UNIVAC 9200/9300
EXTERNAL INPUT/OUTPUT UNITS
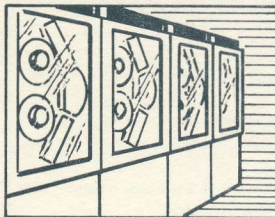
UNISERVO VIC
SYNCHRONIZER
TYPE 0858-18,-19,-20,-21

MAINTENANCE CARD

MH2251   1/69

9-TRACK WRITE DATA FLOW

TAPE LINE DRIVER IN	TAPE LINE DRIVER OUT	WRITE DELAYS	HEAD
VWBP	VTWA7	CW7 (CE/FO3)	TRACK 4
VWB0	VTWA6	CW6 (CE/FO4)	TRACK 7
VWB1	VTWA5	CW5 (CE/FO5)	TRACK 6
VWB2	VTWA4	CW4 (CE/FO6)	TRACK 5
VWB3	VTWA3	CW3 (CE/FO7)	TRACK 3
VWB4	VTWA2	CW2 (CE/FO8)	TRACK 9
VWB5	VTWA1	CW1 (CE/FO9)	TRACK 1
VWB6	VTWA8	CW8 (CE/FO2)	TRACK 8
VWB7	VTWA9	CW9 (CE/FO1)	TRACK 2

9-TRACK READ DATA FLOW

HEAD	HEAD AMP	TAPE LINE REC	K REG INPUT	READ SKEW ADJUST
TRACK 1	CRA 3 (CA/B14)	VRA 3	V5LE	CC/D14
TRACK 2	CRA 1 (CA/B18)	VRA 1	V7LE	CC/D18
TRACK 3	CRA 5 (CA/B10)	VRA 5	V3LE	CC/D10
TRACK 4	CRA 7 (CA/B06)	VRA 7	VPLE	CC/D06
TRACK 5	CRA 6 (CA/B08)	VRA 6	V2LE	CC/D08
TRACK 6	CRA 8 (CA/B04)	VRA 8	V1LE	CC/D04
TRACK 7	CRA 9 (CA/B02)	VRA 9	V0LE	CC/D02
TRACK 8	CRA 1 (CA/B16)	VRA 2	V6LE	CC/D16
TRACK 9	CRA 4 (CA/B12)	VRA 4	V4LE	CC/D12

INTERBLOCK SPACING

9 Track	0.6 inch (Nominal)
7 Track	0.75 inch (Nominal)

TAPE MARK CODES

FORMAT	TRACKS
7-Track Format	1, 2, 3, 4
9-Track Format	2, 3, 8

TAPE UNIT STATUS

TAPE UNIT STATUS	STATUS BYTE BIT SET	STATUS A	STATUS B
Non-Existent	Unit Check	0	0
Not Ready	Unit Check	0	1
Ready and Not Busy	———	1	0
Ready and Busy	Attention	1	1

MAINTENANCE AID

To capture first bad frame of data during a read or write instruction, insert an indicator card into location A24.

XF CODES

BIT POSITION 0 1 2 3 4 5 6 7	DESCRIPTION
0 0 0 0 0 0 0 0	Test
0 0 1 1 0 0 0 0	Test
0 0 0 1 0 0 0 0	Set Inhibit Status
0 0 1 0 0 0 0 0	Reset Inhibit Status
0 0 0 0 0 1 0 0	Sense
0 0 0 0 0 0 0 1	Write
0 0 0 0 0 0 1 0	Read
0 0 0 0 1 1 0 0	Read Backward

CONTROL CODES

BIT POSITION 0 1 2 3 4 5 6 7	DESCRIPTION
0 0 0 0 0 1 1 1	Rewind
0 0 0 0 1 1 1 1	Rewind with Interlock
0 0 0 1 0 1 1 1	Erase
0 0 0 1 1 1 1 1	Write Tape Mark
0 0 1 0 0 1 1 1	Backspace Block
0 0 1 0 1 1 1 1	Backspace File
0 0 1 1 0 1 1 1	Forward Space Block
0 0 1 1 1 1 1 1	Forward Space File

MODE MODIFIERS

BIT POSITION 0 1 2 3 4 5 6 7	DESCRIPTION
0 0 0 0 0 0 1 1	No Operation
0 1 0 0 0 0 1 1	Set Density, Odd Parity, Data Converter On
1 0 0 0 0 0 1 1	Set Density, Even Parity, Data Converter Off
1 1 0 0 0 0 1 1	Set Density, Odd Parity, Data Converter Off
0 0 1 0 1 0 1 1	Reset Fault-Finding Modes
0 1 0 0 1 0 1 1	Set Device Simulation Mode
1 0 0 0 1 0 1 1	Set Monitor Sense Mode
0 1 0 1 1 0 1 1	Set Low Gain

(rows marked "Tape Density Code" for the first four entries)

TAPE DENSITY CODES

DENSITY	CODE
200 BPI	0 0
556 BPI	0 1
800 BPI	1 0
Not Used	1 1

MINIMUM RECOMMENDED RECORD LENGTH

Read	12 Data Frames
Write	18 Data Frames

MAINTENANCE PROCEDURE

STEP	PROCEDURE
1	Set off-line-switch to Off Line
2	Select Servo a. Set data switches (SC2) to select servo. b. Press ADDR GATE switch to load unit register.
3	Load Command a. Set data switches (SC2) to desired command. b. Press COMM GATE switch to load command register with instruction (Read, Write, etc.). c. Do not change data switches if command is a control command, since the decode is done in the output data register.
4	Select mode of operation with mode switches on SC1.

(1 0) MODE	DESCRIPTION
0 0 Single	Selected command is executed once, then unit stops.
0 1 Repeat	Executes selected command once (single mode) then goes to PCO and repeats.
1 0 Alternate	Executes selected command once (single mode) then changes to read backward.
1 1 Calibration	Calibration mode allows writing at selected density with all binary 1 bits in every frame to end of tape.

Set data switches for output data when writing prior to pressing START.

| 5 | Press START switch. |

MAINTENANCE PANEL

SC1	SC2	IC1	IC2	IC3	
OFF LINE (S)	ODB0 (S)	WRITE (I)	INTRQ OFF/L (I)	PCO0 (I)	DR0 (I)
MODE 0 (S)	ODB1 (S)	READ (I)	BUSCK GO (I)	PCO1 (I)	DR1 (I)
MODE 1 (S)	ODB2 (S)	BKWD (I)	DLATE STSTR (I)	PCO2 (I)	DR2 (I)
DISP SEL (S)	ODB3 (S)	SPACE (I)	WDCO UREG5 (I)	CR/CK EQ/CK (I)	DR3 (I)
ADDR GATE (S)	ODB4 (S)	FILE (I)	DC/CK UREG6 (I)	VRCWT D/CK (I)	DR4 (I)
COMM GATE (S)	ODB5 (S)	REW (I)	VRCRD UREG7 (I)	RAWAY NOISE (I)	DR5 (I)
START (S)	ODB6 (S)	WTM (I)	LR/CK DENS0 (I)	TMFLT D/CON (I)	DR6 (I)
CLEAR (S)	ODB7 (S)	ERASE (I)	SKEW DENS1 (I)	EGAP SIM (I)	DR7 (I)
		UNIT CHECK (I)	AUTO STOP (I)	PULSE CATCH (I)	(I)

STATUS AND SENSE BYTES

STATUS BYTE	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
STATUS BYTE	Attention	Status Modifier	Control Unit End	Busy	Channel End	Device End	Unit Check	Unit Exception
SENSE Byte 0	Invalid Function	Intervention Required	Output Bus Check	Equipment Check	Data Check	Data Late	Word Count Zero	Data Converter Check
SENSE Byte 1	Noise	Tape Unit Status "A" *	Tape Unit Status "B" *	Seven Track *	Load Point *	End of Tape *	File Protect *	"0"
SENSE Byte 2	"0"	"0"	"0"	"0"	"0"	"0"	"1"	"1"
SENSE Byte 3	Read Vertical Red. Check	Longitudinal Red. Check	Skew	Cyclic Red. Check	Write Vertical Red. Check	"0"	Backward *	"0"
SENSE Byte 4	Runaway	Tape Motion Fault	"0"	"0"	"0"	Stall	Tape Fault	"0"
Byte 0	Program Ctr Bit 0	Program Ctr Bit 1	Program Ctr Bit 2	Density Bit 0	Density Bit 1	Even Parity	Data Converter On	Fault Finding Mode On
Byte 1	Write	Read	Backward	Space	File	Rewind	Write Tapemark	Erase
MONITOR SENSE Byte 2	Backward/Loadpoint	Early Gap Write	Tapemark Detected	Low Gain	Early Terminate	Inhibit Status in	Data Converter On	Fault Finding Mode On
MONITOR SENSE Byte 3	CRC Bit 2	CRC Bit 3	CRC Bit 4	CRC Bit 5	CRC Bit 6	CRC Bit 7	CRC Bit 0	CRC Bit 1
MONITOR SENSE Byte 4	LP Bit 1	LP Bit 2	LP Bit 3	LP Bit 4	LP Bit 5	LP Bit 6	LP Bit 7	LP Bit P

*Sense information bits modified by the current status of the tape unit are indicated by *