

well in excess of 60 dB down. The 6-dB response on AM was 475 to 2700 Hz.

The maximum SSB output power measured 10.5 watts using single-tone modulation and 12 watts PEP with voice modulation. The alc prevented over-modulation and flattopping, holding the third-order distortion products to 28 dB below two test tones or 34 dB below maximum PEP. Unwanted-sideband suppression was greater than 60 dB at 1000 Hz and was the same on receive. Carrier suppression was nominally 55 dB. The overall audio response at the 6-dB down points was 350 to 2800 and 400 to 2750 Hz on USB and LSB, respectively.

The transmitter frequency was ± 14 Hz from -15 Hz on channel 21.

User Comment. If you like lots of shiny chrome, the Model TRC-449 has it. The case is black but the front panel is chrome and simulated wood with chrome knobs. The channel selector knob has a bar grip. The other rotary controls (including the LED DIM control, which is concentric with the SQUELCH control) are small and arranged in a row along the lower half of the front panel.

The SQUELCH control extends beyond the other knobs for easy location while driving. An overhanging upper section of the front panel can obscure the control legends when the transceiver is installed well below eye level.

A miniature toggle switch is used for inserting and removing the noise blanker/anl. A similar switch gives the user a choice of CB or PA operation and includes a MON (monitor) position for disabling the internal speaker to allow signals to be monitored on a remote PA speaker.

The edgewise meter is illuminated in white on receive and in red on transmit. Its calibrating numerals are quite small and therefore difficult to read at most distances encountered in mobile installations. Also, meter indications greater than S9 tend to be somewhat compressed, making it difficult to discern the actual-signal levels in this range.

Bench tests with our impulse-noise generator indicated that the noise-attenuation system (NB/anl) permitted undisturbed readability of signals as low as 0.5 to 10 μ V in strength that were otherwise completely obliterated by the noise pulses. In our noisy test vehicle during

SSB operation, however, we noted that ignition spikes from our car with the blanker switched on were not altogether eliminated—though diminished. In any case, noise interference did not reach bothersome levels.

Switching from USB to LSB on SSB operation on the sample unit caused the transmitter frequency to drop by about 160 Hz, requiring corrective retuning at the receiving end. But this situation can be eliminated by having a licensed technician readjust the LSB crystal.

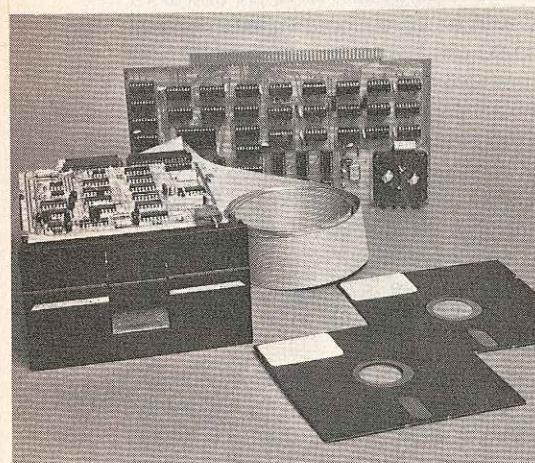
The overall performance of the transceiver was excellent, as confirmed by our laboratory measurements and on-the-air tests. It provided good receiver sensitivity, selectivity, and signal-handling capabilities. It exhibited clean, crisp audio on both receive and transmit. There was no splatter or overmodulation or discernible distortion from the low-level clipper. The unwanted-sideband suppression was fine, and the SSB distortion products were low.

In sum, the Realistic TRC-449 is a fine AM/SSB CB transceiver for its price. The SSB function will permit users to reach extra miles of communication.

CIRCLE NO. 104 ON FREE INFORMATION CARD

NORTH STAR MODEL MDS-A MICRO DISK SYSTEM

Floppy disk system provides 92k mass storage per diskette.



py disk manufacturers have introduced a physically small drive mechanism that uses a "diskette" that measures about 5" (12.7-cm) in diameter and costs only a fraction of the full-size disk systems. These minidisks can store between 90 and 100k bytes at an attractively moderate price.

The Model MDS-A micro disk system from North Star Computers, Inc., is one such floppy. It's built around the Shugart Associates Model SA400 minifloppy TM drive mechanism. For \$699, you get the assembled and tested Shugart drive, disk system controller kit that occupies one Altair bus slot, all cables and connectors, two diskettes, and complete hardware and software documentation. One of the 5", 90-k byte diskettes contains the disk operating system (DOS) software and disk BASIC, while the other is supplied blank. The system requires 16k of resident RAM in the computer to support the DOS and BASIC.

The Model MDS-A requires 5 volts at 0.9 ampere and 12 volts at 1.6 amperes, both of which can be obtained from the host computer. Alternatively, you can

use a home-built supply or North Star's optional power supply kit (\$39.00). North Star also offers an optional case for the system for \$39.00.

General Details. The DOS board, which occupies one slot in an Altair 100-contact motherboard system, went together in a couple of evenings of relatively easy work. Once it was assembled, we used the hardware manual to test it. This manual provides complete test data, including pertinent waveforms, to ensure that the board is properly wired and works. The manual also covers system integration, interconnections, and details of the optional power supply and includes the schematic diagram of the DOS board assembly.

The software manual deals only with the DOS software. It completely explains all 16 commands used in the DOS software and uses examples to explain how to interface the DOS and BASIC software with the user's computer, whether the computer has an operating system or not.

Once the DOS and BASIC are up and running, the prerecorded diskette containing the DOS and BASIC software is removed from the drive mechanism and

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replaced by the blank diskette. The DOS and BASIC and their personalized instructions are then recorded on the new diskette so that the next time the system is to be used, the computer is simply started up at the DOS entry point. Within a few seconds, the system is ready.

North Star BASIC (version 6 is provided) is very powerful. It includes multiple-dimensional arrays, strings, multiple-lined functions, formatted outputs, and machine-language subroutine capability. Of course, it also has all the required disk functions.

In addition to all the better BASIC commands, calculator mode, etc., North Star BASIC has a REN (renumber) command that allows changing line numbers at the beginning and within a line. There is also an EDIT function that has seven editing commands to facilitate the required line changes. One very useful operation within the BASIC itself, called "compatibility," minimizes the effort required for converting programs written in other BASICs so that they can be used with North Star BASIC. For example, left bracket, right bracket, colon, and semicolon are converted into left parenthesis, right parenthesis, reverse slash, and comma, respectively. This conversion does not occur within quoted strings in a program. The conversion is automatic. Hence, you no longer have to worry about a program not running because some wrong (for North Star BASIC) symbol was typed in.

There are many other powerful commands in North Star BASIC, but space does not allow us to discuss or even enumerate them here.

User Comment. Since we put the Model MDS-A into operation, our computing has certainly been made easier. From a cold start, we can now turn on our computer, execute at E900, the DOS entry point, and have the DOS, BASIC, and any other program on the disk on our monitor screen ready to go. The whole sequence takes about 10 to 15 seconds.

We found that, with the MDS-A system, it is very easy to save BASIC and machine-language programs with only a couple of touches on the keyboard. If we sound enthusiastic about this new minifloppy system, we are. For little more than the cost of a 16-k RAM board, we have 90k of mass storage. This may not sound like much, but when you consider that it costs only \$5 more for each blank diskette, which adds 90k of storage per diskette, the cost is impressively low.

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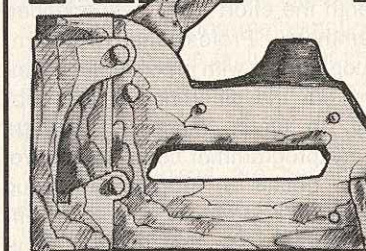
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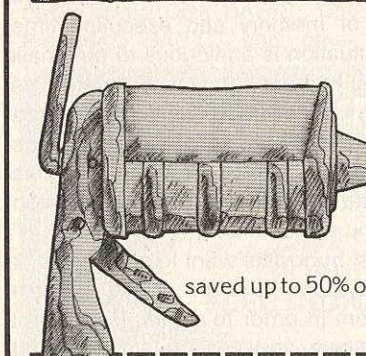
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