



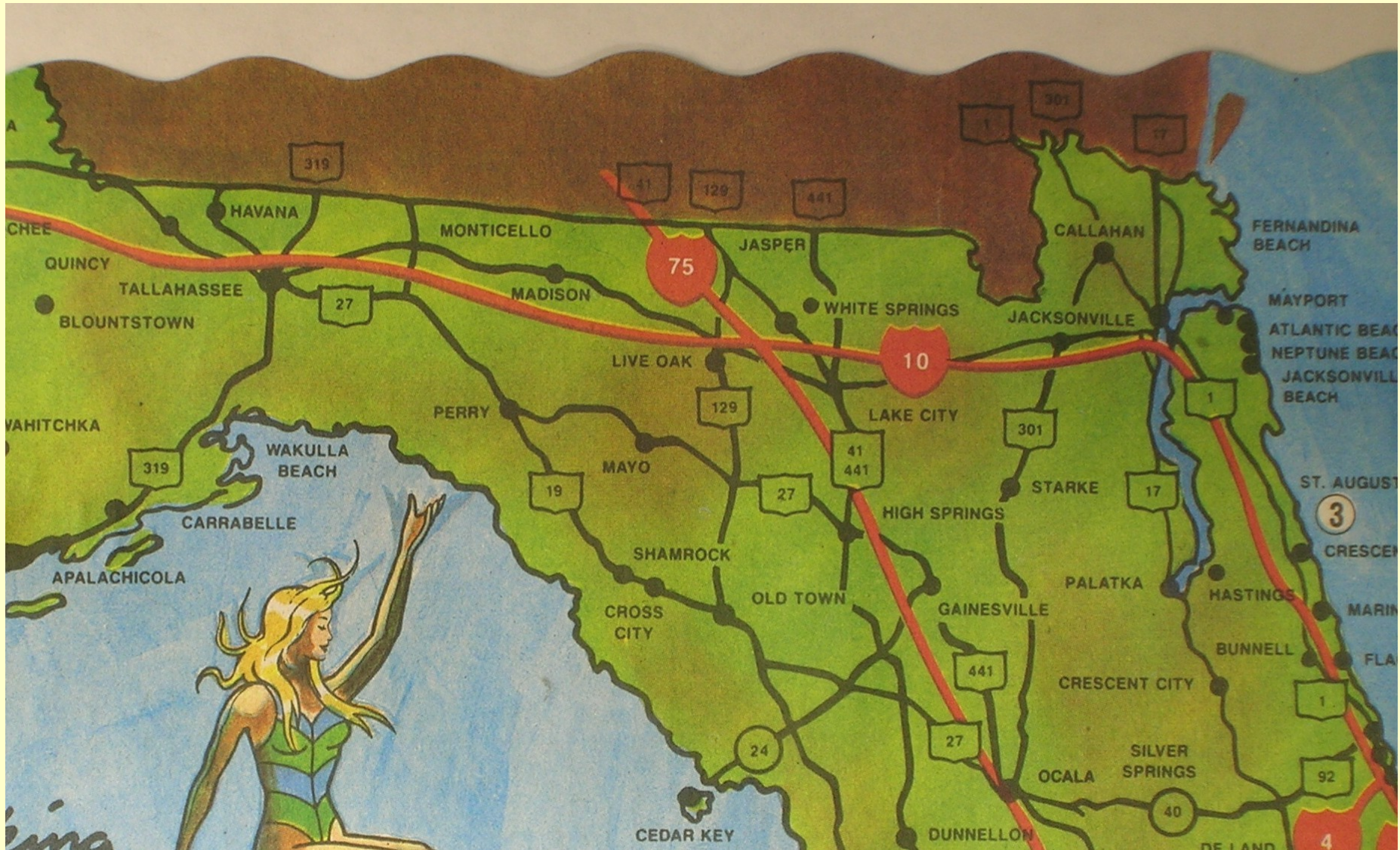


Ultra-Small Amateur Radio Business
Economic Summit, Madison CT



































Tomato
Plants
10 For \$100



FOR SALE
COW-CALF
362-6231



Boaters beware: Sturgeon are back

3 people were hurt by the leaping fish last year

Submitted

Gulf sturgeon are beginning their annual migration back into the Suwannee River during March and April.

Fish and Game officials remind boaters to slow down and be aware these fish are jumping.

Three people, including a 4-year-old who suffered a broken arm, were injured in accidental collisions with jumping sturgeon during 2008.

"Just one person getting hurt is too many," said Maj. Lee Beach, regional law enforcement commander for the Florida Fish and Wildlife Conservation

Commission's North Central Region, based in Lake City. "We want people to be aware the sturgeon are returning, and the risk of injury to boaters does exist."

In 2006, FWC officials began working on a public awareness campaign to alert boaters to the risks of jumping sturgeon.

"We have posted signs at each boat ramp along the Suwannee, explaining the risk of impacts with these fish," Beach said. "We will be checking those boat ramps this month to ensure all the signs are still in place and our officers will be on water patrol

during this period and into the summer months in a continued effort to educate boaters on this issue."

What's the best course of action for avoiding a collision?

"We recommend boaters reduce their speed to reduce the risk of impact and to give people more time to react if they do encounter a jumping sturgeon," Beach said. "The FWC also recommends that all boaters wear their life jackets."

The Suwannee River appears to support the largest viable population of Gulf sturgeon. Biologists estimate the annual population

at 6,500 to 7,500 fish, each averaging approximately 40 pounds. Adult fish spend eight to nine months each year in the river spawning and three to four of the coolest months in Gulf waters. Sturgeon tend to congregate in deeper and cooler waters with moderate currents and sand and rocky bottoms.

Biologists are unsure why sturgeon jump.

"Scientists are still attempting to figure that out," said Dr. Jeffrey Wilcox, FWC biologist. "The latest theories include that the fish jump to communicate, or it may be a dominance display. No rules require all jumps to mean the same thing.

"I have seen these collisions referred to as 'attacks.' However, these fish are in no way 'attacking' when they jump. They are simply doing what they have been doing for millions of years ... jumping. They aren't targeting the boaters," Wilcox said.

However, Gulf sturgeon can get quite big, exceeding 8 feet and 200 pounds.

"Scientists are still attempting to figure that out," said Dr. Jeffrey Wilcox, FWC biologist. "The latest theories include that the fish jump to communicate, or it may be a dominance display. No rules require all jumps to mean the same thing.

"I have seen these collisions referred to as 'attacks.' However, these fish are in no way 'attacking' when they jump. They are simply doing what they have been doing for millions of years ... jumping. They aren't targeting the boaters," Wilcox said.

However, Gulf sturgeon can get quite big, exceeding 8 feet and 200 pounds.











WINDOWS & DOORS

WLD
HOWLAND
HOME IMPROVEMENT WAREHOUSE

SINCE 1926

EQUIPMENT RENT

A man with a goatee and sunglasses, wearing a white t-shirt and black shorts, stands in front of a blue corrugated metal wall. He is holding a white sign with black text that reads "Pimp-my-yardboy.com". The sign is suspended by two white ropes that go over his shoulders. The background is a solid blue corrugated metal wall with visible rivets.

Pimp-my-yardboy.com



THE MOST FAMOUS OCEAN LINERS IN THE WORLD™

QUEEN ELIZABETH

ARRIVES AUTUMN 2010

click here for details...



QUEEN MARY 2

"BEST LUXURY CRUISE SHIP"

Travel Weekly

QUEEN VICTORIA

"BEST OF THE BEST"

The Robb Report, 2008



CUNARD



LITTLE PALM ISLAND

Resort & Spa



Florida Keys spa resort - Providing the ultimate inner spa journey.

There is a Florida spa refuge that exists solely to promote health and wellbeing for mind, body and soul. It is SpaTerre, the signature spa of Noble House Hotels & Resorts.

Here, exotic Balinese spa treatment and Thai body rituals are custom-designed to replace the weight of the world with the feeling of utter relaxation, incorporating a blend of ancient spa traditions once reserved for royalty. The healing properties of flowers and spices are used liberally to





Mickey's GIFTS **ORLANDO VACATION SUPER DEALS**
Ask! About Our  **FREE TICKETS**

Tickets

Hotels

Disney
SeaWorld
Universal
50%
Discount
OPEN OPEN

ORLANDO DISCOUNTS
3 DAYS
DISNEY
\$99.00

SEA WORLD, AQUA.
7 DAYS
\$94.00

UNIVERSAL
7 DAYS
\$94.00

ORLANDO FLORIDA
H40
FRANK GRIF

Harmony Gardens Nursery & Florist

Buy 1 Gallon Plant
Get 1 FREE
Max \$5.99 Value ~
Limit 2

1 Coupon Per Visit

10100 NW 13th St.
(On 441, Just North of 43rd St.)

386-462-4324

Expires 10/09



**Completely
Clean
Car Care**

\$5.00 OFF

Any Wash or Detail Service

481 NW Gibson Lane, Lake City 32055

697-9013



**COWLICKS & CURLS
HAIR SALON**

**10% OFF Product
With Service**

(386) 364-2875

205 N.W. Duval St. Live Oak

Expires 6/09

CHILI'S DAWG HOUSE



THE BEST DOG EVER BITTEN BY MAN

**BUY 1, GET 1 FREE
CHILI DAWG**

Come Or Call For
THURSDAY SPECIALS

1780 E. DUVAL ST. (COLONIAL PLAZA)
LAKE CITY, FL 32025

754-5554

Peloni's

Pumping & Portable Toilets, Inc.

10% Discount

(Must Bring In Coupon)

**386-755-1616 or
386-752-2835**

205 N.W. Duval St. Live Oak

Gateway Mini-Warehouses

- Non-Climate & AC/Heated Units
- Electronic Gate • 24 Hour Access
- Lighted Fully Fenced
- Security Locks
- Sizes 5X10, 10X10, 10X20
- No Deposit • Low Rates



FIRST MONTH FREE

2 Convenient Locations

1/2 Mile West Of I-75 & Hwy 90

4158 West US Highway 90, Lake City, FL 32055



386-755-7370

Visit our website at www.gatewaymini.com

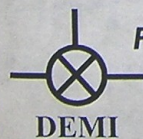
American Kenpo Karate University Inc

Senior Instructor, Timothy Walker

Mention this coupon &
receive a **FREE** uniform
with enrollment.

386-935-3777

201 Suwannee Ave, Branford
Next to Napa Auto Parts
AKKUinc@juno.com



DEMI

FLORIDA VACATION

SPECIAL!

20% off
Complete Package

Down East Microwave, Inc
19519 78th Ter, Live Oak, FL 32060
Tel. 386-364-5529 (Voice)
<http://www.downeastmicrowave.com>



Get the door. It's Domino's.

**Buy A Large Pizza
Regular Menu Price
and Receive a
FREE Bread Side**

Lake City
758-3130
2372 W. Hwy 90

Live Oak
364-3130
801 Irvin Ave SW

Code: M80

Limited Time Offer

*2008 Domino's IP Holder LLC. Not valid with any other offer. Valid with coupon only at participating stores. Cash value 1/20¢. Prices may vary. Tax may apply. Minimum purchase required. Delivery charge may apply. Limited delivery areas.

COUPON SECTION

EM81wa

The WJ9B/R Rig

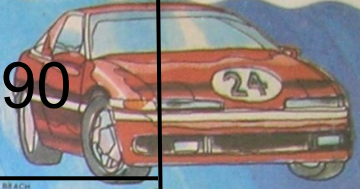


EM60

EM70

EM80

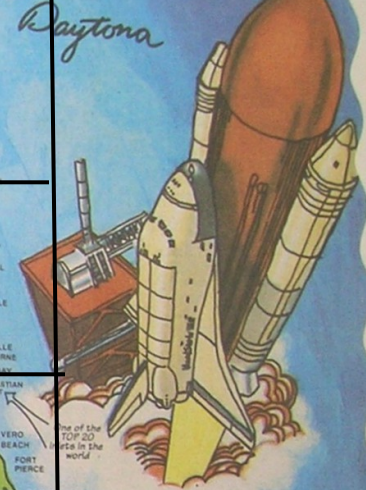
EM90



EL79

EL89

EL99



EL88

EL98

EL87

EL97



EL86

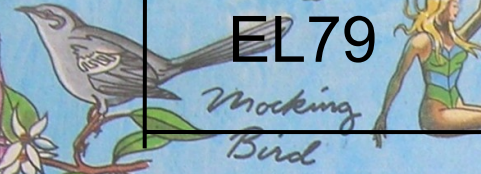
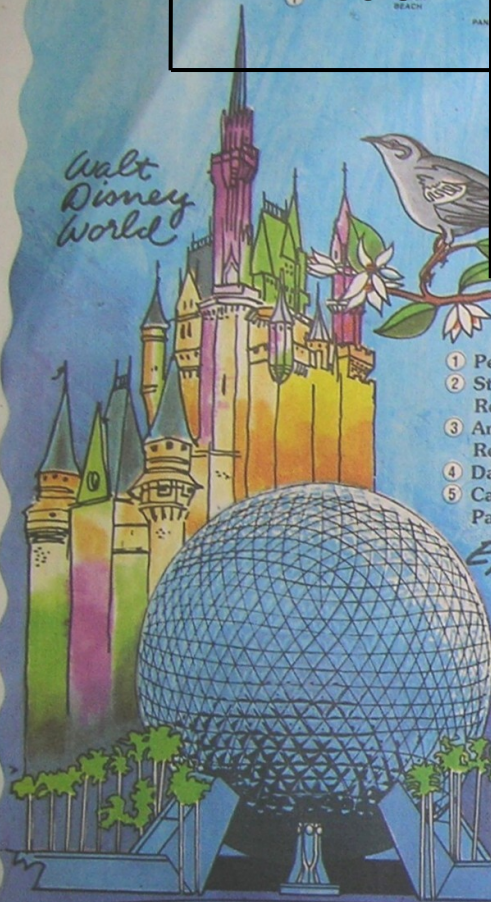
EL96

EL95

EL94



Walt Disney World

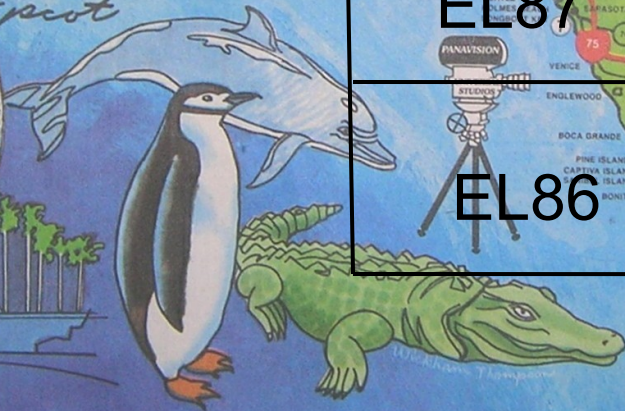


Mocking Bird

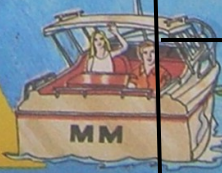
Florida's Best Beaches

- 1 Pensacola Beach
- 2 St. Andrews State Recreation Area
- 3 Anastasia State Recreation Area
- 4 Daytona Beach
- 5 Caladesi Island State Park
- 6 Fort DeSoto Park
- 7 Siesta Beach
- 8 Tigertail Beach
- 9 John U. Lloyd Beach State Recreation Area
- 10 South Beach
- 11 Bill Baggs-Cape Florida State Recreation Area

Epco



FLORIDA



Daytona

Kennedy Space Center

#01ECO-6

EL89to

Correct operating spot
by the sign







C-9



SOUTH FLORIDA
WATER
MANAGEMENT
DISTRICT

www.sfwmd.gov

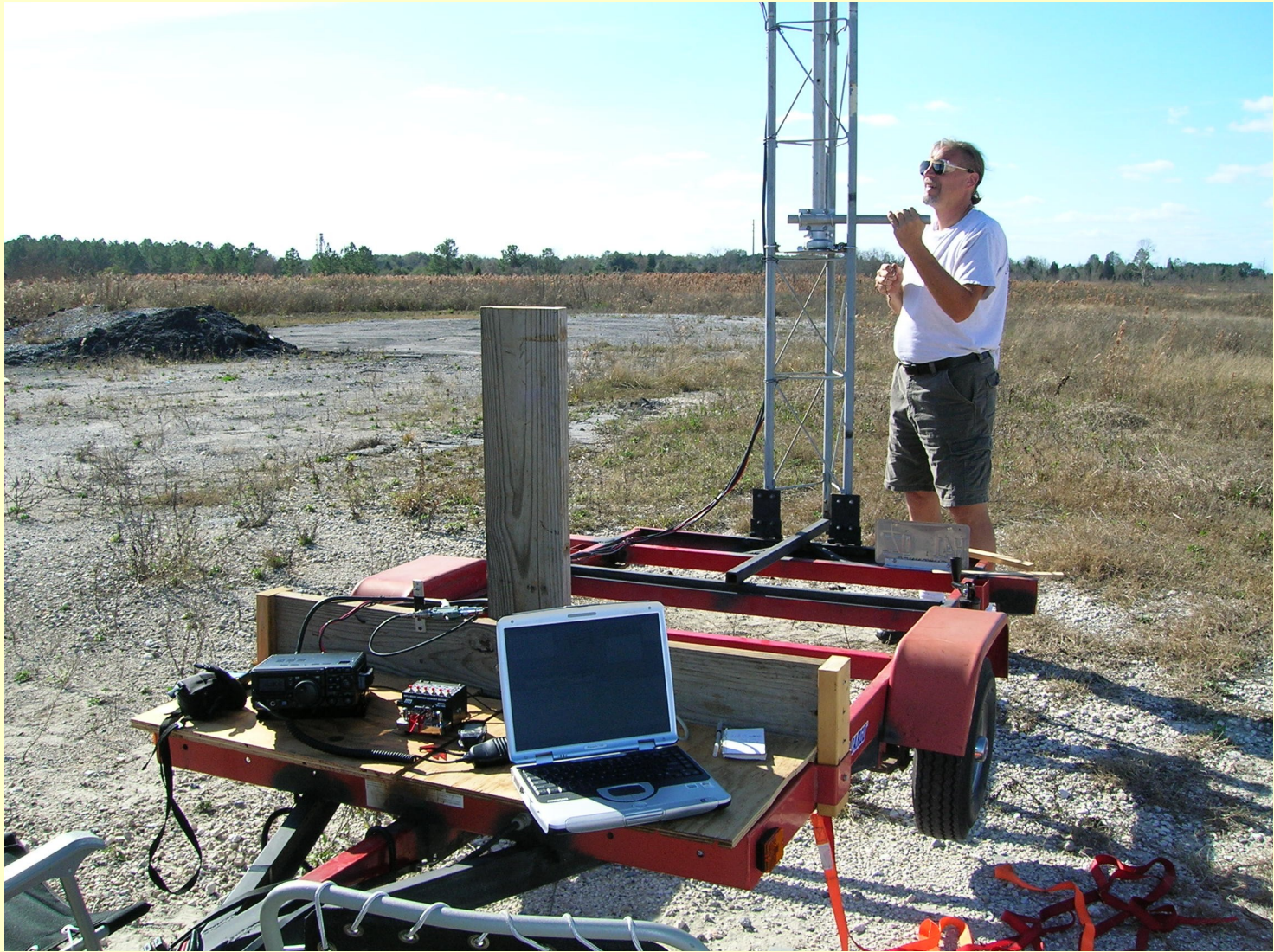
Protecting Our Water Resources

NO
PARKING

SOUTH
27







EM81wa

Working K0VXM









EL97ft

KQ4PI





MONTES DE OCA
ORIGINAL
PIZZA CUBANA
ESTILO VARADERO

LA
ORIGINAL

PAN CON BISTEC SANDWICH CUBANO MEDIA NOCHE FRITA CUBANA MONTES DE OCA SPAGHETTI

CAFETERIA RESTAURANT

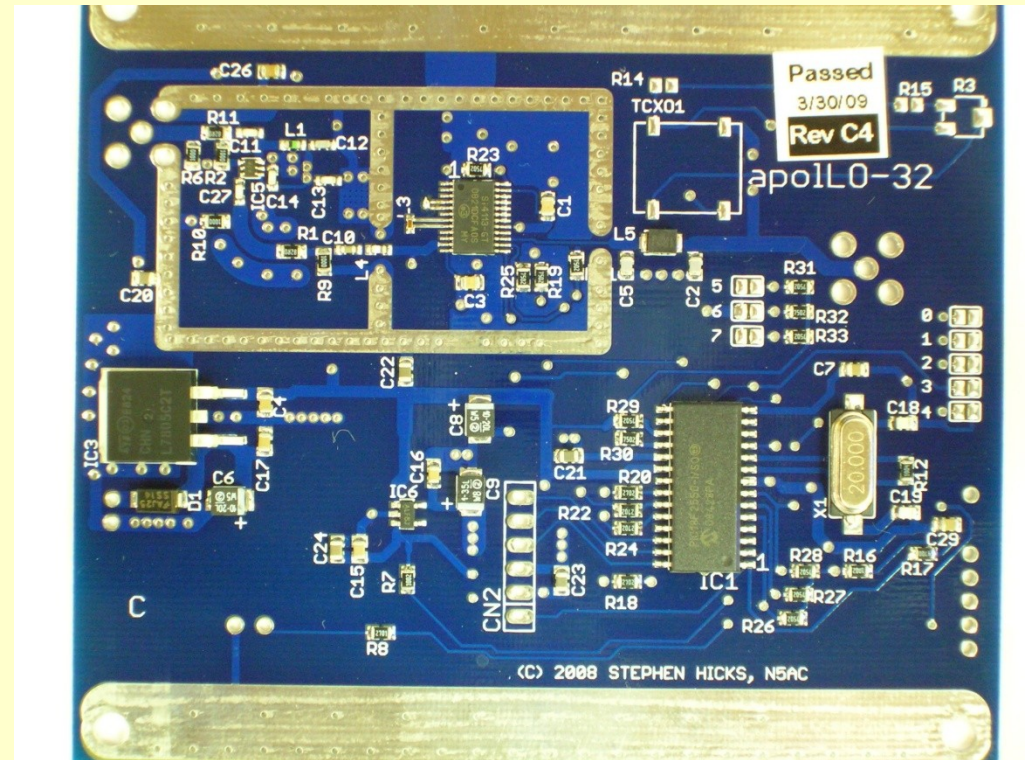
OPEN 24 HOURS

MONTES DE OCA
ORIGINAL PIZZA

DEM A32 Synthesizer

The DEM A32 is a pre-programmed 900 -1300 MHz. synthesizer designed exclusively for DEMI by N5AC. This synthesizer is a derivative of his original USB controllable ApolLO-1 design. The A32's design intentions are to directly replace our DEMI MICRO-LO assembly used in all of our 2.3 GHz through 10 GHz transverters.

What makes the A-32 different from the original ApolLO design is that it is provided with 32 pre-programmed synthesized frequencies (now 50 with Rev. C4) that include the basic RF and IF combinations required to allow any DEMI 2.3 GHz through 10 GHz transverter to operate in the standard band plans. These pre-set frequencies are selectable by jumpers and allow you to change the LO injection frequency on the fly for instance if you desire to operate on 2304 and 2320. Same if you desire to change your IF on 5760 to 145 MHz instead of using the standard 144 MHz. Simply, select and install the appropriate jumpers. No more "re-crystaling" the oscillator and /or adding a second outboard unit when you want to change frequencies.



Band	IF	Frequency	Predicted PN, dBc/Hz @ 1 kHz
2304	144	1080	-81
"	145	1079.5	-79
"	147	1078.5	-79
2320	144	1088	-81
2424	144	1140	-81
3456	144	1104	-81
"	145	1103.6667	-78
"	147	1103	-81
3400	144	1085.3333	-80
"	145	1085	-81
5760	144	1123.2	-78
"	145	1123	-81
"	147	1122.6	-76
"	432	1065.6	-78
"	435	1065	-81
10368	144	1136	-81
"	145	1135.8889	-74
"	147	1135.6667	-78
"	432	1104	-81
"	435	1103.6667	-78
"	1296	1008	-81
24192	144	1002	-81
"	147	1001.875	-80
"	432	990	-81
"	435	989.875	-75
24048	144	996	-81
"	147	995.875	-75
"	432	984	-81
"	435	983.875	-75

Band	IF	Frequency	Predicted PN, dBc/Hz @ 1 kHz
903.1	WSS	903.1	-74
915	WSS	915	-81
1296.1	WSS	1296.1	-74
1152.02	WSS	1152.022	-74
2401	WSS	1200.5	-79
902.1	WSS	902.1	-74
1275	WSS	1275	-81
1420	WSS	1420	-81
1296	144	1152	-81
2400	144	1128	-81
5760	1296	1116	-81
1296	28	1268	-81
1296	145	1151	-81
2300	145	1077.5	-79
2300	144	1078	-81
2400	145	1127.5	-81
10368	145	1022.3	-74
10368	144	1022.4	-78
1296	147	1149	-81
1296	29	1267	-81
1420	144	1276	-81
10368	144	1278 G3WDG	-81

Quality 10 MHz sources are available on the surplus markets, or new in catalogs. You may choose to “Roll Your Own” or build one from numerous designs available to amateurs throughout the world. They can be simple temperature controlled devices or complex GPS phase locked units. At 1×10^{-7} , you will be almost within 1 kHz of your expected frequency on the 10 GHz band. Of course 1×10^{-8} is better but not required to make reliable contacts with minimal tuning.

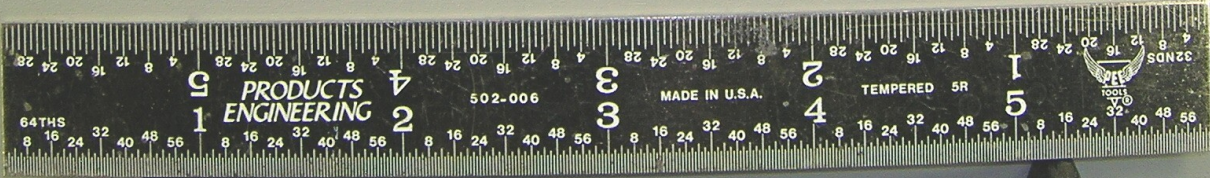
The performance of the A32 synthesizer depends on the accuracy of the 10 MHz clock or standard it is connected to. For the best possible performance, we recommend using a GPS derived source. This not only guarantees the best possible performance but will ensure that you are on the same frequency as others using a GPS derived system. The next best option is an external 10 MHz. source that is temperature stable separate from the transverter it is being used with. The transverter temperature will vary depending on the ambient temperature and the amount of power dissipated as heat in the transverter. Hence, the low power transverters will be more temperature stable than the high power versions. The last option is to utilize an “on board” 10 MHz clock installed on the A32 synthesizer.

TOYOCOM
JAPAN
CRYSTAL OSC.
TCO- 6313
SPEC. NO. 910007
FREQ. 10 MHz
SERIAL NO. C7895
DATE 10 - 89

1 PPS 10 MHz ANT

RS-232

Power Enabled Active Alarm GPS Lock Holdover



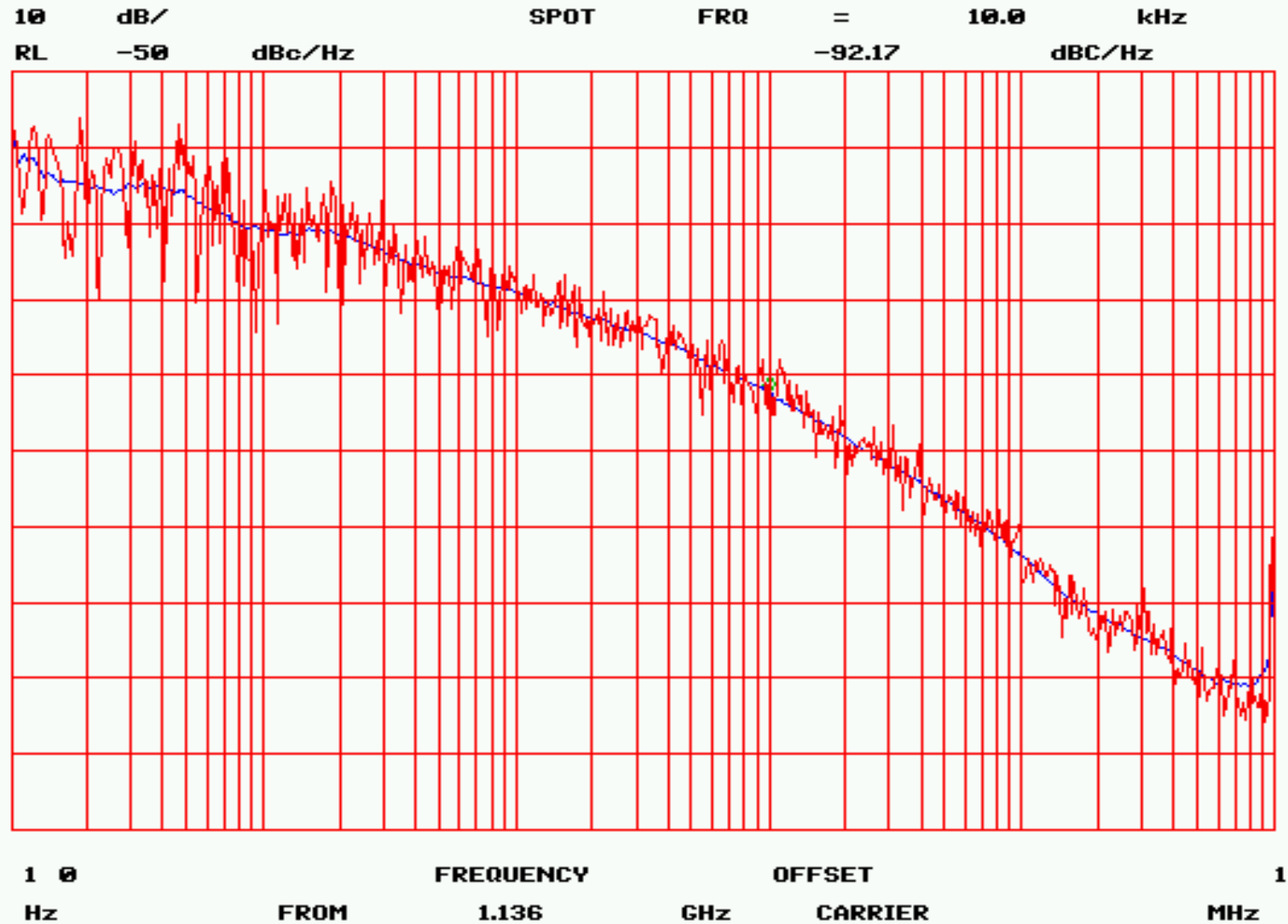
The data provided below will demonstrate what to expect as the internal air temperature of the transverter changes. The data is a compilation of worst-case frequency change of different units tested in the lab at the specified temperature ranges. We believe this is a good representation of what someone could expect when using an A32 with an internal FOX 801 10 MHz clock. Because of the nature of the 10 MHz clock (being crystal derived), the frequency change over temperature depends on the characteristics of the crystal used in the circuit. This is why we specify it as “Change in frequency or Delta” and not actual frequency change in a positive or negative direction. The delta can be in either positive or negative direction from “0” offset or “0” could be the center of the range. Just understand that at any temperature range, the data is the maximum frequency change that was observed.

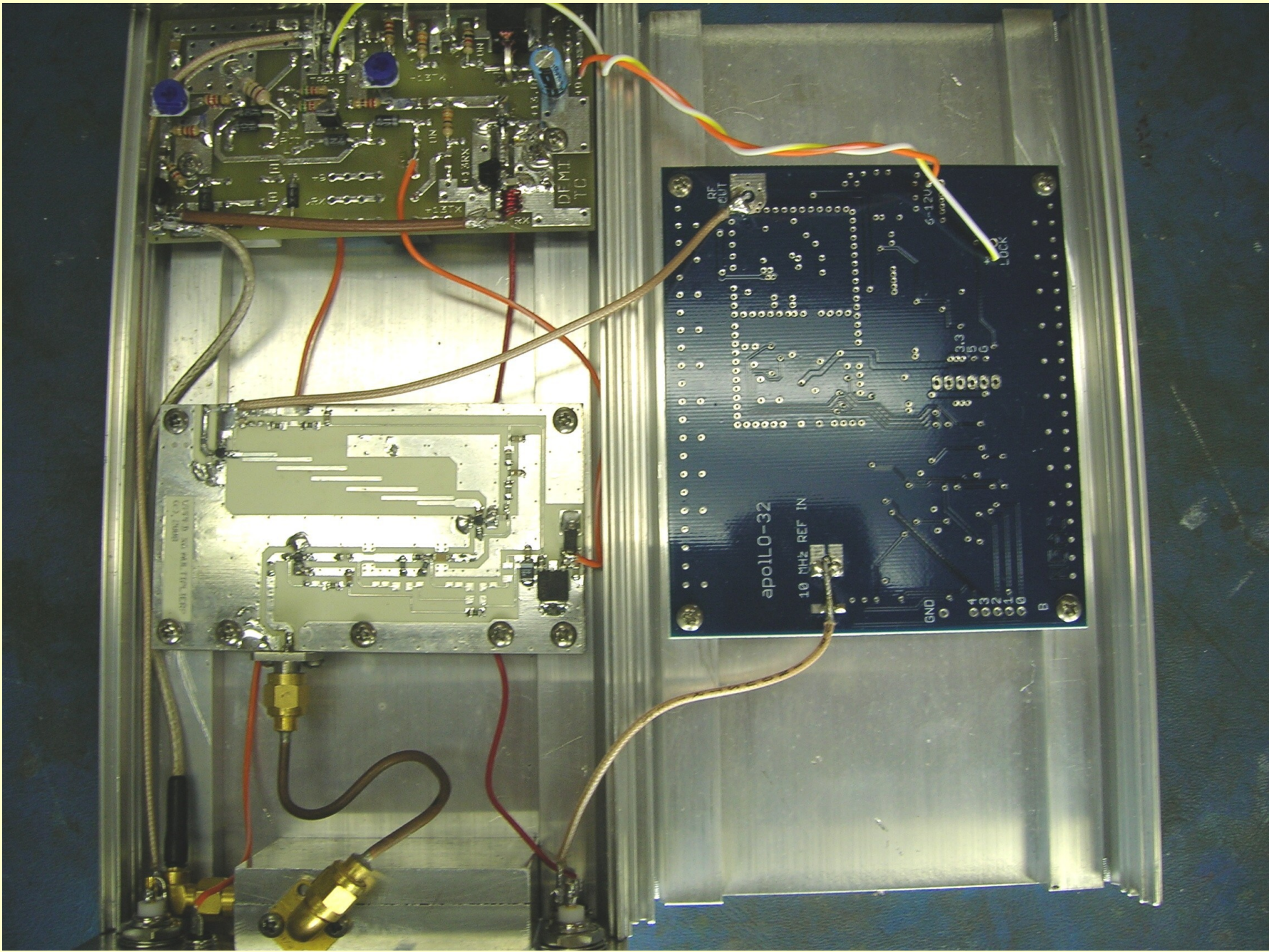
Next item to understand is that data is a measurement of the A32 frequency change. (The base LO Multiplier frequency) This means that if you have a 10 GHz transverter, the base A32 frequency of 1136 MHz, is multiplied 9 times. So, the delta specified needs to be multiplied by 9. For 5760 by 5, 3456 by 3 and 2304 by 2.

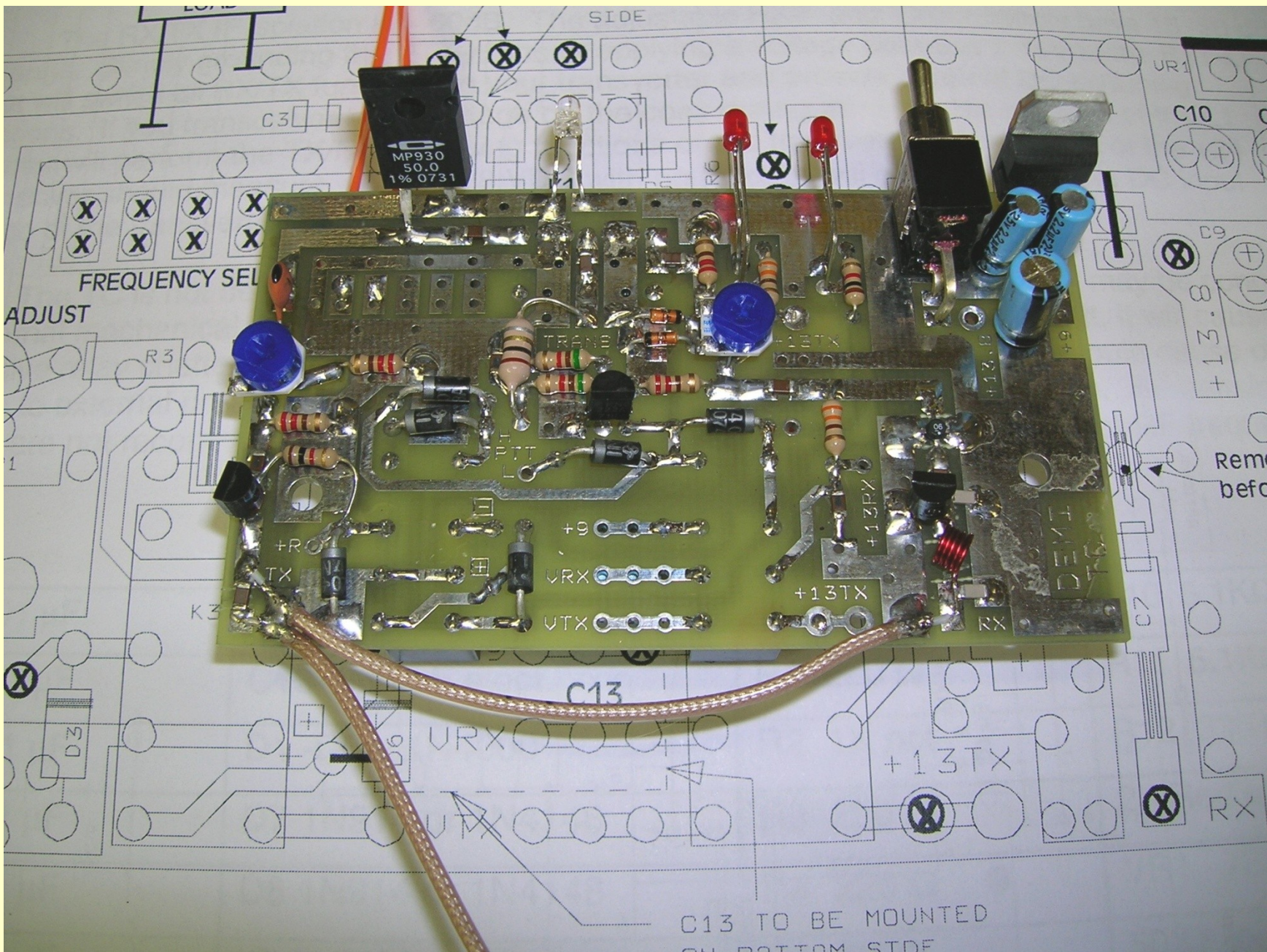
Last item is to not underestimate the operating temperature of the transverter. A high power 5 or 10 GHz. transverter if left unattended in the sun in the transmit mode can exceed an internal temperature of 60 °C! In a laboratory environment, 50-55 °C can be achieved with a ½ hour of continuous transmit time. Now, the data.

Operating Temperature	Delta Frequency Change in Hz.
-10 to +50 °C	375
20 to +40 °C	200
+30 to +55 °C	110

Below is a actual Phase noise plot of a A32 at 1136 MHz, the LO frequency for our 10 GHz transverter. Please note that data point recorded is at 10 kHz not 1 kHz. Just slide back on the graph to see the 1 kHz point to compare to the predicted value.







MP930
50.0
1% 0731

FREQUENCY SEL
ADJUST

TRNE

+13TX

+13PX

C13

URX

UTX

+13TX

Remo
befo

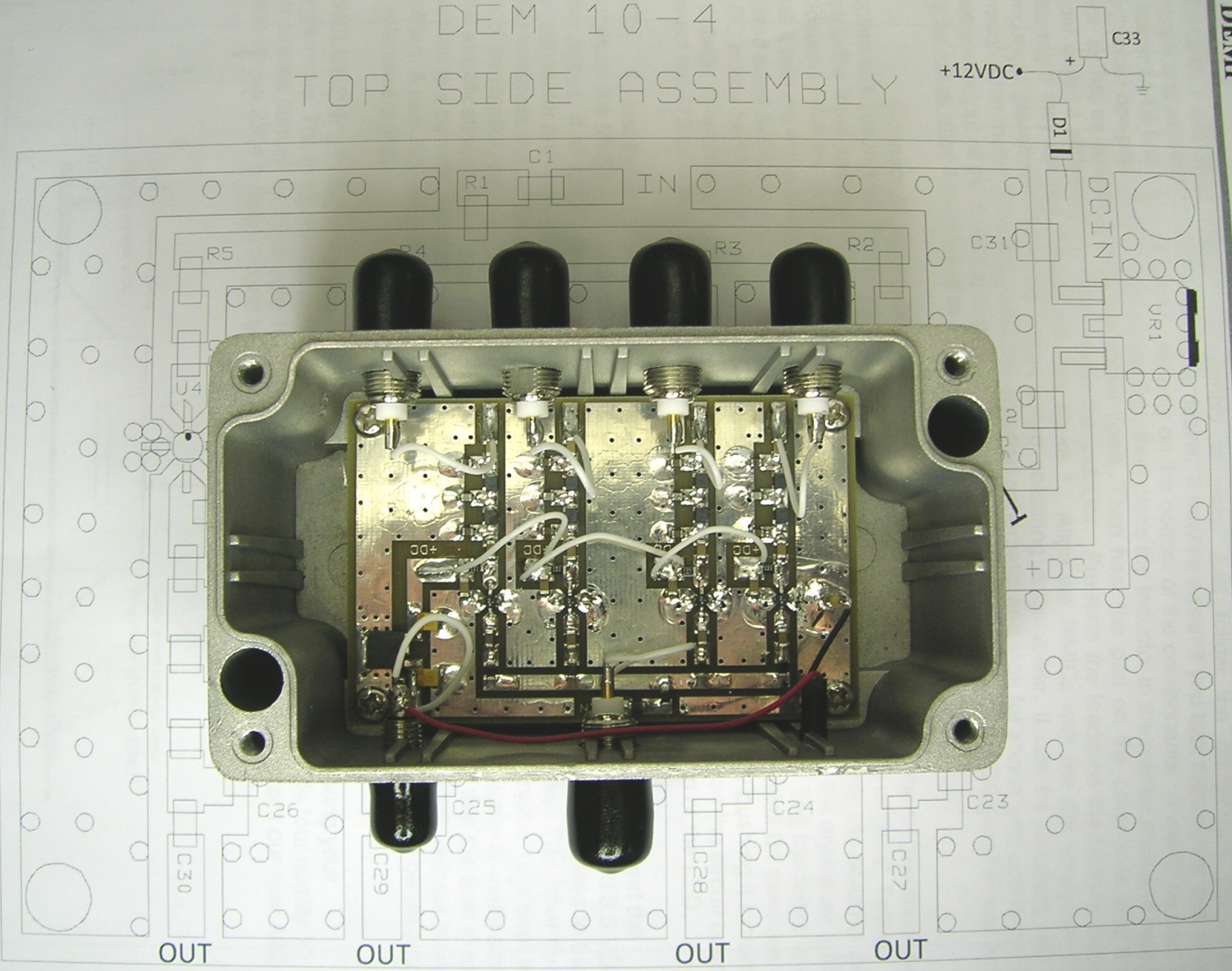
C13 TO BE MOUNTED
ON BOTTOM SIDE

DEM1

Down East Microwave Inc. 19519 78th Ter., Live Oak FL 32060
Phone: 386-364-5529 (Voice) <http://www.downeastmicrowave.com>

DEM1

DEM 10-4 TOP SIDE ASSEMBLY





Down East Microwave Inc. 19519 78th Ter., Live Oak FL 32060

Phone: 386-364-5529 (Voice) <http://www.downeastmicrowave.com>



DEMI

Microwave Weak Signal Source

DEM Part Number WSSA I M IM SN

Operation

1 - 903.100 MHz.

2 - 1296.100 MHz.

3 - 2304.0445 MHz. 3456.0675 MHz.

5760.1124 MHz. 10368.2023 MHz.

4 - 992.100 MHz.

5 - 1152.000 MHz.

OUTPUT

Power ON

LOCK

1 2 3 4 5

Band	Mult.	Frequency	Power Level
33cm	1	903.100 MHz. +5dBm	903.100 MHz. @ +5dBm
33cm	1	915.000Mhz +5dBm	915.000 MHz. @ +5dBm
23cm	1	1275.000 MHz. +5dBm	1275.000MHz. @ +5dBm
3cm	1	1296.100 MHz. +5dBm	1296.100 MHz. @ +5dBm
cm	1	1420.000 MHz. +5dBm	1420.000 MHz. @ +5dBm
cm	2	1152.022472 MHz. +5 dBm	2304.044944 @ -17dBm
m	2	1200.500 MHz. +5dBm	2401.000 @ -20dBm

The V... developed by... <http://www.d...> frequency in... frequencies... external 10 M... WSSA-I) it w...

To op... mA. Connec... Then either... and the red... remove the... option canno... The frequenc... 1152.022 or... achieved with... desired at spec...

5.000
0
zer
ngle
n (the
000
tion.
ne unit
model,
"I"
link.
the
d are
are

Signal level

Visiting an Old Friend

By Steve Kostro, N2CEI

PREFACE

I know most of you, like me, have an old friend sitting on the shelf or the workbench that you keep around, not because of its performance, but because of its nostalgia. You know what I'm talking about! I am sure there is something. For me it's that I made my first "real" 10 GHz contact with that transverter. I cannot seem to part with it although I would not dream of using it ever again. Well this paper is a little info on how you could possibly revitalize your old friend and maybe if not part with, pass along to someone else for his or her first QSO on maybe his or her new favorite band.

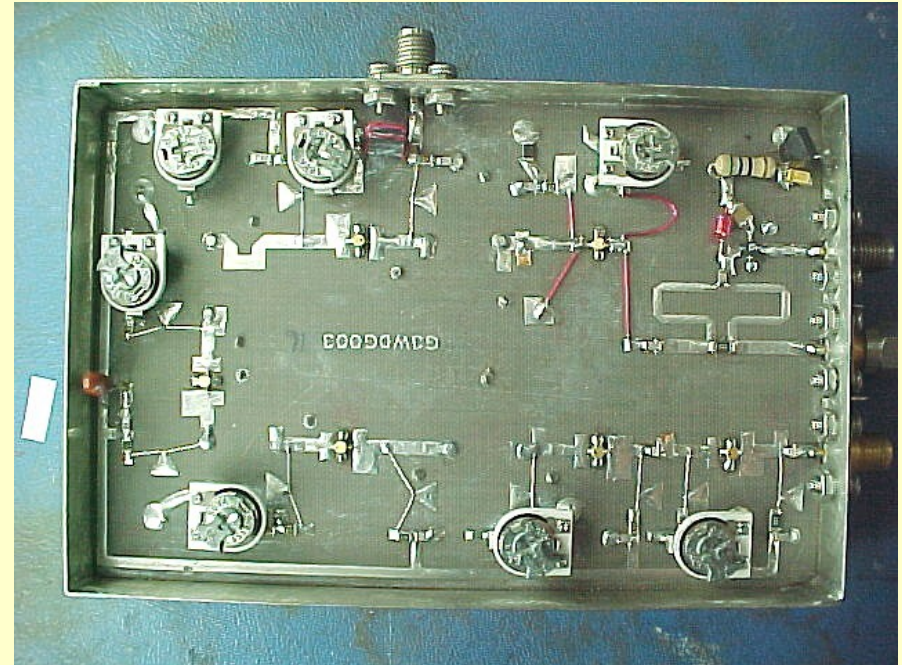
PROGRESS, A WONDERFUL THING!

Back in the mid to late '70's, commercial microwave transverters started to become available to the average ham. Names such as LMB, LMW, MMT, SHF, and others became common names through the 80's and into the 90's. There were many other homebrew and published designs in the RSGB handbook along with other Ham related circuit designs published in proceedings from various conferences such as this one. All of the designs had their quirks and quandaries, but all got us on our chosen band of operation, somewhere within the band plan! This paper will specifically address one popular 10 GHz design (my old friend) and cover a problem and a solution that is applicable to many of the "Old Friends" that are still around.

The G3WDG 10 GHz TRANSVERTER

I don't know how to describe it, but no matter what I did in the hobby, No matter where I moved my Ham shack to, or what particular interest I had through the years, my first G3WDG transverter was always around somewhere. I always knew where it was even though I have not used it since 1991-92. The Local Oscillator was missing (or trashed) after being rebuilt a few times (along with a few others that belonged to other Hams) but the "RF" stuff was intact and still quite useable! Yes, the local oscillator has caused many a stressful moment in my hobby. It would operate on the wrong multiple or would be

sensitive to temperature that would affect the output power and frequency. Therefore, it was placed aside for many years.



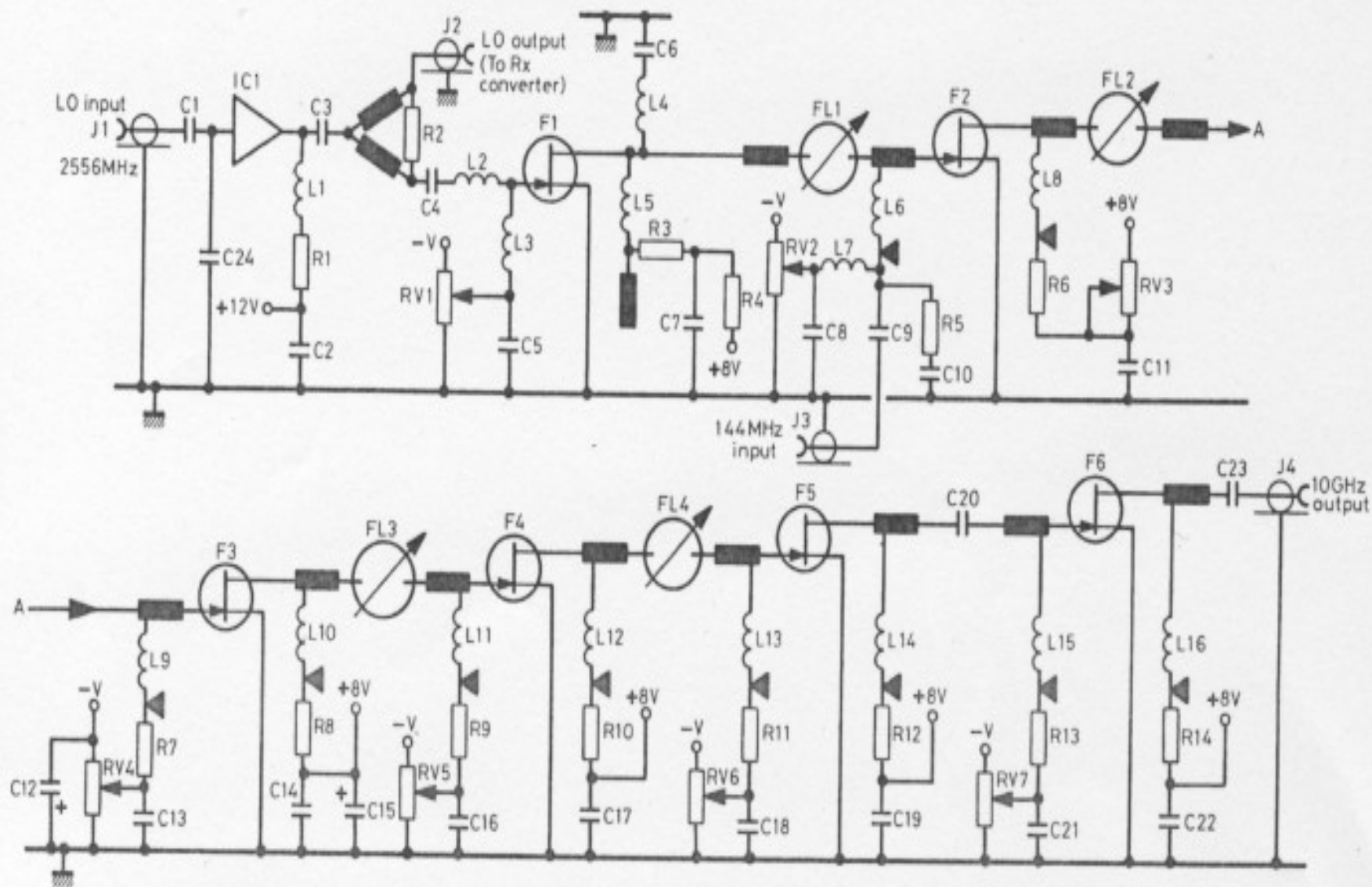
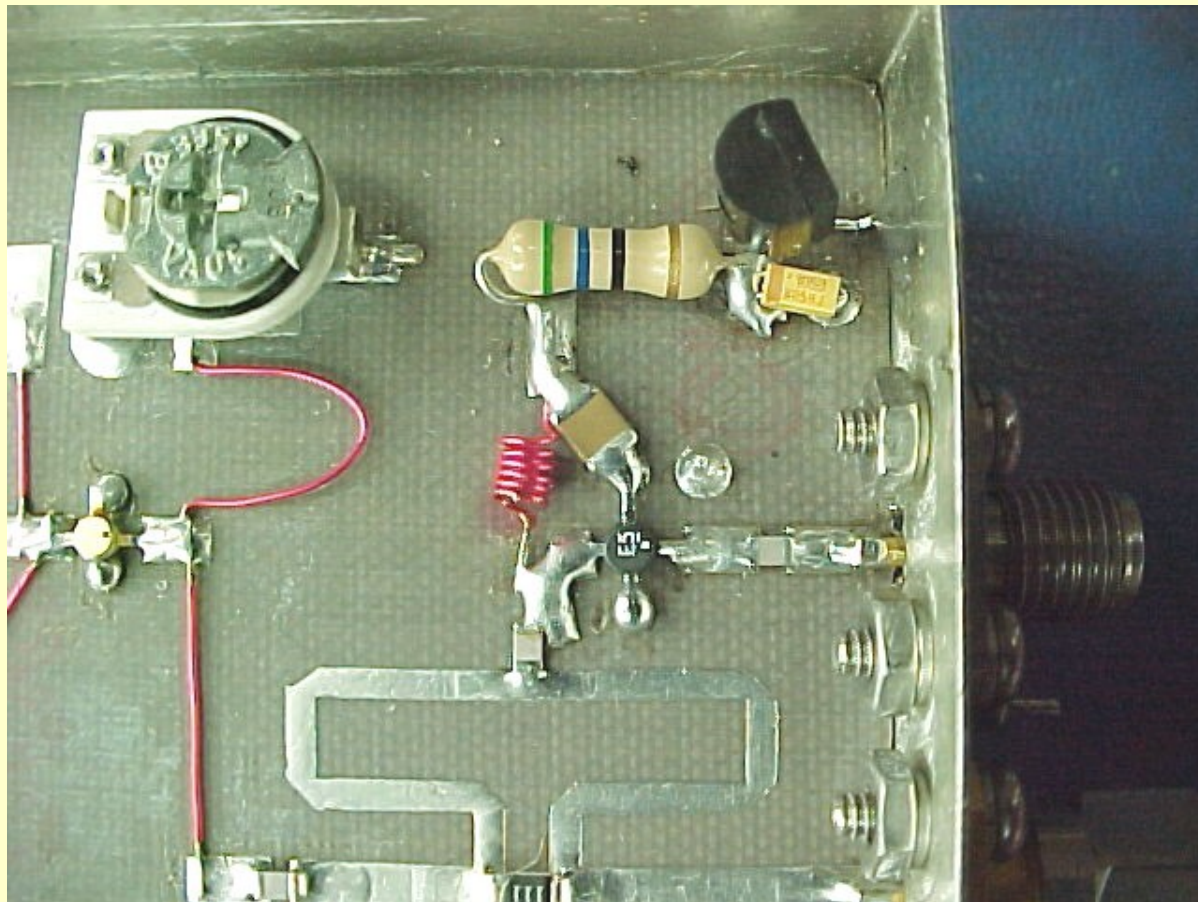
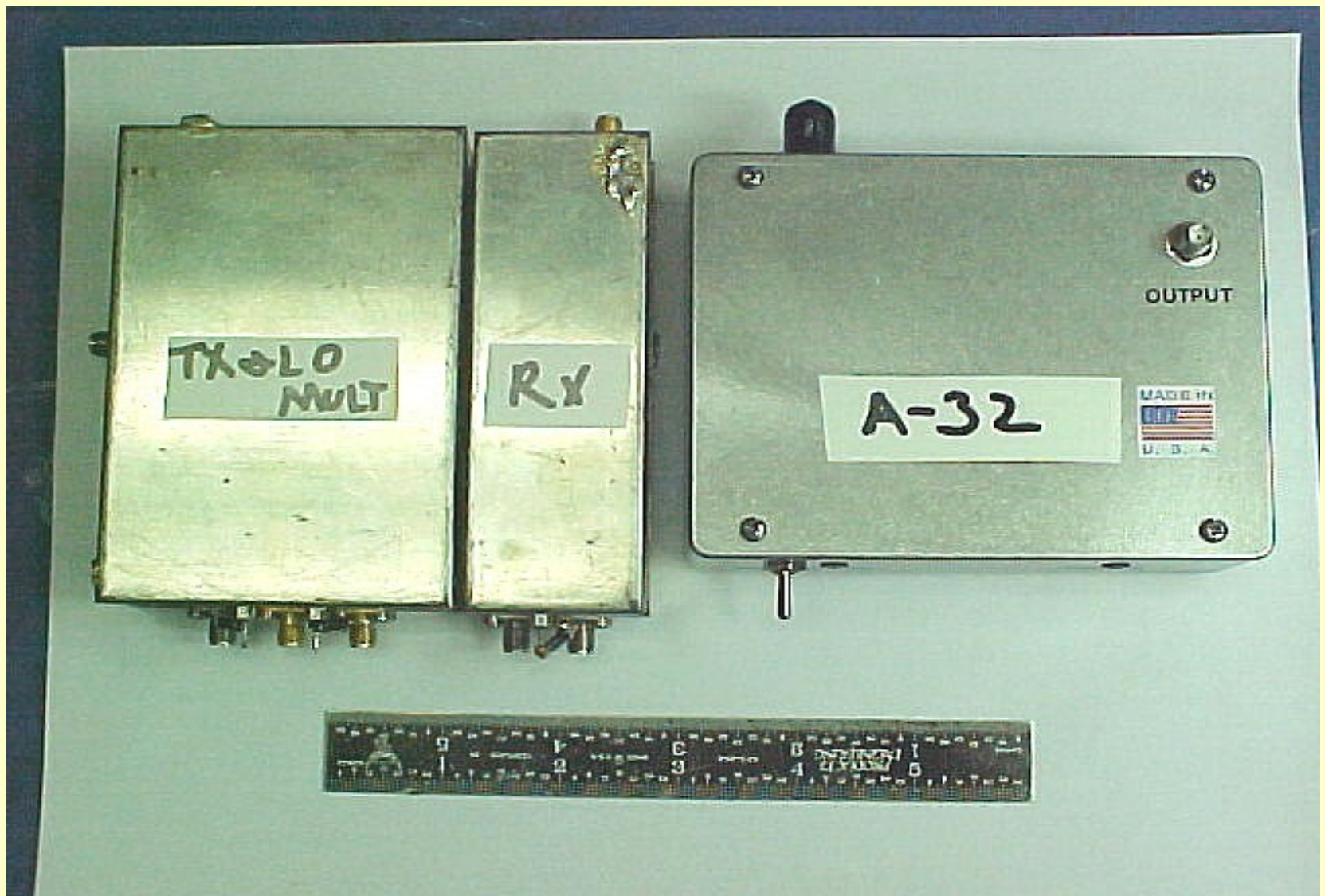


Fig 18.181. Circuit of the G3WDG-003 144MHz to 10GHz transmit converter. Component values are given in Table 18.12

Now, some modern technology! Substitute the MAV-11 with a different MMIC. I chose the ERA-5 because of its high gain and higher output power. Also my experience has shown that a second harmonic level is an easy task for it. The bias resistor will need to be changed and I also recommend a 9 VDC voltage regulator to keep the voltage steady. It was a drop in and test type of operation.

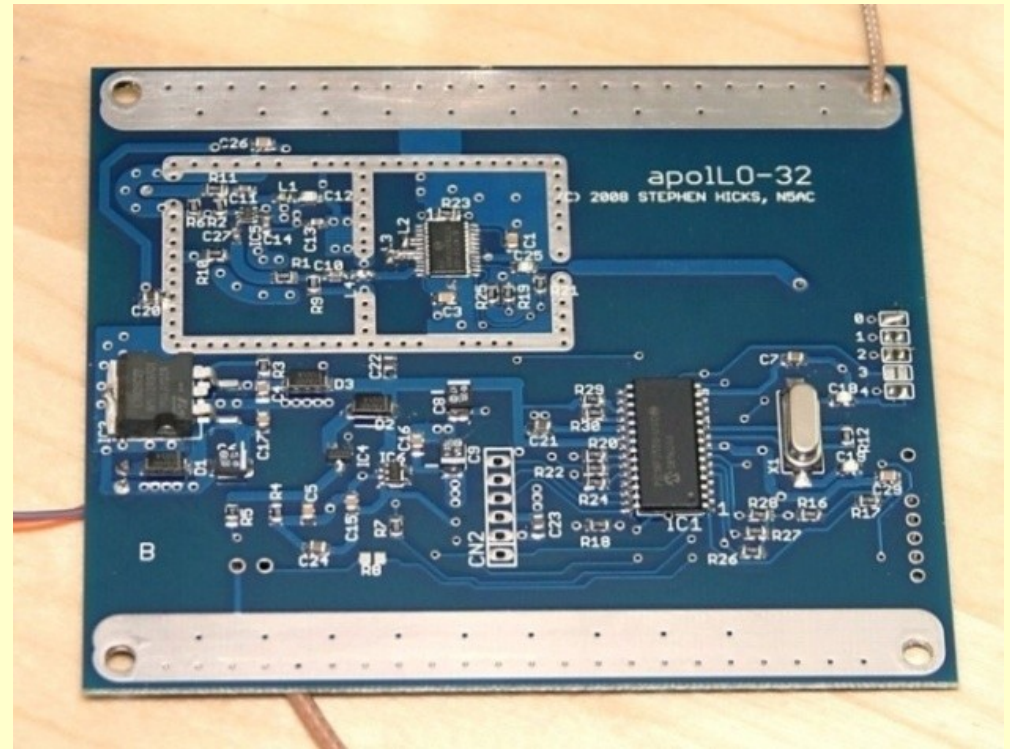




A complete 10 GHz Transverter

CONCLUSION:

This was only one example of how to upgrade a labeled “Obsolete” transverter by today’s standards and what can be done with the new A-32 synthesizer. There are many “older design” transverters that can benefit from an upgrade as described here in this paper. Most have sound RF sections that may only need the help of a LNA or power amplifier. The A-32 can provide many frequencies that are steady and frequency stable. The A-32 can also be the basis for a multiband transverter design, such as other transverters based on the G3WDG 2556 MHz LO or installing a multiband switch to change frequencies on the fly in your own design! Or you can just replace an old LO that operated at almost any multiplier scheme in your homebrew gear.









THANK YOU !

