MOUNTAIN SPARK GAPS

NPARC—The Radio Club for the Watchung Mountain Area

Website: http://www.nparc.org
Club Calls: N2XJ, W2FMI
Facebook: New Providence Amateur Radio Club (NPARC)

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Regular Meetings

2/11 & 2/25 Monday 7:30
DeCorso Community Center

Upcoming Events

NPARC Auction
Saturday, 2/23
New Providence High School Cafeteria
35 Pioneer Drive
New Providence, NJ
2:00 to 5:00 PM
Setup 12:00 Noon
Doors Open 12:30 PM

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
2nd Monday of each month at the
NP Senior & Adult Center
15 East Forth Street
New Providence

Informal Meeting: 7:30—9:00 PM
4th Monday of each month
Same location
Everyone is Welcome
If a normal meeting night is a holiday, we usually meet the following night.
Call one of the contacts below or check the web site

Club Officers for 2018

President: W2PTP Paul Wolfmeyer 201-406-6914
Vice President:K2GLS Bob Willis 973-543-2454
Secretary: K2AL: Al Hanzl 908-872-5021
Treasurer: K2YG Dave Barr 908-277-4283
Activities: KA2MPG Brian Lynch 973-738-7322

On the Air Activities

Club Operating Frequency
145.750 MHz FM Simplex

Sunday Night Phone Net
Murray Hill Repeater (W2LI) at 9:00 PM
Transmit on 147.855 MHz
With PL tone of 141.3 Hz
Receive on 147.255 MHz
Net Control K2AL

Digital Net
First & Third Mondays 9 PM
28,084 — 28,086
Will be using PSK and RTTY
Net control K2YG

Club Internet Address

Website: http://www.nparc.org
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact K2UI, Jim

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WB2QOQ Rick Anderson
W2PTP Paul Wolfmeyer
K2UI Jim Stekas

Climatological Data for New Providence for December 2018

The following information is provided by Rick, WB2QOQ, who has been recording daily weather events at his station for the past 37 years.

TEMPERATURE -
Maximum temperature this December, 60 deg. F (December 21)
Last December(2017) maximum was 62 deg. F.
Average Maximum temperature this December, 43.7 deg. F
Minimum temperature this December, 24 deg. F (December 8,11)
Last December(2017) minimum was 6 deg. F.
Average Minimum temperature this December, 32.9 deg. F
Minimum diurnal temperature range, 4 deg. (50-46 deg.)12/15
Maximum diurnal temperature range, 28 deg. (50-32 deg.)12/20

Average temperature this December, 38.3 deg. F
Average temperature last December, 31.8 deg. F

PRECIPITATION -
Total precipitation this December - 7.00" rain, Trace snow.
Total precipitation last December - 1.62" rain, melted snow; 7.5" snow.

Maximum one day precip. event this December -
December 21, 1.42" rain
Measurable rain fell on 10 days this December, 5 days last December.

YTD Precipitation - 66.40"

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Rick Anderson
1/5/19
243 Mountain Ave.
New Providence, NJ
(908)464-8912
rick243@comcast.net

Lat = 40 degrees, 41.7 minutes North
Long = 74 degrees, 23.4 minutes West
Elevation: 380 ft.
CoCoRaHS Network Station #NJ-UN-10

Pictures from 2018 Holiday Luncheon

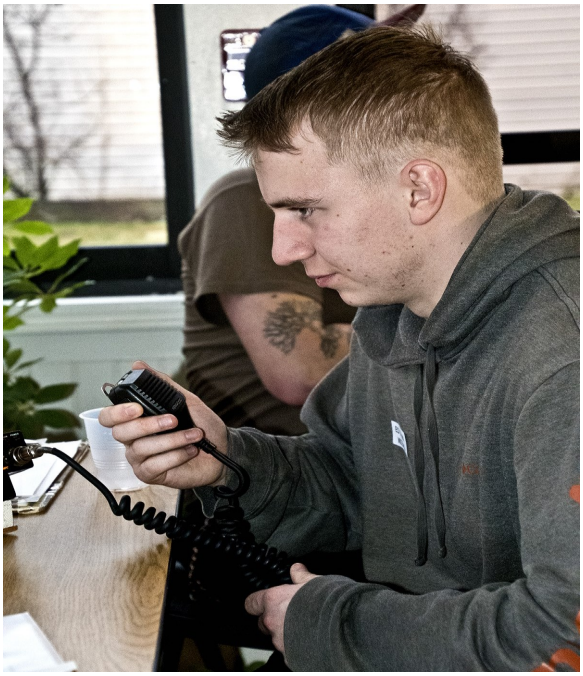
Rookie of the year award

Wouff Hong Award

Vice President, Secretary and Treasurer for 2019

Photos compliments of Jon, AE2JP

Kids Day 2019



Photos by Jon, AE2JP

Thanks to everyone who gave up a Saturday afternoon to promote Amateur radio.

My IC-718 Visits the ER

Jim Stekas - K2UI

Some years ago I acquired an IC-718 transceiver with an AT-180 tuner. The IC-718 is ICOM's low cost entry level transceiver that provides all the features and performance needed for casual rag chewing. The rig has one slot for an add-on filter and I figured I'd add a 500Hz CW filter, but I found that the previous owner had already installed an INRAD 2.8KHz wide SSB filter. The rig could justifiably have a warning sticker on it reading "Caution – Not for Contesting!" Never the less, it served admirably when called upon as a last minute substitute at NPARC Field Day.

The IC-718 was my primary rig until I upgraded to an IC-7300 this past summer. As a result, the IC-718 was demoted from the main operating position upstairs and into to the basement lab/workshop where it displaced my venerable IC-720A. I disconnected the IC-720A from the 12V Lambda supply and connected the IC-718 in its place whereupon it began to get warm. Before long the IC-718 was hot to the touch, even though it was switched ***off***. What had changed?

Upstairs, the IC-718 ran off a switching supply which got powered off as soon as the rig was powered off. But the Lambda supply in the basement has no on/off switch and therefore is on all the time, and I really mean ***all the time***. It had been providing 12V to the IC-720A continuously[1] for the last 30 years without a problem. This is analogous to a mobile installation where a rig is directly connected to the battery, and it should only draw significant current when its power switch is in the *On* position. So why was the IC-718 drawing enough current to get hot when the power switch was *Off*?

The IC-718 schematic provided the answer. The RF Power Amp (PA) board is connected directly to the input power connector and is always at 12V whenever external power is applied. The on/off state of the PA is controlled by the DC bias applied to the driver chips.[2] After removing the top cover of the rig I used my finger to determine what was getting hot. Sure enough, the driver transistors were burning hot[3], but fortunately the final transistors were not even warm. A voltage check showed that one of the driver transistors had a base-to-collector short, making it act like a forward biased diode shorting the 12V supply to ground. I didn't measure how much current the rig drew in this condition but it was certainly less than 20A since the fuses in the power cord didn't blow. Estimating the heat generated to be roughly comparable to a 40W light bulb, my guess is the rig was drawing 3-5A.

The driver transistors are Mitsubishi 2SC3133, and replacing one (or both) would seem to be a very simple thing to do. But these 15W NPN transistors that are no longer manufactured, and none of the reputable US parts providers have any available. eBay, of course, is loaded with Chinese vendors advertising 2SC3133 parts for low prices, but reading the discussions on ham forums convinced me that these parts are pretty much guaranteed to be counterfeits that don't work.

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1 Continuously in so far as JCP&L would allow.
2 All rigs take this approach. A 100w PA will draw about 20A, which would require a large relay to switch.
3 In electronics, if you can hold your finger on a component for 10 sec it is ***not*** hot.

In one posting a ham scoffed at all the hand wringing over the scarcity of genuine 2SC3133 parts when a perfect substitute, the NTE236, was readily available. Sure enough, a quick glance at the NTE236 specs showed it to be an exact match to the 2SC3133. The price was right so I ordered four NTE236 transistors from a true blue US supply house.

When they arrived I tested them with the tester I built as part of our club project, and good thing that I did. The tester showed that although the electrical specs were were the same, the pinout pattern of the NTE236 swapped positions of the emitter and collector leads. Even worse, the NTE236 fin was connected the collector, not the emitter as in the 2SC3133. There was no way the the NTE236 was going to work in the IC-718. For $30 I acquired four transistors I will never use and a greater respect for the hand wringers.

In the past, I have had good luck with the ICOM parts department, so I figured I'd give them a call. They had the real 2SC3133 in stock and I ordered a pair for $50 shipped. Not cheap, but paying $25 for a part that works is a bargain compared to $10 for a part that doesn't. Four days later I replaced both drivers, tweaked the bias, and verified that the IC-718 was fit for another Field Day.

There are a few important lessons I took away from all of this:

- Old solid state rigs will often contain obsolete parts that can be difficult or impossible to find. This is especially the case with CPUs, displays, and power transistors. Consider the risks when you are about to plunk down your cash for an old rig.

- Before scouring the internet for parts, see if genuine replacement parts are available from the manufacturer or another reputable source. Ask yourself what premium you are willing to pay for a correct part that will solve the problem versus a bargain part that may or may not work. If you think you have found a viable substitute, double and triple check the spec.

The IC-718 was first reviewed in the July, 2000 issue of QST and it is still in production today over 18 years later. But the ICOM has made multiple revisions of the IC-718 design since its introduction. Externally, the only difference you will notice between the original and current models is that the 6-pin power connector has been replaced by the 4-pin connector adopted by ICOM around 2005. Internally, the PA has gone through multiple revisions and the NPN drivers and finals are now FETs. The IC-706 is roughly the same vintage as the IC-718, and both rigs shared the same PA design when they started out. Since then the IC-706 has evolved into the IC-706MkII, and then the IC-706MkIIG. It's likely the PA in the current IC-718 shares the FET design of the IC-706MkIIG or perhaps that of its decedents in the IC-7000, IC-7100, IC-7200 series.

ICOM has an odd practice of using serial numbers that do not track with the date of manufacturer. So if you see an IC-718 you will have no way of knowing how old it is by the serial number alone.

My old IC-720A has a loud clacking motor driven bandswitch that earns it bad marks from reviewers, "Never had a problem with mine, but I hear ..." But it also finishes ahead of the IC-756 Pro III in Sherwood's receiver rankings.[4] Headache or gem? Maybe both.

4 http://www.sherweng.com/table.html