```
         A              A            RRRRRRRR     CCCCCCCC
        A A            A A           R      R     C
       A   A          A   A          R      R     C
      A     A        A     A         RRRRRRRR     C
     AAAAAAAAA      AAAAAAAAA        R     R      C
    A         A    A         A       R      R     C
   A           A  A           A      R       R    CCCCCCCC
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AUSTIN AMATEUR RADIO CLUB BULLETIN

President: Bill Pearson, W5RJA Treasurer: Earl Debord, W5PPQ
Vice Pres: Pete Jordahl, W7WAH/5 Activ.Mgr: Joe Fisher, K5EJL
Secretary: Bill Byrom, WA5ZBJ Publicity: Jim Dear, K5HWH

AUSTIN, TEXAS VOLUME 72, NUMBER 11 NOVEMBER 8, 1972

THE NOVEMBER MEETING OF THE AARC will be held in the meeting room of the AUSTIN NATURAL SCIENCE CENTER, 401 Deep Eddy Street, at 7:30 PM, Tuesday, November 14, 1972.

PROGRAM FOR THE MEETING will be a talk by Tom Morrison, WA3GBU/5, on the LONE STAR QSO PARTY. This contest will occur on the first weekend of December. Joe Fisher, K5EJL, will attempt to demonstrate and discuss his QSK (break-in) device for the DX-60 transmitter. The device uses an IGFET (insulated-gate field effect transistor, or MOSFET). Unfortunately, these devices are easily damaged by excess voltage at their very high impedence gates unless they are adequately protected; hopefully Joe has finally got all the bugs out of his setup. BE SURE TO COME TO THE MEETING - IT SHOULD BE VERY INTERESTING.

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THE LONE STAR QSO PARTY is set for the first weekend of December. Rules are in November QST on page 117. The contest starts at 2000 GMT Dec. 2 and ends at 0200 GMT Dec. 4. Be sure to tell all of your amateur friends to participate in the contest. If you know someone who may be interested, but you don't catch him on the air, please call WA5ZBJ at 477-5414 and I'll send a formal message via NTS inviting him to participate. Get your log forms from WA5ZBJor WA3GBU.

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FOR SALE: Heathkit HW16 Novice Tranceiver, w/5 xtals - - @ $75.
Doug Speer, WB5DQE, 452-2187

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FOR SALE: Heathkit DX60B xmtr - - Good Condition - - @ $60.
-Matt Thomas, WN5EYL, 2603 Cascade Dr., Austin, Tx. 78757
453-4193

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FOR SALE: By Don Steelman, K5QOZ, 4302 Marathon, Austin, Tex. 78756:
Heathkit Apache & Mohawk - Fair Condition - @ $200. or will sell separately for best offer.
Viking 500 - - - excellent condition - @ $200.
Heathkit SB310 Rcvr - very good condition - @ $250.
Regency HR2A - xtaled for 3494, 2838, 52 simplex - w/xtals for reverse xtalization AND PS4 Power Supply- @ $250.

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CONTESTING

By Tom Morrison, WA3GBU/5

This month, a shift in emphasis. I am going to discuss the "unusual" contesting opportunities available to us, including mobiling, VHF, and slow scan TV.

The mobiling contester can, of course, compete in about any contest that comes along. However, there are a couple of events that are tailor-made for the Texas mobiler: Field Day and the Lone Star QSO Party. In Field Day, almost all stations are running low power, which makes the average mobile signal more "hearable". Besides this, there is a special catagory for mobile entries. In the Lone Star QSO Party, mobiles provide those county multipliers for other participants that otherwise would be unavailable. Hence, the mobile who moves from county to county has a following and can keep pretty busy. Techniques for mobiling are similar to those for QRP. CW is the most rewarding mode by far. A clear frequency is a must if you are calling CQ (e.g. you have just driven from one county to another). The mobile equipment should be easy to operate, and the operating position comfortable. An extra operator, or at least a driver, is very helpful. As in any contest situation, put out the best signal possible.

VHF contesting is perhaps the most demanding of all forms of contesting, both in terms of equipment and operator technique. Fortunately, this is one area where AARC has considerable experience (indeed, if we were a little nearer Boston, we might be well up in the standings). Here again, it is very important to put out a good, strong signal (E_s can only do so much), but just as important is a good, low noise receiver. The operator must have a large bag of tricks: ability to copy very weak signals, sporadic E (where contest operating most closely resembles HF), meteor scatter, and, for those a little farther north, aurora. Who Knows, maybe moonbounce will become necessary in the future in order to remain competative. Beyond this, however, the VHF contester must be untiring ... he must be able to listen to receiver noise without becoming bored, knowing that that awaited opening is just around the corner.

Slow scan is so new that no definite traits have been established in SSTV contests. Although all so far have required the exchange of pictures, only the exchangees are in a position to determine whether the pictures are "received." Play this game vy ear ..., errr, eye.

& & & &   & & & &   & & & &

Remember that the first annual Lone Star QSO Party is the first weekend of December. Rules should appear in the November issues of QST, CQ, and 73. I will have copies of the rules at the November meeting of the AARC, as well as log forms. I want to urge all of you to get on the air for this contest and make it the best state QSO party going. -73.

* * *

Speaking of contests ....
The Austin Amateur Radio Club Field Day station, W5KA/5, did rather well in the June contest this year. We were NUMBER 4 in CLASS 4A with 1320 QSO's and 4140 points. We had a higher score than that of 964 entries, and only 42 entries beat us ! (Results from Nov. '72 QST)

RADIO FREQUENCY PERFORMANCE OF ELECTROPLATED FINISHES

(the following is composed of excerpts from an article by W5VPQ in the San Antonio Radio Club bulletin.)

The Proceedings of the Institution of Radio and Electronic Engineers, Australia; Vol. 31, No.5, May, 1970, pp.148-164 contains information which casts considerable doubt on the value of silverplating as normally employed by amateur constructors.

The first point to be made concerns the conductivity of the subject metals themselves, copper and silver. The standard used in the article is the "International Annealed Copper Standard", or IACS. Annealed copper is considered 100% IACS. Since silver is a better conductor, it numerically rates 105% IACS. However, it is pointed out that this is for pure wrought silver, not silver plate; more on this later. There are several types of copper available for electronic conductors which run 101 to 103% IACS, approaching that of silver. One of thise is OFHC (Oxygen-Free High Conductivity) Brand, and similar materials from other sources is available. Specially prepared samples of purified copper have measured 106.2%, or measurably better than silver. Since this cannot be considered a normally available construction material, lit's look at OHFC, which is available from, and trade marked by Anaconda Copper. The 3 or 4% difference in conductivity between OFHC and wrought silver is a D.C. measurement, and at RF conductivity narrows the difference to 2.5% or less. This, then, results in an insignificant change in Q values, all other things being equal. Also remember, all of these comparisons are based on wrought silver, not silverplate, which is considerably poorer as will be shown. At this point, you are probably wondering why silverplate has gained such wide acceptance and apparent advantage over plain copper. Probably several reasons exist. For one, compared to plain copper, silverplate doesn't come off quite so bad, as it does when compared to OFHC. And plain copper is what is usually used in most amateur construction, and was all that was available in the early days of radio, when the superiority of silverplate was established. In fact, contemporary mechanical coppers similar to those probably used in early radio work, measure from 30 to 90% IACS. Also, silverplating processes of this earlier era were relatively straightforward, without brighteners or other impurities in the bath, and likely approached 100% IACS.

At the present time, numerous proprietary silverplating processes exist, having one thing in common -- the production of a shiny plating of poor conductivity. This results from the inclusion of certain metals, or organic compounds in the plating solution to produce a bright finish directly, reducing the cost associated with hand buffing. Unfortunately for the electronic constructor, the conductivity may run as low as 27% IACS. For this reason, it is possible to greatly degrade the performance of a device by "jewelry" silverplating methods. If pure silver electroplating is obtainable, then it may improve the performance of mechanical grades of copper, but will likely degrade that of OFHC or other electronic grades of copper, or not change it at all except for cost.

Protective coatings of rhodium, tin, chromium, or nickel-phosphorus are often used to protect silver surfaces from corrosion, but these overplates reduce R.F. efficiency. Use of R.F. lacquer, polystyrene, or acrylic is much better over silver or high-conductivity copper.

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TECHNICAL TOPICS

By Bill Byrom, WA5ZBJ

The LM309K is a complete 5 volt regulator which is fabricated on a single silicon chip. The LM309K is supplied in a TO-3 case and can provide 1 amp output current at +5 volts. This integrated circuit is practically blowout-proof due to internal current limiting and will withstand inputs of up to +35 volts. The output regulation should be under 100mv near room temperature. The case connections are shown in fig. 1; a typical circuit is shown in fig. 2. The 309K (the prefix may be different for a different manufacturer) was designed as a 5v logic regulator; however, it can regulate higher voltages with the fig. 3 circuit, which also has variable output voltage. The price on this device is now only $1.25 from at least one supplier. If you need help finding a cheap source, please get in touch with me. -73.

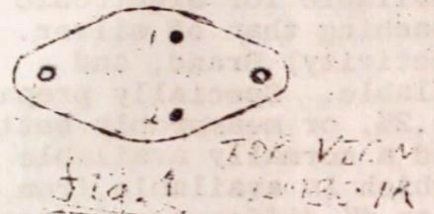

fig. 1

pin 1 → Input (+)
pin 2 → Output (+)
pin 3 (case) → ground (-)

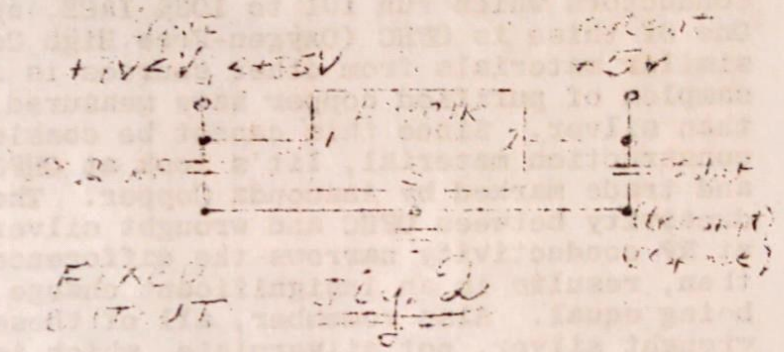

Fig. 2

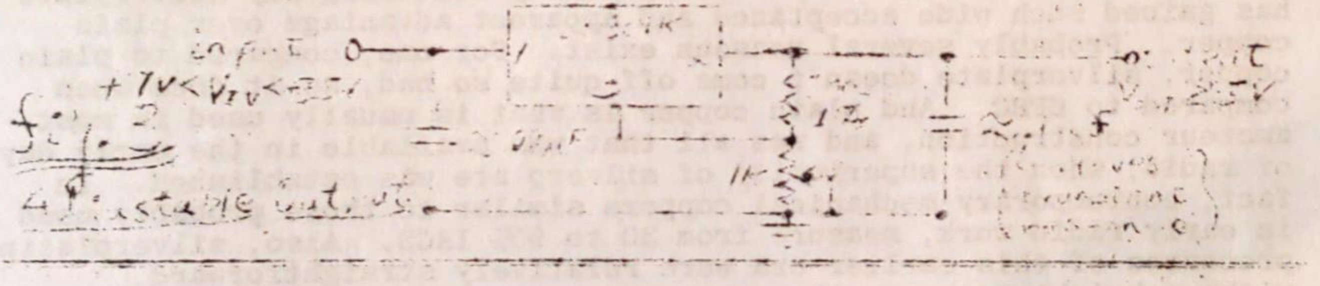

fig. 3
Adjustable output

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