET STATUS
4	2B		XCHA, R3	CWD IN A
5	90		MOVX @R0, A	ERROR RESET
6	2B		XCHA, R3	STATUS IN A
7	C5		SEL RB0	
8	53 38		ANLA, 38	ERROR CHECK
A	C6 DE		JZ ALCLR	JMP IF OK
C	14 D0		CALL ALSET	SET ALARM
E	53 20		ANLA, 20	CHECK 'FE' FOR MODEM FAILURE
90	C6 95		JZ LOOP2	
2	B0 D9		MOV @R0, FESET	FESET ADDR IN STACK
4	15		DIS I	
5	93	LOOP2	RETR	
6	FA	ACRET	MOVA, R2	
7	F2 9F		JMP B7 LOOP3	JMP IF BIT 8 SET
9	76 9C		JFI LOOP4	ADDR IN R1 ?
B	93		RETR	RETURN IF NO
C	91	LOOP4	MOVX @R1, A	OUT DATA
D	A5		CLR F1	
E	93		RETR	
F	A5	LOOP3	CLR F1	
A0	D2 A5		JMP B6 LOOP1	JMP IF BIT 7 SET
2	8A 80		ORLP2, 80	SET ALARM IF NO
4	93		RETR	
5	A9	LOOP1	MOVR1, A	
6	9A 7F		ANLP2, 7F	CLEAR ALARM
8	B0 B0		MOV @R0, DLY10	DLY10 ADDR IN STACK
A	93		RETR	

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PROGRAM: DLY 10, ALSET, ALCLR, FESET DATE PAGE 5 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
B0	BC09	DLY10	MOVR4,09	
2	15		DIS I	
3	16C8		JTF LOOP1	
5	05	LOOP6	ENI	
6	BBC8	LOOP3	MOVR3, 200D	
8	EBB8	LOOP2	DJNZ R3, LOOP2	
A	EC B6		DJNZ R4, LOOP3	DELAY 9 ms
C	B5		CPL F1	ALLOW DATA
D	BC02		MOV R4, 02	
F	BBC8	LOOP5	MOV R3, 200D	
C1	EBC1	LOOP4	DJNZ R3, LOOP4	
3	EC BF		DJNZ R4, LOOP5	DELAY 2 ms
5	A5		CLR F1	STOP DATA
6	0458		JMP WAIT	
8	3470	LOOP1	CALL TIME	
A	04B5		JMP LOOP6	
D0	8A80	ALSET	ORLP2, 80	SET ALARM
2	BD04		MOVR5, 04	WANT 4 WORDS WITH NO ERROR
4	83		RET	
5	CD	ALCLR	DEC R5	
6	C696		JZ ACRET	4 WORDS RECEIVED OK
8	93		RETR	
9	16EB	FESET	JTF LOOP1	
B	34A0	LOOP2	CALL DELAY	
D	D5		SEL RB1	
E	80		MOVXA @ R0	GET STATUS
F	28		XCHA, R3	CWD IN A
E0	90		MOVX @ R0, A	ERROR RESET
1	28		XCHA, R3	STATUS IN A
2	C5		SEL RB0	
3	5320		ANL A, 20	'FE' CHECK
5	96D9		JNZ FESET	JMP IF YES
7	80		MOVXA @ R0	READ UART TO CLR RDY
8	05		ENI	
9	0458		JMP WAIT	
B	3470	LOOP1	CALL TIME	
D	04DB		JMP LOOP2	

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PROGRAM: INTCK, COSCK DATE PAGE 6 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
100	0A	INTCK	INAP2	
1	B2 05		JMP B5 COSCK	
3	04 80		JMP RXIN	
5	C5	COSCK	SEL RB0	
6	F9		MOVA, R1	
7	AC		MOVR4, A	SAVE DOUT ADDR
8	46 37		JNT1 LOOP1	CHECK AK = 1
A	9A 7F		ANLP2, 7F	CLEAR ALARM
C	86 10		JNI LOOP6	CHECK $\overline{COS}$ IN CASE INT AT MOVXA@R1
E	24 1B		JMP COSST	WHICH CLEARS $\overline{COS}$. JMP IF CLEARED
110	B9 C0	LOOP6	MOVR1, C0	START ADDR
2	81	LOOP4	MOVXA @R1	GET DATA
3	56 17		JT1 LOOP2	AK = 0? JMP IF NO
5	F2 28		JB7 LOOP3	JMP IF COS
7	19	LOOP2	INC R1	
8	F9		MOVA, R1	SEE IF DONE
9	96 12		JNZ LOOP4	
B	23 09	COSST	MOVA, 09	
D	D7		MOVPSW, A	STACK POINTER AT 1
E	B0 55		MOV@R0, 55	COSRT ADDR IN STACK
120	18		INC R0	
1	B0 01		MOV@R0, 01	
3	C8		DEC R0	
4	FC		MOVA, R4	RESTORE DOUT ADDR
5	A9		MOVR1, A	
6	05		EN I	
7	93		RETR	
8	53 7F	LOOP3	ANLA, 7F	CLEAR BIT 8
A	AA		MOVR2, A	
B	34 60		CALL TRDY	
D	F9		MOVA, R1	
E	90		MOVX@R0, A	ADDRESS OUT
F	34 60		CALL TRDY	
131	FA		MOVA, R2	
2	90		MOVX@R0, A	DATA OUT
3	86 17		JNI LOOP2	JMP IF OTHER $\overline{COS}$
5	24 1B		JMP COSST	THEN DONE
7	8A 80	LOOP1	ORLP2, 80	SET ALARM
9	24 1B		JMP COSST	

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PROGRAM: DOUT DATE PAGE 7 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
140	465B	DOUT	JNTI LOOP1	CHECK AK=1
2	9A7F		ANLP2,7F	CLEAR ALARM
4	B9C0		MOVR1,C0	START ADDR
6	81	LOOP3	MOVXAeR1	GET DATA
7	5654		JTI LOOP2	AK=0? JMP IF NO
9	537F		ANLA,7F	CLEAR BIT 8
B	AA		MOVR2,A	
C	3460		CALL TRDY	
E	F9		MOVA,R1	
F	90		MOVXeR0,A	ADDRESS OUT
150	3460		CALL TRDY	
2	FA		MOVA,R2	
3	90		MOVXeR0,A	DATA OUT
4	19	LOOP2	INCR1	
5	F9	COSRT	MOVA,R1	SEE IF DONE
6	9646		JNZ LOOP3	
8	05		ENI	
9	24B0		JMP DLY4	TX OFF FOR 20mS
B	8A80	LOOP1	ORLP2,80	SET ALARM
D	24B0		JMP DLY4	TX OFF FOR 20mS

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DATE

PROGRAM TRDY

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
160	15	TRDY	DISI	
1	166C		JTF CALLT	
3	05	LOOP1	ENI	
4	D5		SELRB1	
5	80		MOVXA @R0	GET STATUS
6	5301		ANLA,01	TEST TRDY
8	C660		JZ TRDY	JMP IF NO
A	C5		SELRB0	
B	83		RET	
C	3470	CALLT	CALL TIME	
E	2463		JMP LOOP1	

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PROGRAM TIME DATE PAGE 9 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
170	C5	TIME	SEL RBO	
1	EF9B		DJNZ R7 LOOP1	
3	EG99		DJNZ R6 LOOP2	
5	BFFF		MOV R7, FF	
7	BE06		MOV R6, 06	
9	FE		MOV A, R6	
A	62		MOV T, A	
B	0A		INA P2	
C	B290		JMP B5 LOOP3	JMP IF TX
E	D5		SEL RB1	
F	2332		MOV A, 32	
181	90		MOVX @R0, A	DISABLE RX
2	1468		CALL STUART	
4	C5		SEL RBO	
5	BD04		MOV R5, 04	
7	A5		CLR F1	
8	B058		MOV @R0, WAIT	
A	18		INC R0	
B	B000		MOV @R0, 00	
D	C8		DEC R0	
E	05		ENI	
F	93		RETR	
190	34AA	LOOP3	CALL DLY 2	
2	1468		CALL STUART	
4	C5		SEL RBO	
5	F9		MOV A, R1	
6	AC		MOV R4, A	
7	241B		JMP COSST	
9	BFFF		MOV R7, FF	
B	2E		XCH A, R6	
C	62		MOV T, A	
D	2E		XCH A, R6	
E	83		RET	

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PROGRAM: DELAY, DLY2, DLY4 DATE PAGE 10 OF 10

ADDRESS	DATA OR INSTRUCTION	LABEL	MNEMONIC	COMMENT
1A0	C5	DELAY	SELRB0	10mS DELAY
1	BC08		MOVR4,08	
3	BBFF	LOOP5	MOVR3,FF	
5	EBA5	LOOP4	DJNZR3,LOOP4	
7	ECA3		DJNZR4,LOOP5	
9	83		RET	
A	34A0	DLY2	CALL DELAY	20mS DELAY
C	34A0		CALL DELAY	
E	83		RET	
1B0	15	DLY4	DISI	40mS DELAY
1	34A0		CALL DELAY	
3	34A0		CALL DELAY	
5	34A0		CALL DELAY	
7	34A0		CALL DELAY	
9	05		ENI	
A	24A0		JMP DOUT	

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