

Cassette Attachment Diagram

Cassette Phase Test

For best results your cassette recorder should not reverse the phase of an input signal on playback. When playing back a tape recorded on another recorder, it should not reverse the phase of the output signal. You may have to reverse the internal head connections on some cassette recorders to eliminate unwanted phase reversals.

To check for phase reversals, load the machine language test program, given below, into memory.

Run this program to generate a phase test signal on the tape out line. Record one minute of this test signal, then play it back and observe the cassette recorder output on a scope. It should appear as shown in B or C below. Save this tape to test new recorders on which you want to play tapes you have recorded on a previously tested machine. If the playback signal appears upside down from that shown in B or C, you will have to reverse the internal head connection leads on the out-of-phase recorder.

Test Program

0000	F 8	04	AA	7B	F8	0C	FF	01
8000	3A	06	7A	F 8	0C	FF	01	3A
0010	0 D	2A	8A	3A	03	F 8	60	FF
0018	01	3A	17	30	00	00	00	00

Signals

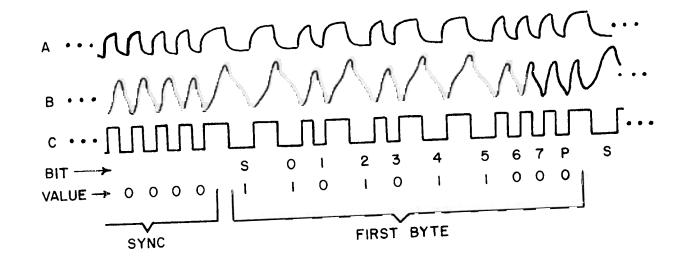
A ______ UI4A OUTPUT B ______ CASSETTE OUTPUT C. ______ CASSETTE OUTPUT

Cassette Data Test

Load the following machine language program into memory:

0000	0.0	B 6	R3	F8	33	A6	F8	A0
0000	90	50	D D D	68	»C	F 8	40	B9
8000	A 3	03	ro	01		22	10	FR
0010	93	F 6	DC	29	99	JA	10	20
0018	10	Α7	F 8	08	A 9	06	B7	FØ
0020	0 0	ធត	DC	97	F 6	B 7	DC	29
	00	28	22	17	87	F6	DC	30
0028	89	3A	23	1/	07	00	00	0.0
0030	17	30	31	35	00	00	00	00

Rewind a blank cassette and put recorder into record mode. Wait 10 seconds and flip RUN up to initiate the program. The byte at location 0033 will be continuously recorded on tape. Flip RUN down to stop recording after a minute or so. You can play this tape to check the signals shown below. You can also load the tape into memory for testing purposes. Load 7 pages starting at 0100. You can use this tape to determine the proper volume control setting for your recorder. You can change the recorded byte at 0033 if desired. Bits on tape consist of one cycle at 2 kHz for "0" or one cycle at 0.8 kHz for "1". Data format is 4 seconds of continuous "0's" for sync followed by the specified number of data bytes. Bytes always begin with a "1" start bit (S) followed by 8 data bits (0-7), and end with a parity bit (P). Odd byte parity is used in this code. The waveforms below show how a 35 byte would appear on tape. The operating system translates memory bytes to bit serial output via the Q output line. Bit serial input from tape is received via input flag 2 and translated into parallel form for storage in memory by the operating system software.



A-OUTPUT OF UI4A B-OUTPUT FROM CASSETTE (TAP IN PAD ON CARD) C-OUTPUT OF UI4B

* WAVEFORMS SHOWN FOR PANASONIC MODEL RQ-4135 RECORDER.





Cassette Recording Guidelines

Use high quality tape (Maxell UD or equivalent).

- 2. Use shortest tapes possible. You can shorten tapes to several minutes in length if you enjoy splicing.
- 3. Keep heads and pinch rollers clean.
- 4. Keep heads aligned for tape interchangability.
- 5. Avoid recording too close to beginning of tape.
- 6. Make sure cassette is properly seated in recorder.
- ⁷ If you have trouble with a cassette try others. You can have a bad spot on tape or a warped cassette.
- 8. Highest setting of tone control is usually best.
- Set recorder volume control so that TAPE light glows steadily on playback. This setting should be lower than highest-volume setting. Excessive TAPE light flickering indicates a bad tape or misaligned heads.
- 10. A dirty recorder volume control can cause tape dropouts.
- 11 Make sure cassette connection plugs make good contact.
- 12. Rewind cassettes before removing them from recorder.
- 13. Store cassettes in dust-proof containers.
- 14. Avoid exposing cassettes to heat or magnetic fields.
- 15. Before recording, wind cassette to one end and fully rewind.
- 16. Cassette recorders will give you problems once in a while (they don't like certain cassettes, etc.). If one gives you problems most of the time replace it.
- 17. Make sure that MIKE plug is connected before recording. You will hear a tone even if MIKE plug is out. On most recorders the TAPE light will glow while recording.

- 18. When recording give the page key a short tap to start.
- 19. Use the last byte of a tape block as a program identification and check code. It will appear on the display screen after the tape is loaded.
- 20. When loading a cassette into memory, the tape must contain as many pages as you specify to be loaded. If you try to load 8 pages from a 7-page tape the loading operation won't terminate properly.
- 21. You may have to record with the EAR plug out for some tape recorders.
- 22. Always use AC adaptor with recorder for best results.

Memory Test Program

This machine language program should be loaded into 0000-007F. It checks RAM locations 0400-07FF (U18 and U19) for proper data storage. Flip RUN up to start test. Beeps sound during test. Entire 1024byte section of RAM being tested is shown on screen. Program stops with tone on if a bad RAM bit is found. Error byte is at 007F. This byte should be 00 or FF for no error. For example, if byte is 01 or FE then bit 0 was bad. The error byte is also shown on the screen.

Set location 0020=00 and location 0023=80 to test RAM locations 0080-03FF (U16 and U17).

0000	90	B1	B2	В3	F 8	17	A 3	D3
8000	42	70	22	78	22	52	C 4	C 4
0010	C 4	94	B 0	91	A 0	30	80	F8
0018	0A	A1	F8	7F	A 2	E 2	69	F 8
0020	04	Β4	F 8	00	Α4	94	В7	84
0028	Α7	7A	E 2	F 8	00	Α5	F 8	FF
0030	A6	85	57	94	BA	84	AA	8A
0038	52	87	F 3	3A	45	9A	52	97
0040	F 3	3A	45	30	47	86	5A	1A
0048	9A	52	94	FC	04	F 3	3A	37
0050	07	52	85	F 3	3A	6C	F 8	FF
0058	A 5	93	A 6	31	60	7B	30	31
0060	17	97	52	94	FC	04	F3	3A
0068	29	7A	30	6A	7B	30	6D	00
0070	00	00	00	00	00	00	00	00
0078	00	00	00	00	00	00	00	00