AERONAUTICAL FIXED TELECOMMUNICATIONS NETWORK

AND OTHER WONDERS OF THE HF RTTY WORLD

Ever peruse the RTTY column in a SWL magazine or see a file on a SWL BBS that read something like this: 13737.0 5YD Nairobi, Kenya 50/425 Coded WX...? And when you tuned it in it looked like jibberish or a bunch of numbers and you weren't sure that you had solid copy on anything but static ? Well, here is a chance to learn a little about an interesting but seldom discussed aspect of SWL-ing: Aircraft movement and meteorological messages.

For starters you'll need a Shortwave receiver that is frequency stable and a RTTY decoder. Perhaps a software terminal program to link your computer to your decoder. Try tuning in one of the following frequencies:

13737.0	5YD	50/425
13996.5	STK	50/425
14600.0	CAK	50/850

The first station is in Nairobi, Kenya and usually runs a string of RYRY's for a half hour or so around 0000 UTC. If you tune in while there is no traffic being passed you will find the MARK carrier signal to zero in on and occassionally, atleast every 20 minutes, there will be sent a "channel message": ZCZC KSA042 150220 CH DE 5YD NNNN. This type of message has two purposes. One it keeps the channel occupied and two the message sequence number allows the receiving operator a tally of all messages sent that date. The message reads:

ZCZC	This is the beginning of a message
KSA	Channel (K) Kenya to (S) Sudan (A)
	The (A) denotes the only channel.
042	Message number 42 sent this date.
150220	Date and time of message origination
CH	This is a channel message
DE 5YD	From station 5YD
NNNN	End of message.

Messages with other letters in place of CH have the following meanings: DD, high priority; FF, flight safety (departure or position); GG, flight safety (arrival);KK, general messages; and SS,dealing with distress.

I chose the two stations for this brief because they transmit to each other. 5YD in Kenya identifies its channel as KSA and STK in Sudan uses SKA. A service message is one in which the communicators use to handle the business of communicating. i.e. ZCZC KSA050 150227 FF HSSSYFYX 150227 HKNAYFYX SVC QTA RPT SKA036 NNNN. The following may help you understand.

FF	Flight Safety related
HSSSYFYX	Khartoum-Fixed station-Military
HKNAYFYX	Nairobi-Fixed station-Military
SVC	A service message
QTA	Cancel telegram number..
RPT	Report
SKA036	Sudan to Kenya channel message 036

Location indicators are the hardest part to read. Any that begin with..H.. are Eastern Africa. HA is Ethiopa; HB Burundi HC, Somalia, etc. Those that begin with .K.. denote the USA. S for South America; L for Southern European countries. The second two letters identify the specific airfield/facility. Some American ones you will recognise: KLAX, Los Angeles;

KSFO, San Francisco; KJFK, John F. Kennedy, NY. Those of you already familiar with meterological stations might recognise as old friends: KAWN, the USAF Automatic Digital Weather Switch at Carswell AFB, Tx. or KGWC, USAF Gobal Weather Center, Offutt AFB, Omaha, Ne. More of these two later.

Now lets try a simple message and see if we get its meaning without too much book searching or head scratching. The line of code reads: TAF FIMP 0207 09010KT 9999 3CU020 2SC050 TEMPO 8000 80RASH 5CU015.

TAF	Aerodrome Forecast
FIMP	F..Southern Africa IMP..Plaisance,Muritius.
0207	Time of observation UTC
09010KT	Wind is from 090 (East) at 10 knots.
9999	Visibility is greater than 10 kilometers.
3CU020	Amount of Cumulus cloud cover and base height.
2SC050	Amount of Stratocumulus clouds and height.
TEMPO	Temporary change noted/expected.
8000	Visibility to drop to 8 km horizontal.
80RASH	Significate weather forecast. Rain showers.
5CU015	With increased and lowering CU cloud cover.

As you can see there is a change in the weather coming. Next we will lightly touch on some other types of messages. There is the NOTAM, a message usually to warn of some problem i.e. closed runways, NavAids out or down for service, etc. The DEP which is a departure message advising the next airfield and others who, what, when and where. The ARR message announcing the arrival of an aircraft. The information within the brackets on DEP and ARR messages is for use by Air Traffic Control computers.

Now let's turn our attention to the big picture; the gobal picture. Try tuning in one of these:

KAWN	3230.0, 6903.0, 19325.0	50/850N	
CFH	6330.0	75/776R	
KGWC	6902.3	75/850N	
JMG4	14880.0	50/850N	Note: Freqs, baud & shift may be different.
6VU73	13665.0	50/792N	

If your RTTY decoder has the UnShiftOnSpace (USOS) feature try experimenting with it on and off during reception of any message that has lots of numbers in it. Messages with the heading TTAA (upper level pressure,temperature,humidity,etc.) are all numbers. Almost continously KAWN and CFH are sending routine aviation reports labeled SA. Typically they look like this:

GFA SA 1555 40 SCT 120 SCT 250 SCT 45 181/52/36/0000/CU ALQDS=

GFA	Read KGFA Malstrom AFB, Great Falls, Mt
SA	Routine Aviation Report
1555	Time of observation UTC
40 SCT	Base of lowest clouds 4000 feet. Scattered.
120 SCT	Base of middle clouds 12,000. Scattered.
250 SCT	Base of upper clouds 25,000. Scattered.
45	Wind speed.
181	Wind direction. From the South.
52	Temperature.
36	Dew point temperature.
0000	Pressure in hPa.
CU ALQDS	Cumulus clouds all quadrants.
=	Separation signal.

US meteological stations routinely omit the K on location indicators while Canadian stations omit the leading letter C. Station that are part of the global weather gathering service like JMG4 Tokyo transmit data from other countries. These message have AAXX in the heading (surface observation land station) and use a five digit station index number. 47671 is Tokyo International Airport. Anything from 50000 to 59999 is mainland China. 20000 thru 39999 includes all the Russias Words like TEMPO indicate temporary changes; GRADU gradual changes; NOSIG no significant weather and SKC sky clear.