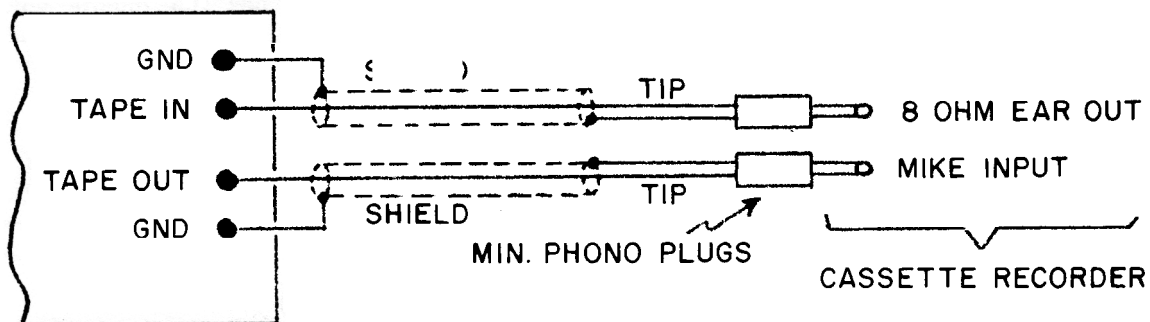


Cassette Attachment Diagram



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.

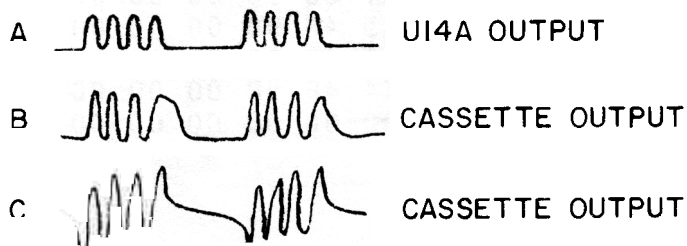
To check for phase reversals, load the machine language test program, given below, into memory.

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 F8 04 AA 7B F8 0C FF 01
0008 3A 06 7A F8 0C FF 01 3A
0010 0D 2A 8A 3A 03 F8 60 FF
0018 01 3A 17 30 00 00 00 00
```

Signals



Cassette Data Test

Load the following machine language program into memory:

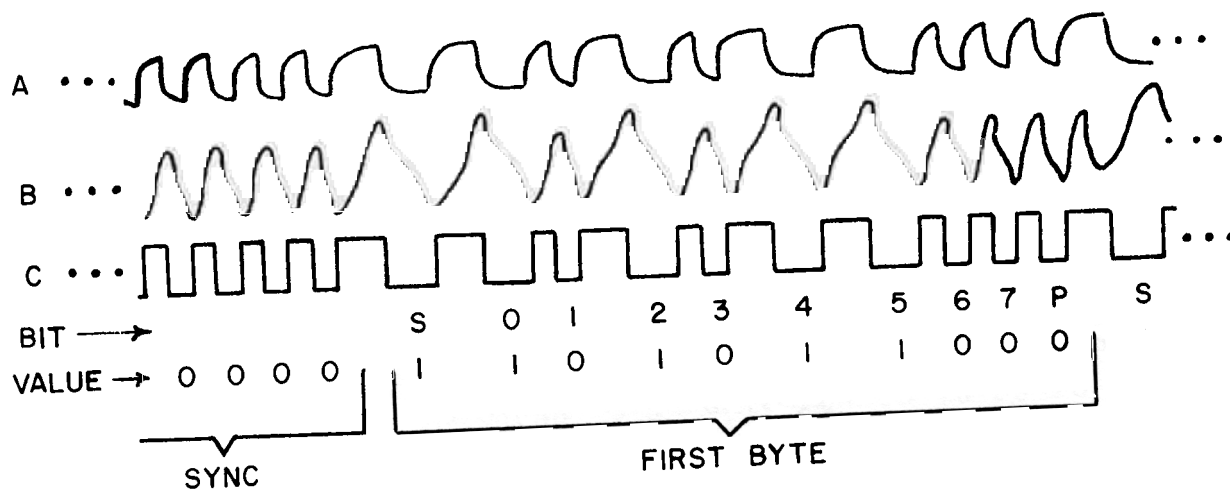
```

0000  90 B6 B3 F8 33 A6 F8 0A
0008  A3 D3 F8 6F AC F8 40 B9
0010  93 F6 DC 29 99 3A 10 F8
0018  10 A7 F8 08 A9 06 B7 F8
0020  80 FE DC 97 F6 B7 DC 29
0028  89 3A 23 17 87 F6 DC 30
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-413S RECORDER.

