

PERCOM DATA CO.
TECHNICAL MEMO

TM-812-05
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PERCOM CASSETTE INTERFACES
DEC 5, 1977

SUBJECT: SELECTING A CASSETTE RECORDER FOR YOUR
COMPUTING SYSTEM.

NOTICE: NOTHING IN THIS MEMO SHOULD BE CONSTRUED AS
PROMOTING THE INTERESTS OF ANY MANUFACTURER
(OTHER THAN PERCOM). THE INFORMATION PRESENTED
IS MATTER OF FACT EXPERIENCE AND IN SOME CASES
HEARSAY FROM DIVERSE SOURCES. THE PRODUCTS
LISTED ARE BY NO MEANS THE ONLY SUITABLE CHOICES
AVAILABLE.

WOULD YOU APPROVE OF A SURGEON WHO PERFORMED HIS DUTIES
WITH A RUSTY POCKET KNIFE? OF COURSE NOT. NOR SHOULD
YOU ATTEMPT TO USE A WORN OUT OR "BARGAIN-BASEMENT-SPECIAL"
CASSETTE RECORDER IN YOUR COMPUTING SYSTEM. A SUITABLE
CASSETTE RECORDER WILL MOST LIKELY COST BETWEEN \$50 AND
\$100 BUT PRICE IS NO GUARANTEE OF PERFORMANCE. FOLLOWING
ARE SOME ITEMS TO LOOK FOR:

1. AUX INPUT: SOME RECORDERS HAVE ONLY A LOW LEVEL
MICROPHONE INPUT AND ARE VERY SENSITIVE TO NOISE
PICKUP.

*If the recorder does not have an AUX input, its
suitability for data recording is highly question-
able.*

2. RECORDING BIAS OSCILLATOR: THE CHEAPER RECORDERS
"BIAS" THE RECORDING HEAD WITH A DC CURRENT. THIS
CAUSES NONLINEARITY AND DISTORTION IN THE RECORDED
SIGNAL WHICH IS NOT ACCEPTABLE FOR DATA RECORDING.
IF THE RECORDER SPECIFICATION DOES NOT SAY "AC
RECORDING BIAS" OR SOMETHING SIMILAR, PASS IT UP
UNLESS YOU KNOW IT HAS AC BIAS.
3. FREQUENCY RESPONSE: WHILE NOT AS IMPORTANT WITH THE
PERCOM CASSETTE INTERFACES AS IT IS WITH OTHERS;
THE BETTER THE FREQUENCY RESPONSE THE BETTER THE
RELIABILITY PARTICULARLY AT THE HIGHER DATA RATES
WHERE PHASE RESPONSE IS CRITICAL. LOOK FOR A
FREQUENCY RESPONSE WIDER THAN 100HZ TO 8KHZ.

4. SIGNAL TO NOISE RATIO: AT LEAST 45DB.
5. DIGITAL COUNTER: INDISPENSIBLE FOR LOCATING A PARTICULAR PROGRAM QUICKLY. IF YOU PLAN TO USE MORE THAN ONE CASSETTE RECORDER, ALL SHOULD BE ALIKE SO THE COUNTER READINGS MATCH.
6. AC POWER: BATTERIES ARE A DRAIN.
7. REMOTE CONTROL JACK: YES.
8. EARPLUG JACK: OF COURSE.
9. TONE CONTROL: HELPFUL IF YOU HAVE A MARGINAL RECORDING. IF THE RECORDER DOES NOT HAVE ONE IT PROBABLY LACKS OTHER MORE IMPORTANT THINGS AS WELL.

NOW TO SPECIFIC BRANDS:

PANASONIC RECORDERS: REPORTEDLY CAUSE MORE PROBLEMS THAN ANY OTHER BRAND. MANY DO NOT HAVE AN AUX INPUT.

RADIO SHACK CTR-21: EXCELLENT PERFORMER BUT WATCH OUT FOR THE GROUND LOOP BETWEEN THE EARPLUG AND AUX LINES. REQUIRES "FLOATING" THE AUX CABLE SHIELD. ALSO NEEDS A DUMMY PLUG IN THE MIC JACK TO KILL THE BUILT IN MICROPHONE.

JC PENNY 6536: RECOMMENDED BY DON TARBELL. IF IT WORKS WITH A TARBELL INTERFACE IT SHOULD BE BULLET-PROOF WHEN USED WITH A PERCOM!

SONY: VARIOUS MODELS USED IN MANY SUCCESSFUL SYSTEMS.

SUPER SCOPE: VARIOUS MODELS USED IN MANY SUCCESSFUL SYSTEMS. THE C-103A IS AN EXCEPTIONAL PERFORMER AND ALTHOUGH THE LIST PRICE IS ABOUT \$90, THE BIG DISCOUNT CHAINS USUALLY PRICE AT ABOUT \$65.

SEARS: SINCE SCHEMATICS ARE GENERALLY UNAVAILABLE IT'S HARD TO TELL WHICH MODEL (IF ANY) HAVE BIAS OSCILLATORS. THESE ARE MARGINAL PERFORMERS PROBABLY BECAUSE THEY DO NOT HAVE BIAS OSCILLATORS.

RECOMMENDATIONS: (VERY SUBJECTIVE)

1. SUPERSCOPE C103A: THERE ARE PROBABLY OTHER EQUALLY SUITABLE CHOICES BUT THIS ONE WORKS AND WORKS WELL PARTICULARLY AT THE HIGHER DATA RATES.
2. RADIO SHACK CTR-21: TWO OF THESE HAVE BEEN IN DAILY USE IN THE PERCOM LAB FOR OVER TWO YEARS AND HAVE DRIVEN DISPLAYS IN SEVERAL COMPUTER SHOWS. THESE ARE AS RELIABLE AS THE SUN AND HAVE REQUIRED NO

MAINTENANCE OTHER THAN DAILY HEAD CLEANING. A CTR-21 IS USED TO CHECK OUT ALL ASSEMBLED PERCOM CASSETTE INTERFACES BEFORE SHIPMENT. THE PHYSICAL CONFIGURATION IS OFTEN INCONVENIENT.

3. RADIO SHACK CTR-41: THE HEAD HONCHO AT TANDY COMPUTERS SAYS THIS UNIT WAS DESIGNED TO REPLACE THE CTR-21. IT IS USED IN THE TANDY COMPUTER. IF IT PROVES TO BE AS GOOD AS THE CTR-21 IT IS A REAL BARGAIN. HOWEVER, IT MUST STILL PROVE ITSELF BEFORE WE CAN RECOMMEND IT WITH VIGOR.