

# OPERATION DRILL PRESS

## PART 1

### Genesis and History

We in the USAFSS (U.S Air Force Security Service) command were a part of the U.S. Air Force, but apart from the Air Force due to the nature of our work and the skills required to perform our duties. In the USAFSS the most responsible positions were often assigned to enlisted personnel, sometimes even very low ranking persons because of their training, skills, and experience. Administratively we belonged to the Air Force. Operationally we belonged to NSA (National Security Agency) and we lived in a dark world of secrets. Now...

“We are a group of rapidly aging and steadily disappearing veterans, of a war that was fought with skills and talents not normally associated with the military, nor understood by the general public. Our pride is in accomplishments that are often secret, and memories are about things that happened, but will be officially denied.”

[Bill Mahan, 15 June 2008]

#### **In The Beginning**

There was a small operation, which was born and died during the Vietnam War. It was a quintessential USAFSS (U.S. Air Force Security Service) project called “Operation Drill Press”, also called the ABERU (Airborne Emergency Reaction Unit). This operation’s mission, manning, personnel and activities was truly representative of the USAFSS in almost every respect. It was operated by enlisted personnel, had no officers assigned to it, and its tasking came from the end-users on the battle field. Its roots go back to the beginnings of the USAFSS and the U.S. Air Force.

On 14 Jul 65, 2<sup>nd</sup> Air Division issued a requirement for tactical COMINT in SVN utilizing an Airborne Emergency Reaction Unit. These aircraft would fly near Viet Cong (VC) field units and capture low powered Morse and voice signals. The commander of 2<sup>nd</sup> AD figured to fly 300 night hours with four C-47’s, complete with language qualified USAFSS mission crews. 2<sup>nd</sup> AD described its requirements and operational concept as, “.....effective targeting against Viet Cong tactical units in the field. ABERU aircraft are required to fly near areas where VC tactical units are suspecting to be operating to intercept low powered Morse and voice communications.” 2<sup>nd</sup>

AD also said, regarding the movement of VC units, “In order to properly follow these movements and be able to determine intentions of VC units for immediate action and if DF capability exists, to determine enemy locations, airborne intercept of the communications of these units with air ground reporting capability is required. Both voice and Morse intercept will be utilized if the latter is used by tactical VC units. In engagements such as the recent ones at Dong Xoai, Song Be and Quang Ngai, we must be able to follow the VC as they repeatedly attack and reposition themselves for re-attack from a different position. The tactical communications used in these operations by the VC will reveal their intentions and possibly locations. The ABERU aircraft, with skilled language technicians aboard will immediately report any such information to a forward air controller (FAC) that he may direct the fire of close support aircraft. The ABERU aircraft may also act as FAC....”

Operation SOUR GRAPES also laid some groundwork for Drill Press in 1963 and 1964 when another plane, tail #45-0919 (?), from Blue Sky/Rose Bowl was tested in Southeast Asia.

Over the next four months, as the mission was refined, type airframes were decided upon (increased C-130's ACRP, C-123 with LITTLE JOHN, and C-47's were tossed out as possibilities), costs for configurations determined (starting at a low ball figure of \$160,000/C-47 to a final figure of \$840,000/C-47 with ARC-106 secure communications), and manning requirements determined (USAFSS was sorely short of Annamese/Vietnamese linguists), a regular “donnybrook” took place between the Pentagon, USAF, USAFSS, NSA, NRV, and PACAF regarding all of the above. Since there had been very little verifiable VC voice communications, the fielded configuration was three Morse positions and one voice position and only two JC-47's, vice two HF and two VHF positions in four JC-47's as 2<sup>nd</sup> Air Force originally opined to have.

On 29 October, ABERU was assigned the codename of DRILL PRESS.

Thus, Operation Drill Press was finally born after a very difficult gestation period in late 1965, using two left over RC-47s (tail #'s 43-16254 and 43-49680) from Operation Rose Bowl. These two planes were rescued from a trip to the “Boneyard” in late 1965, had the COMINT gear re-installed at Yokota AB and sent to Vietnam. The initial backend aircrews on the Drill Press planes were TDY (temporary duty) personnel from various units of the USAFSS and assigned to AFSSO 2<sup>nd</sup> Air Division. The aircrafts were assigned to the 460<sup>th</sup> TRW (Tactical Reconnaissance Wing), during the TDY period, who also provided the “front end” crews, pilots and flight engineers.

In April of 1966, the 6994<sup>th</sup> Security Squadron “stood up” at Tan Son Nhut Airbase (outside of Saigon, Vietnam) to take on the growing project that was replacing Hawkeye, from a Aural Null DF system to a Phase Angle Determination system. It was called Phyllis Ann and would utilize 48 C-47s. The 6994<sup>th</sup> also inherited the two Drill Press planes that seemed to always get lost in the shuffle of Phyllis Ann priorities. The Drill Press planes were re-assigned to the 360<sup>th</sup> RS for maintenance and manning. At this same time, April 1966 to July 1966, the TDY personnel were phased out and PCS (Permanent Change of Station) aircrews were assigned to the 6994<sup>th</sup> SS.



Drill Press ROs: Robert Chew, Wilbur St. John



L-R: Gary McPherson, Chuck Long, Juan Rodrigues, Wilbur St. John, George Barnhart, Robert Chew, U/I

Manning for the voice position continued to be a problem through most of 1966. The Annamese linguists were in short supply and TDY linguists were borrowed from the 6988<sup>th</sup> SS and later the 6990<sup>th</sup> SS until enough linguists were available, through the “pipeline” of language school, airborne school and survival schools, to fill the slots.

### **The Chain of Command for Drill Press**

- Commander 6994<sup>th</sup> SS
- Operations Officer 6994<sup>th</sup> SS
- NCOIC Drill Press 6994<sup>th</sup> SS
- Air Mission Supervisors (AMS) Drill Press 6994<sup>th</sup> SS

Manning appears to be 2.0 for NCOIC (Non-Commissioned Officer in Charge) and AMS (Air Mission Supervisor) Positions per plane.

Manning appears to be 1.50 for Morse Operators per plane.

Manning appears to be 1 AMT (Air Mission Technician) for both planes.

No USAFSS officers were assigned to this project.

One 360<sup>th</sup> RS liaison officer was assigned for coordination purposes with the front end crews, the pilot, co-pilot and flight engineer.

### **Tasking**

Tasking was determined by NSA Pac Rep, MACV J2, DOI 7<sup>th</sup> AF, 460<sup>th</sup> TRW and 509<sup>th</sup> RRG in a weekly meeting. The FRAG (ATO) was published by the TACC.

## **Mission**

Based on past experiences with SOUR GRAPES and HAWKEYE, MACV expressed interest in ABERU (Airborne Emergency Reaction Unit) capabilities. Two SIGINT equipped JC-47s were dispatched to South Vietnam for a 120 day test period. The mission of Drill Press was unique. Its entire function was that of an airborne SIGINT (Signals Intelligence) collection activity, operating in support of Army and Marine SIGINT activities in the DMZ area after the 120 day test period. Drill Press had no processing responsibilities and minimal reporting responsibilities. Drill Press did have another major responsibility called ABERU (Airborne Emergency Reaction Unit). As a general rule, Drill Press was tasked against the Viet Cong (VC) and NVA (North Vietnamese Army). There were a few instances where Drill Press received special tasking against other than VC or NVA targets. These were ABERU missions.

“When the 120 day test period started in early January 1966, Drill Press Phase I was conducted to familiarize rear-end crews with Viet Cong communications procedures and to familiarize the aircraft front-end crews with the terrain of South Vietnam. The traffic from these early missions were compared with the intercept from USM-626 (3<sup>rd</sup> RRU) ground intercept. Comparisons showed that Drill Press copy was accurate and timely.”

“Phase II missions flown in later January provided airborne intercept and assisted in the development of significant Viet Cong targets. SIGINT results for this period reflected that ABERU had the capability to intercept Viet Cong targets which could not be monitored by fixed ground sites. The ABERU aircraft could get close to the target transmitter, thus less interference was noted in the quality of intercept. Drill Press, in the early stage of its implementation, was also tasked with the interception of unidentified Viet Cong targets. It was also tasked with providing unique intercept of known targets of high interest to consumers.”

“In February, Drill Press was tasked not only with Viet Cong targets, but with intercept of suspected Cambodian infiltration nets along the Cambodian/Vietnam border. In March one Drill Press aircraft was deployed to Danang to provide Morse intercept coverage on the northern infiltration nets and voice search of suspected communications associated with convoy movement or infiltration activity. Morse targets reflected very little activity; however, voice intercept resulted in 65 minutes of Vietnamese and Cambodian target copy.”

“Drill Press entered Phase III, its final test phase, on 3 March 1966. During this phase, it was used as an extension of the 3<sup>rd</sup> Radio Research Unit (Davis Station, AKA USM-626) intercept facility at Tan Son Nhut. Testing was terminated on 11 May, and the operational control of the project was transferred from the NSAPACREP, Vietnam, to the Director of Intelligence, 7<sup>th</sup> Air Force. The transfer of control did not affect the manner in which the aircraft was being employed or tasked. Drill Press flew in an operational role as an extension of the ground based COMINT collection in South Vietnam. During May and June, Drill Press flew daily missions in Tay Ninh Province.”

## Processing and Reporting

The 6994<sup>th</sup> Security Squadron was not tasked with a processing mission for Drill Press intercept. Drill Press operators maintained essential records which were delivered, along with the Drill Press traffic to Army analysts for processing. The Drill Press AMS was required to prepare and send to the 6994<sup>th</sup> Security Squadron a PMFR on a daily basis for inclusion to the Drill Press Weekly Operational Summary.

## Mission Equipment

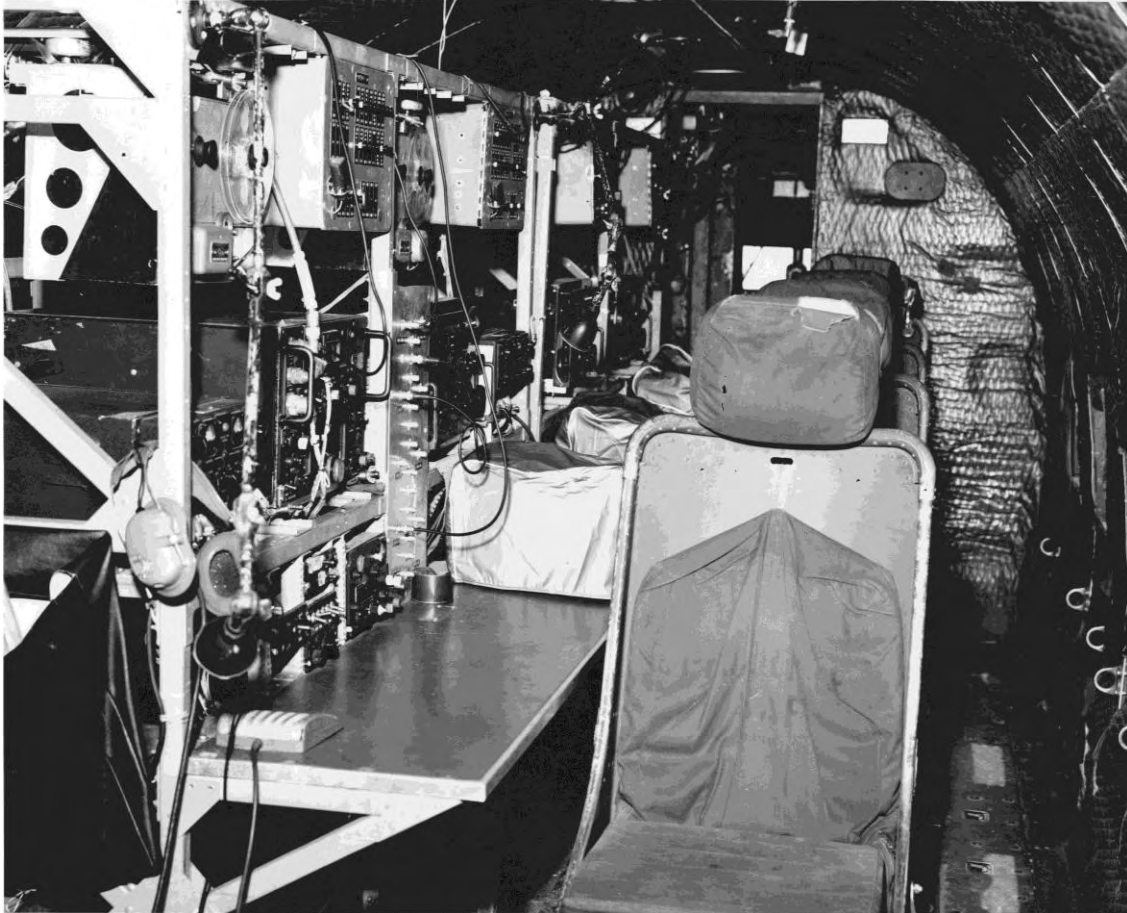
The aircraft were two RC-47D's, tail numbers 43-16254 and 43-49680, left over from the ROSE BOWL projects and redesignated JC-47D's. Each aircraft was fitted with four SIGINT collection positions, three HF (High Frequency) Morse (A292x1) positions and one VHF (Very High Frequency) voice (A203xx) position. The AMS/Analyst (A202x0) used the Navigator position as a work station.



Above: LTV G-175 VHF/UHF receiver  
Right: G-133B/R-390A HF Receiver



Drill Press team: L-R, Henry Bomar, Mr. Richardson (civilian tech rep), George Barnhardt (Maintenance)



Interior of Drill Press aircraft. Note all four positions. Foreground is position four.  
(See the Drill Press Aircraft Position/Configuration Appendix)

## **ABERU**

Special collection projects (ABERU Missions) were performed on an “as needed” basis.

“On 2 September 66, DIRNSA informed NSA Pacific Representative Vietnam (C), that press releases had indicated that French President Charles de Gaulle’s aircraft had been provided a MIG escort while traveling from French Somaliland to Phnom Penh, Cambodia. The aircraft was scheduled to depart Phnom Penh for New Calendoncia at 2/2000G Sep 66. DIRNSA requested that, if possible, a special air platform would be scheduled to attempt coverage of Cambodian air-to-air/ground communications reflecting this activity. Drill Press was tasked with this mission. Utilizing two Army French linguists from the 509<sup>th</sup> Radio Research Group, and analyst (AMS) from Drill Press, successful intercept of the activity was achieved.”

From 3 to 15 October 1966, Drill Press was tasked with an ABERU TRANSEC (Transmission Security) mission in the DMZ. Authority for the tasking was USAFSS Special TRANSEC Requirement 20-66. The purpose of the mission was to detect possible compromises of impending B-52 Strato Fortress bombing missions in the DMZ Position number four (VHF) was utilized for the mission and was manned by Drill Press analysts. A total of 16 monitor tapes were

forwarded to Detachment 5, 6922d Security Wing. Two items pertaining to B-52 activity was gleaned from the intercept.

Beginning 26 October 1966, Drill Press conducted a collection/search mission for R401 multi-channel communication suspected to be emanating from the DMZ. Position number four was utilized for this mission. In actuality, the intercept and recording of R401 signals was beyond the capability of the equipment installed on this position. The G120C/G119H record equipment had a maximum 10KC record capability and un-demultiplexed R401 signals were 12KC bandwidth.

To overcome this problem, the signal was demultiplexed prior to recording, and only channels one and two of the R401 transmission actually recorded. Initial success in monitoring R401 signals was experienced on the first day of the test; however, the signals were of such poor quality that they were unrecordable. To increase the signal strength to a level that would facilitate recording, two SKL 212 television amplifiers were placed in series and connected to the G175 VHF receiver. Several successful intercepts of R401 transmissions occurred, but none of the transmissions could be identified as originating in the DMZ.

Beginning 5 December 1966, drill Press was tasked with providing Phyllis Ann aircraft with air-to-air tip-off on priority targets intercepted by Drill Press operators. UHF frequencies were used and the transmissions were encrypted by COMUS pads. When we worked with the Army ARDF "birds", we used KAC Pads for encryption of radio transmissions. The overall effectiveness of the effort was somewhat limited by the noncompatibility of the aircraft schedules which often occurred. However, all fixes obtained were high priority targets."

### **Drill Press Significant Mission Accomplishments through 1966**

From the very first missions in January 1966, Drill Press was an undeniable and unqualified success.

"Until 27 July, Drill Press was supporting the Army's 175<sup>th</sup> Radio Research Company by providing an extension to their intercept capability of Viet Cong targets in the general vicinity of Saigon. Drill Press positions were specifically tasked against those terminals of the Military Intelligence Bureau, COSVN, known or suspected to be passing exploitable traffic of high intelligence value.

In most instances these targets could be intercepted by the 175<sup>th</sup>'s ground intercept facility; however, the intercept was of such poor quality that corrupt text was causing extensive loss of valuable intelligence. After a 28-day period during which 17 significant intelligence reports were issued from Drill Press intercept, the commander of the 175<sup>th</sup> stated, "Drill Press is providing an estimated 75 per cent of our usable intelligence."

"On 28 July 1966, The Director of Intelligence, Seventh Air Force, deployed one Drill Press aircraft to Danang to fly in support of Operation Hastings which was underway to combat the infiltration of the PAVN 324B NVA Division in the DMZ. One aircraft continued to support the 175<sup>th</sup>. The aircraft in the DMZ was specifically targeted against a net reporting on the tactical

situation of the operation in an exploitable code system. Drill Press was able to contribute significantly to the COMINT support of the operation. General W.C. Westmorland, commander, USMACV, personally cited Drill Press effort for this achievement.”

Although it was the general opinion that Drill Press should remain in the DMZ, General McChristian (MACV J-2) personally notified the 509<sup>th</sup> Radio Research Group of a request that the aircraft be returned from Danang, and both aircraft be staged against targets in the Phouc Tui Province in support of Operation Toledo. This request was honored, and on 10 August, Drill Press began supporting the operation. The after action report on the operation cited COMINT, mostly ARDF, as being largely responsible for the ultimate success of this operation.

On 23 August, consumer interest was centered in the Ia Drang Valley near Pleiku. DIRNSA had fixed the 630<sup>th</sup> front—the largest tactical concentration in Southeast Asia—as being in the area. Drill Press was deployed here to bolster the extremely limited facilities of Detachment 1, 16<sup>th</sup> RRU, which was providing support for Operation Paul Revere, underway to combat this force. Initially, the entire Drill Press contingent was deployed to Pleiku Air Base; however, due to crowded facilities there, the deployment was aborted and the missions staged from Tan Son Nhut with an operational stop at Pleiku upon completion of each mission. And although Drill Press was achieving a high degree of success in this operation, the effort was terminated on 23 September due to a higher priority intelligence requirement.

In early September the Drill Press crews were quartered at Danang in tents next to the alert pad. It was very noisy. Three weeks later DP crews were sent to quarter at the 8<sup>th</sup> RRU. They gave us a very cramped building next to the medics building. “We took air mattresses to make the cots more comfortable. The first night an Army artillery battery opened up with 105, 155, and 175mm howitzers. The air was compressed with each shot and bounced us on our fancy air mattresses.” The medics had a “pet” monkey with a dog collar and chain leash living in a dog house next to the walkway between the two buildings. As we would walk by, the monkey would jump on us and search our pockets for candy or chewing gum. One time the monkey grabbed my sun glasses and chewed the ear piece. I still have those sun glasses. After a couple more weeks Drill Press crews were quartered in an old empty barn. It had a “tin” roof, no screens, open windows and no monkeys. But it did have “smudge pots” for heat in the rainy season.

On 24 September, the entire Drill Press contingent was deployed to Danang, and on 17 October, continued on to Hue Phu Bai. Missions were staged from these areas to the northern Quang Tri Province near the DMZ. The target was the PAVN 324B NVA division and associated communications. During this period Drill Press accomplished 118 missions; provided USM-808 with a source of intelligence for 10 TACREPS, 9 SPOT Reports and 41 Select Intelligence translations. General Marshall S. Carter, Director, NSA lauded the Drill Press accomplishments in a personal message to General Louis E. Coira, commander USAFSS.”





Drill Press planes at Hue Phu Bai (Note: No weather RADAR)



Hue Phu Bai Air Base (Sometime after February, 1967)

One more kudo should be noted in regards to the 2 September mission. In a message from the J-2 MACV it states:

“Subj: Drill Press Operation 2 September (U)

1. (C). I wish to commend the Air Force and Army personnel who, on such short notice planned and executed a Drill Press mission on the night of 2 September in response to national level requirements.
2. (C). It is initiative, resourcefulness, devotion to duty, cooperation and unity of purpose such as displayed in accomplishing this task that enables intelligence to be timely and responsive.
3. (U). My congratulations for a job well done.”

The “suck” misspelling, in paragraph 1, was in the original message.

### **Mission, Tasking and Events 1967 through 1968**

The mission and tasking for Drill Press remained the same for the balance of 1967 through Nov 1968. Drill Press supported the 3<sup>rd</sup> MAF with technical support from the 8<sup>th</sup> RRU, USM-808, USASA.

On 17 January, aircraft tail number 43-16254 was sent to Taiwan for IRAN and Corrosion Control Check. This limited the number and duration of Drill Press missions for the remainder of January and the first three and a half weeks of February. However, in spite of these limitations, Drill Press did continue operations and helped in support of Operation Cedar Falls, Steel Tiger/Tiger Hound (Laos) and Operation Niagara (Khe Sanh) as directed by 7<sup>th</sup> AF. Drill Press also, at a diminished capacity, supported the 3<sup>rd</sup> MAF.

In April, it was determined that Drill Press should have secure air to air and air to ground communications. Action was taken to obtain KY-8 units and have them installed on the Drill Press aircrafts. These units arrived in May and were installed, negating the need for COMUS/KAC pads for secure communications with ARDF aircrafts and DSU’s on the ground.



**KY-8 Secure Voice Radio**

## Accomplishments

As an “off-shoot” of one of the “dog-fight” meetings, the Deputy Director Defense Research and Engineering admitted that that he was impressed with the records of the two Drill Press aircraft platforms and said, “Airborne intercept operations are providing unique support to combat operations. The Drill Press aircraft intercept low power manual Morse transmitters which apparently are not acquired by our ground sites and which pass tactical operational traffic in exploitable low grade cyphers. We are told that Drill Press aircraft are programmed out in June 1967. We asked the AFSS region commander (Pac Scty Rgn) to leave the aircraft there indefinitely. We believe that airborne intercept should be expanded as soon as possible. The unique coverage that airborne intercept could provide of readable low grade traffic would not only be of value to our combat commanders but would also contribute significantly to the call sign solution problem.”

DDR&E also went on to say that ASA should submit a proposal to NSA which would provide for at least one additional intercept aircraft per Army and Marine Division in Vietnam. The Commander of USAFSS was appalled and this led to the adding of two “Z” (SIGINT) position on many of the COMBAT COUGAR aircraft and the ARMY eventually got four surplus Navy P-2V’s which were converted to SIGINT airborne intercept sites.

From 24 September 66, Drill Press maintained an almost uninterrupted surveillance of low echelon NVA communications in the DMZ area. Staging from their operating location at Hue Phu Bai, the project provided USM-808 with an invaluable source of intelligence relevant to tactical operations in the area. On 26 May 67, the Commanding General, USASA, in a message to the Director, National Security Agency (DIRNSA) commented: “Current Drill Press operations flying against VC comms in and near the DMZ with USM-808 acting as CMA, are proving to be invaluable. Traffic intercepted in readable systems, is intercepted on every sortie and immediately turned over to the cryptanalytic and linguistic personnel in the P&R section a USM-808 following the flight.”

While intercepting PAVN 324B NVA traffic, Drill Press collected more than 78,000 minutes of manual Morse traffic. 80% of this traffic was unique to USM-808 sources and 83.5% was mission intercept. More than 3,150 messages were contained in the traffic, 64% which were readable and resulted in the generation of more than 2,160 intelligence reports.

Drill Press continued, with the assistance of the 8<sup>th</sup> RRU P&R section personnel, supporting the 3<sup>rd</sup> MAF. In August 1968, the decision was made to add more “Z” positions in COMBAT CROSS planes. In November 1968 the Drill Press mission was transferred to COMBAT CROSS ZULU aircraft and Drill Press was disbanded. Both aircraft were stripped of their COMINT gear and sanitized, then sent to the depot at Clark AB, PI., for final disposition.

In mid-November 1968, SENTINAL SARA/DRILL PRESS ceased to exist.

★ *RIP Drill Press* ★

(43-49660)  
(43-16254)

Drill Press Aircraft/Position Configuration  
(43-49660 Only)

(43-49680)  
(43-16254)

JUNE

JULY

SEPTEMBER

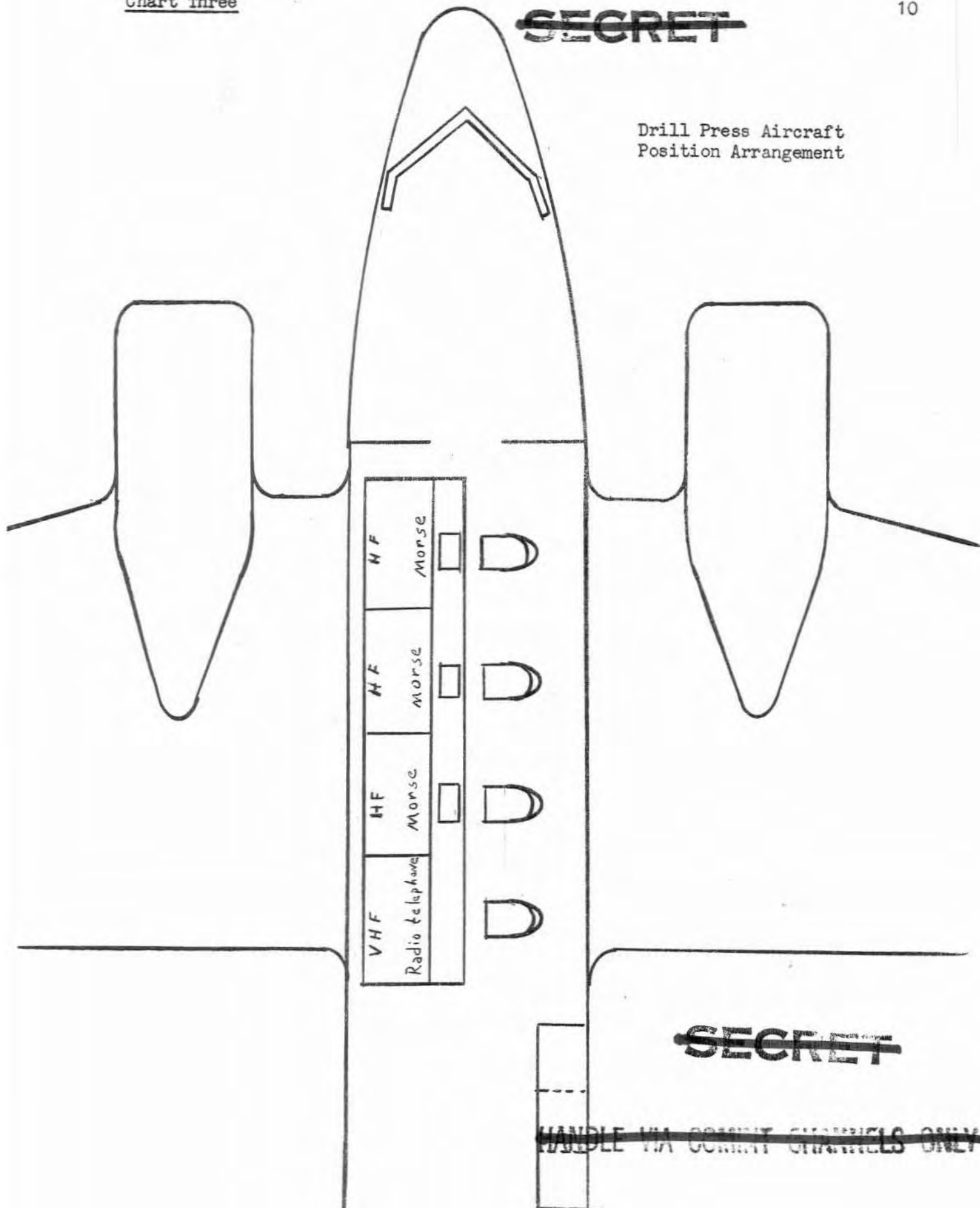
<u>POSITION</u>	<u>EQUIPMENT</u>		
1	2 - G133B HF Receivers 2 - AIC10 Intercomm	2 - G133B HF Receivers 2 - AIC10 Intercomm	2 - G133B HF Receivers 2 - AIC10 Intercomm
2	1 - G133B HF Receiver 1 - G120C Tape Transport 1 - G119H Record Amplifier 1 - AIC10 Intercomm 1 - Record Control	2 - G133B HF Receivers 1 - AIC10 Intercomm	1 - G133B HF Receiver 1 - AIC10 Intercomm 1 - G119H Record Amplifier 1 - G120C Tape Transport 1 - Record Control *1 - Patch Panel
3	1 - G133B HF Receiver 1 - G120C Tape Transport 1 - G119H Record Amplifier 1 - AIC10 Intercomm 1 - Record Control 1 - Antenna Transfer	2 - G133B HF Receivers 1 - AIC10 Intercomm 1 - Antenna Transfer	2 - G133B HF Receivers 1 - AIC10 Intercomm 1 - Antenna Transfer
4	1 - G175A VHF Receiver 1 - G120C Tape Transport 1 - G119H Record Amplifier 1 - G276A Demodulator 1 - SKL 212 Television Amplifier 1 - AIC10 Intercomm 1 - Record Control 2 - Antenna Transfers	1 - G175A VHF Receiver 1 - G120C Tape Transport 1 - G119H Record Amplifier 1 - G276A Demodulator 1 - SKL 212 Television Amplifier 1 - AIC10 Intercomm 1 - Record Control 2 - Antenna Transfers *1 - Patch Panel	1 - G175A VHF Receiver 1 - G120C Tape Transport 1 - G119H Record Amplifier 1 - G276A Demodulator +2 - SKL 212 TV Amplifier 1 - AIC10 Intercomm 1 - Record Control 2 - Antenna Transfers

\* Patch panel provided record capability from all positions.

+ Two SKL 212's were connected in series to increase signal strength of R401 signals.

~~SECRET~~

Drill Press Aircraft  
Position Arrangement



~~SECRET~~

~~HANDLE VIA COMINT CHANNELS ONLY~~