The Gibson Girl Transmitter and Kite

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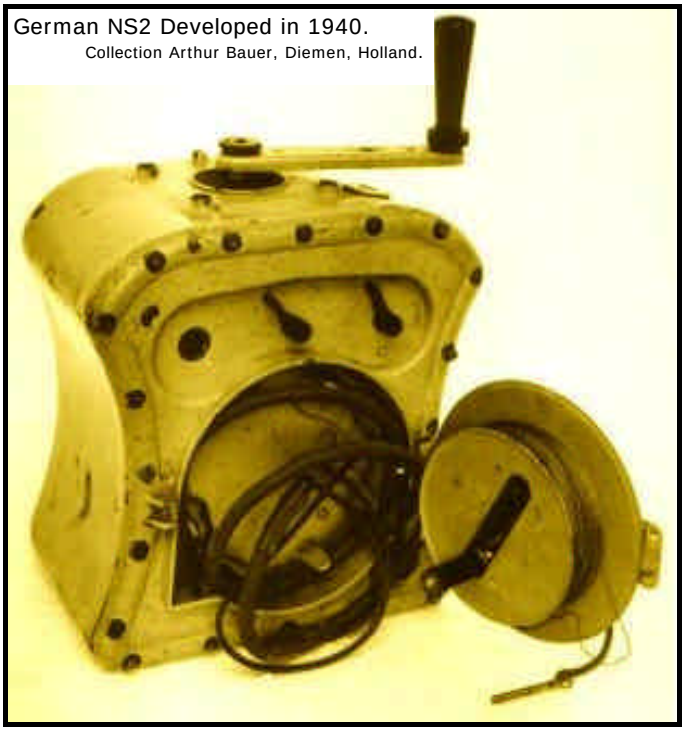
German NS2 Developed in 1940.
Collection Arthur Bauer, Diemen, Holland.



Introduction.

Some time ago I received a reprint from a war time article 'German Dinghy Transmitters' which was a welcome addition to a manuscript on Air-Sea Rescue for which I had started collecting material quite a while ago. During my time in service I had been fascinated by the peculiar shape of the US manufactured AN/CRT 3, affectionately named 'Gibson Girl'. I later learned that its primary design came from war time Germany.

Emergency transmitters enabled ditched air crews to communicate their whereabouts operating on a frequency of 500 kHz (and in some models also in the short wave band), used by international radio alarm signals. By using direction finding equipment, a rescue party could take bearings of the distress signals and determine their location or just 'home' on the signal by the rescue aircraft radio compass.

German version of the rescue kite recovered from a crashed JU88 and still flight worthy—the spars have been replaced.

Air-Sea Rescue.

In the early days of long distance and overseas flying, a crude form of emergency radio was sometimes provided. Such aircraft carried emergency transmitters operating on long wave or short wave (depending on the flight) which were powered by dry batteries. It was not until 1941 that the German 'Luftwaffe' introduced an ingenious emergency transmitter, designed by the German firm Fieseke & Höpfner. It was completely self contained, buoyant, practically waterproof, small and powered by an internal hand driven generator.

Notsender NS2

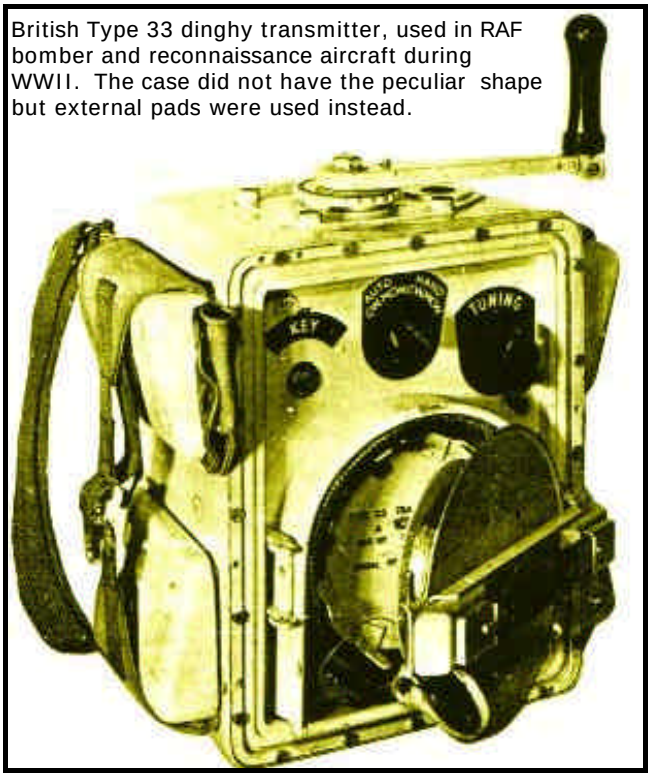
The complete set, known as NSG2, for Not Sende Gerät 2, (Emergency Transmitter equipment, type 2) consisted of two parts:

The Gibson Girl Transmitter and Kite

the NS2 transmitter container and the accessories container, usually stowed loose in the aircraft and attached to a rubber dingy. Both containers were made of a light alloy. The accessories container held a kite, two balloons with filling tubes, two hydrogen generators and an instruction handbook, together weighing 29 lb. The range over sea was given as approximately 200 miles. Power was derived from a hand generator, with the handle fitted on top of the transmitter case. The transmitter had a quite unique ergonomic shape. When used it was held between the operator's legs, giving the impression of grinding coffee in an old fashioned hand grinder.

Kite and Balloon Aerial

The set operated on the international distress frequency of 500 kHz (600 metres). To obtain a good range it needed a long-wire aerial of reasonable length. This was normally provided by attaching the aerial, 260 feet of stainless steel wire, to a box kite. It was reeled out by a unit mounted on the front panel of the set.



British Type 33 dinghy transmitter, used in RAF bomber and reconnaissance aircraft during WWII. The case did not have the peculiar shape but external pads were used instead.

The earth, consisting of 10 feet of stainless steel wire terminated to a sinker, was lowered over the side of the dinghy into the sea. When lack of wind (less than 13 mph) did not permit the use of a kite, a 3ft balloon was inflated by a hydrogen generator, a tin can with a separate inflation tube. When opened, hydrogen was generated by chemical solid (lithium hydride or calcium hydride) coming into contact with water. An insulated grip on the inflation tube provided protection to the hand as considerable heat was generated during this process.

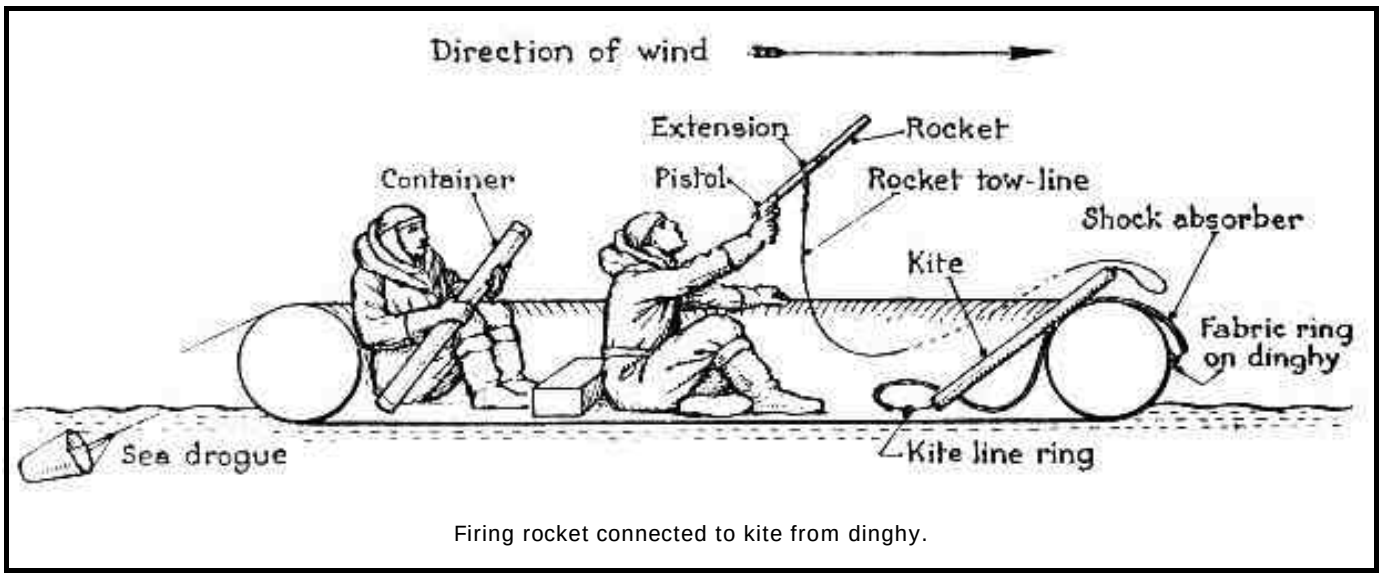
Notsender NS1

The NS2 were not the first Luftwaffe dinghy transmitters, as prior World War 2 (and recorded to be used also during the war) emergency transmitter set type NSG1 had been developed. The transmitter part of this set, Not Sender NS1 was originally part of a Lufthansa 'Kleinstation' developed in the mid 1930s as an aircraft station, but later exclusively used for emergency communications. The NSG1 was really a makeshift solution for long range aircraft, to be replaced ultimately by NSG2. It operated on a frequency of 500 kHz and was powered by dry HT batteries and an LT accumulator. Transmission (CW only) was automatic SOS, followed by a long dash, operated by a small motor, or alternatively hand keyed Morse.

Bulky and Awkward

The NS1 transmitter was mounted in a bulky weatherproof case painted bright yellow and weighed 50 lb. The aerial consisted of five sections of aluminium tube to give a 17ft vertical rod, provided with a capacitive 'umbrella' top. This awkward and rather unstable construction was mounted on top of the transmitter box and supported with four guys. An alternative aerial, 165 feet of stainless steel wire wound on a reel in the transmitter, could be flown on a box kite.

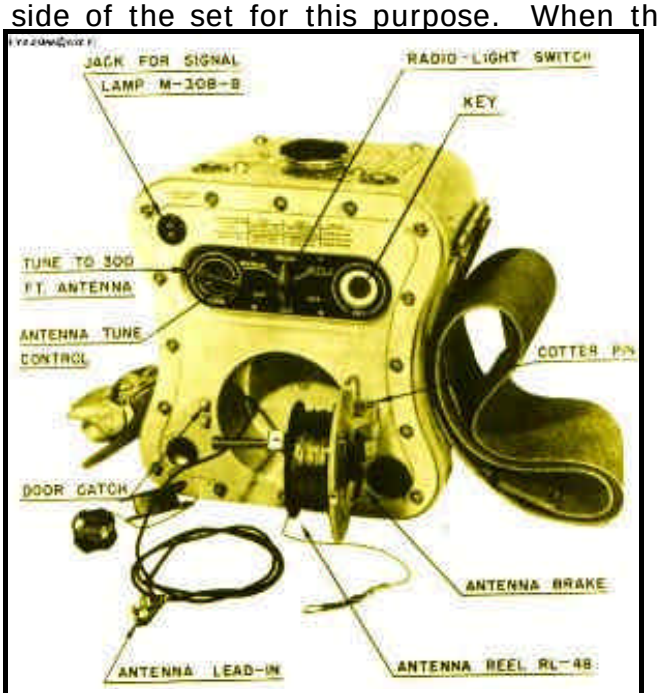
The Gibson Girl Transmitter and Kite



Firing rocket connected to kite from dinghy.

Captured

In 1941 the British captured an NSG2 in the English Channel which formed the basis for a similar set. Very little redesign led to 'Dinghy Transmitter T-1333', carried in RAF aircraft of Bomber and Coastal Command. Strangely, the British did not copy the special shaped container but used pads, mounted on the side of the set for this purpose. When the circuit diagrams are compared with the original German NS2 it is apparent that the circuit was copied by the British without many changes. Even the interrupter and the selector system was copied, the main difference being the use of another type of oscillating circuit.



USA manufactured dinghy transmitter BC-778 (part of SCR-578) was a copy of the NS2, though internally it differed considerably. On top of the set a generator speed indicator light and aerial tuning indicator were mounted within sight of the operator.

Rocket Launched Kite

An interesting feature of the British dinghy transmitter was the aerial was supported by a box kite which was launched into the air by means of a rocket fired from a Verey pistol. The kite, folded up and contained in a case, is drawn up by the rocket, and when it reaches its height determined by the length of attached line (200 feet) it is stripped of its case and opens automatically. In a wind of 6 mph or over it will remain aloft. The aerial wire was then attached to the line and the kite allowed to rise, carrying the aerial to the requisite height of 208

Grasping the transmitter between the knees!

The Gibson Girl Transmitter and Kite

A kite from the Air-Sea rescue kit. Known to most kite fliers as the Gibson Girl it was, in fact the transmitter that the name belonged to. This is probably an American version.

Close up of the cross spars 'umbrella' fitting. The entire kit fits in a yellow bag containing: a metal-frame box kite that folds up like an umbrella; a radio, with wire antenna to be attached to the kite; two spools of spare wire; a balloon, for use without wind; a can containing some sort of hydrogen generator for filling it; the two metal tubes may be used in the inflation process; some sort of wrench; a strobe light .

Youth in bloom was personified by the 'Gibson Girl', created by Charles Dana Gibson, most famous artist and cartoonist of the late 1880's and early 1890's. Every young girl tried to look as much like his drawings as Nature would permit.

feet. Both rocket and case fell away. The aerial wire is then connected to the kite line and paid out by unreeling the winch handle.

USA

In mid-1941 another captured NSG2 set, together with development specifications, was taken with a military mission visiting the USA. One of their assignments was to seek a North American manufacturer for this set as the British did not had the capacity to produce such a set in very great numbers. Bendix Aviation Limited was approached and after the US Army and Navy became interested it was suggested that a joint Allied dinghy set be developed. When the US became directly involved in the war, the demand was speeded-up and an initial order for 11,600 sets was placed to be delivered '...as soon as humanly possible...' The first sets were delivered in the last week of May 1942, initially by Bendix but later also assembled by a number of other contractors.

Superior

The mechanical construction of the US version known as SCR-578, not much later affectionately called 'Gibson Girl', a name taken from the narrow-waisted female drawings of 1890s fashion artist Charles Gibson, was superior to both German and British predecessors. It was manufactured in far greater numbers and remained in use and production long after World War 2.

The set consisted of BC-778 transmitter unit and a number of accessories, (such as kite aerial, balloons with hydrogen generators) weighing 34 lb. Painted the usual bright yellow, it was completely packed in a single padded yellow canvas bag. The initial versions used two bags, the set proper and an accessories bag). When required for use, it was normally thrown from the ditched aircraft into the sea, along with the dinghy. It could also be dropped by a parachute, which was part of the set.

The Gibson Girl Transmitter and Kite

More on the 'Gibson Girl'.

'Radio Age' ran a story on the 'Gibson Girl' in 1984 which reprinted a wartime advertising picture showing airmen in a life raft using the set. Its' caption was 'From our laboratories come weapons that will spell disaster to [the] Axis'. Note there's an ironic statement, considering where the original design came from!

The following report is from the 39th Bomber Group veterans Association web page.

This depicts the launching of the kite from the dinghy—it is NOT a photo of the above story!

Report by S/Sgt James Schwoegler, Radio Operator 39th Bomb Group (VH) Crew 30.

The plane made it out over the ocean, but then the third engine's propeller broke off, slicing the plane's fuselage from the middle to the top and cutting the control the plane's fourth engine. They had only one working engine left.

The pilot made the decision for the crew to bail out, and it was Schwoegler's job to radio in their location. They planned to ditch near a location code named "Lot's Wife," which was actually named Sofugan, described by Schwoegler as "a rock sticking out of the ocean."

The crew began to jump out of the airplane through a hatch leading to the landing wheel well in the nose. The problem for Schwoegler was that lifting the door to the wheel well blocked him in the radio area. After the rest of the crew had jumped out, Schwoegler closed the hatch door so he could get through, much to the pilot's surprise. "The pilot said 'Jim, get the hell out!'"

Schwoegler managed to swim to the surface where he attempted to inflate a lifeboat that was part of his gear. "I pulled it open and nothing.," he said. Fortunately he was able to manipulate the CO2 cartridge that inflated his raft and get it to work. The plane's crew was spread over a broad area, but thanks to Schwoegler's signal a B-17 rescue plane was able to locate the crew and drop them a Higgins lifeboat with food and medical supplies.

Safe in the lifeboat, the ordeal of the 10 survivors was not over. "The morning brought so much fog, you couldn't see from here to the next house," Schwoegler explained. This hampered rescue efforts and forced the crew to use a "Gibson Girl," a shapely radio designed to be held between the legs and operated with a crank. When cranked, the radio sent out a constant S.O.S. To send the signal, an antenna was raised on a kite. As the radioman, the job of cranking fell to Schwoegler. "I don't know how long I cranked," he said. "I was real disappointed no one volunteered to take it except the navigator." His efforts bore fruit in the form of a submarine. "Is it Japanese or American?" Schwoegler wondered. "Then I saw a guy with a flaming red beard and I knew it was an American. It was the best sight I ever saw."

He still has the kite antenna that led the rescuers to them, but he accidentally left the "Gibson Girl" on the first sub when they transferred. "The (sub crew) loved having us," Schwoegler recalled. "They gave up their bunks and everything. The first night (aboard) we ate chicken and steak. We hadn't eaten like that in a while."