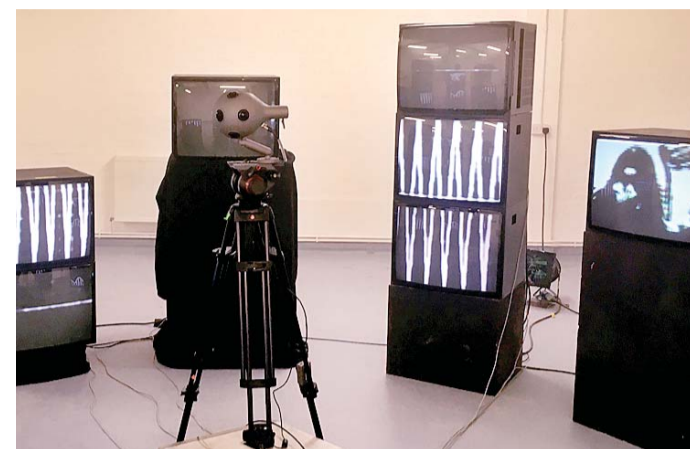


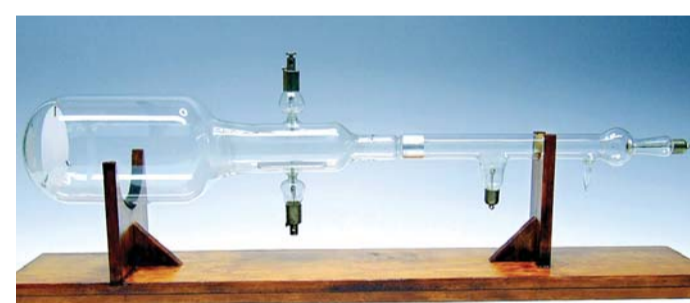
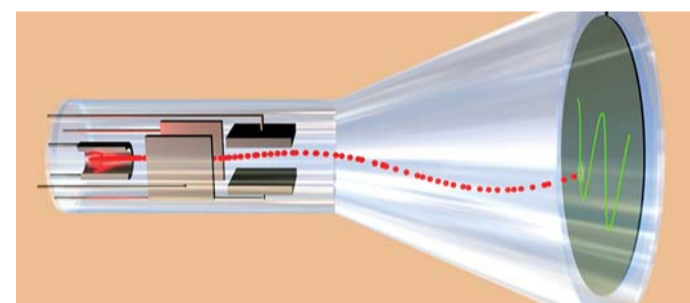
#INVENTION

## Cathode-Ray Tube

Celebrating Cathode-Ray Tube Day is our way of acknowledging the foundation it laid for the sleek and sophisticated displays that we enjoy today.



Cathode-Ray Tube Day is a fascinating celebration that honours a piece of technology that once played a pivotal role in our daily lives. Mark your calendars for December 20th because that's when this special day is observed. It's a time to remember and appreciate the cathode-ray tube (CRT), a device that was essential for early televisions, computer monitors, radar screens, and oscilloscopes. Even though modern technology has moved beyond CRTs, their impact and contribution to the development of electronic displays are undeniable. Why do we celebrate this day? The reasons are quite compelling. First, CRT technology revolutionized how we view media by making televisions and computers more accessible to the public. Before CRTs, televisions were bulky, expensive, and could only display black and white images. CRTs changed that, providing a way for colourful, dynamic images to be displayed affordably. Moreover, this technology also had applications beyond entertainment, such as in radar screens during World War II, illustrating its versatility and importance. Celebrating Cathode-Ray Tube Day is our way of acknowledging the foundation it laid for the sleek and sophisticated displays that we enjoy today.



History

Cathode-Ray Tube Day has an intriguing history that takes us back to the pioneering days of electronic displays and televisions. This day celebrates the cathode-ray tube (CRT), a device that laid the groundwork for the development of television and computer monitors we used before the advent of flat screens.

The origins of this celebration can be traced to the late 19th century with significant developments by scientists such as Johann Hittorf and William Crookes, who made early discoveries related to cathode rays in the 1800s and 1870s.

Hittorf observed light emanating from the cathode in a vacuum tube, indicating the presence of what would later be known as cathode rays. Crookes furthered this research by creating the Crookes tube, demonstrating these rays more clearly. These early experiments were fundamental in understanding the nature of electrons and electrical conduction through gases.

Fast-forward to the 20th century, Vladimir Zworykin patented the cathode-ray tube technology that became the basis for CRT televisions and monitors in 1898, marking a significant milestone in its development. This patent date, December 20, has been chosen to celebrate Cathode-Ray Tube Day, commemorating the moment CRT technology was officially recognized and began its journey into becoming a household name.

The day honours the impact and importance of CRT technology. It revolutionized how we view and consume media by making television and computer displays widely accessible and affordable.

Before the era of CRTs, televisions were bulky and expensive, capable of displaying only black and white images. CRT technology brought colourful and dynamic images to the masses, significantly changing entertainment, education, and communication.



# Pakistan never had a Chance at all



Narsingdi. This photo, and several that follow, are courtesy 'Ullal' collection.' Mr. Ullal was a war correspondent in Hotel Intercontinental in Dacca, then working for a German publication, 'Stern Mag.' He got to hear of SHBOs at Raipura and caught up with Indian army (4 Guards) at Narsingdi, embedded himself with them and moved with Indian army all the way to cover the surrender ceremony on 16th Dec.



That was just the beginning. Sagat and Chandan now wanted us to cart half of IV Corps cross Meghna, supported by Arty and run to Narsingdi. That was to be our next destination, for our third SHBO from Brahmanbaria to Narsingdi to lift 10 Bihar, 18 Rajput, 311 Mtn Bde, 82 Lt Arty Rgt, followed by 59 Mtn Arty Rgt, and 65 Mtn Arty Rgt of 57 Mtn Arty Bde. The armour (Indp Arm Sqn with PT 768) under Maj Shammī Mehta was to swim across Meghna and race forward to catch up at Narsingdi. Such an audacious plan would not have come to the minds of Guderian, Rommel, Patton or Yamamoto in WW-II!

immeth told me rather sternly that he wanted all 10 helicopters for his Battalion to cross Meghna immediately. I got very annoyed and gave him a piece of my mind. After couple of minutes, he got my message. Thereafter, he organised quick loading, and we continued our flights. I did not know then that the feisty 4 Guards had to do a fighting retreat on foot over rough terrain of more than 25 kms to get back to Brahmanbaria in time, with all their ammunition and mortars, tents, bloody utensils, rations, even a 105 mm RCL, heckled by the Pakis with intense fire all the way. That Himmet would not go to Raipura without his last man, while the head of the column, Maj Chandrakant, was racing from Methikanda towards Narsingdi. He was an incredible commander 4 Guards were the vanguards in the race to Dacca, fighting their way on foot, cycles, rickshaws, fire engine, and even a rail wagon pushed by cheering Bengali populace. By next day, they were in Narsingdi, on the way to Dacca.

We kept flying the whole night and finished the mission of ferrying the entire Battalion of 4 Grds, Bengali pioneers, and their loads to Raipura and returned to Agartala. The task, early on 11th Dec morning, was to airlift two battalions (10 Bihar and 18 Rajput) and balance 311 Bde - an artillery regiment (65 Mtn Rgt), involving 110 sorties. The field guns were to be broken down to fit into the Mi-4s. Now, there was no Pakistan Army in the area to worry about. So, we were flying and landing together in pre-reconnoitered big paddy fields, just southwest of Narsingdi. The first wave of Mi-4s took off from Brahmanbaria at 0530 on 11 Dec and kept flying till 0720. We had ten helicopters and did three sorties



Col DS Behl, CO 65 Mtn Rgt, firing the first shot into Dacca (Demra) on 13 Dec. Guns lifted by Mi-4 to Narsingdi.

each, and we carried 321 troops and 7200 kgs of load to Narsingdi. We then had little break and refuelled at Agartala. Our next rotation started at 0915 and continued till 1145. Again, we had 10 helicopters. We lifted 252 troops and 16700 kgs of load. The load was mostly the Arty guns and its ammunition. Miscellaneous logistics, including rations, were being airdropped by Caribous at Narsingdi with continuous top cover (close air support) by armed Otters and Chetak of Kilo Flight.

Our third rotation started after we had refuelled at Agartala around 1330. Again, we had 10 helicopters and we carried 190 troops and 24,500 kgs of load. The focus was on Arty Guns. After refuelling at Agartala, our fourth rotation must have started around 1730. We had 9 helicopters and each did one sortie, this

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time, and carried 54 troops and 8600 kgs of load including infantry weapon's ammunition. So, total for 11 Dec '71 was 815 troops and 65,200 kgs load and we did 99 sorties.

On 11 Dec '71, we also sent one helicopter back to Sylhet for casualty evacuation. Fg Offr BK Sharma and Fg Offr PVR Murthy did the evacuation at night because it was felt safer to land at night. Both pilots showed great skill and courage and evacuated 30 casualties in two sorties, despite of heavy ground fire. They also flew in urgently required ammunition, required by troops. Z 349 helicopter came back with a number of bullet holes.

Another helicopter, Z 613, flown by Fg offr Kanth Reddy, on its way back to Kumbhigram for maintenance inspection, had an engine fire en-route and had to force land. The helicopter was completely burnt after landing, but the crew managed to escape unhurt. We continued our SHBO on the 12th Dec from Brahmanbaria to Narsingdi. First detail had 8 helicopters and they carried 138 troops and 13,820 kgs load. Second detail had 4 helicopters and lifted 96 troops and 5600 kgs of load.

A total of 35 sorties were done involving 35.15 hours flying and we carried 234 troops and 19,420 kgs of load from Brahmanbaria to Narsingdi on 12th Dec. On 13th Dec, we continued our SHBO from Brahmanbaria to

## PART:3



Troops disembarking at Narsingdi.

Demra area in southeast. They had started shelling Paki army garrison in Dacca. A recee in an Alouette helicopter was carried out to locate open fields at Daudkandi and Baidya Bazar.

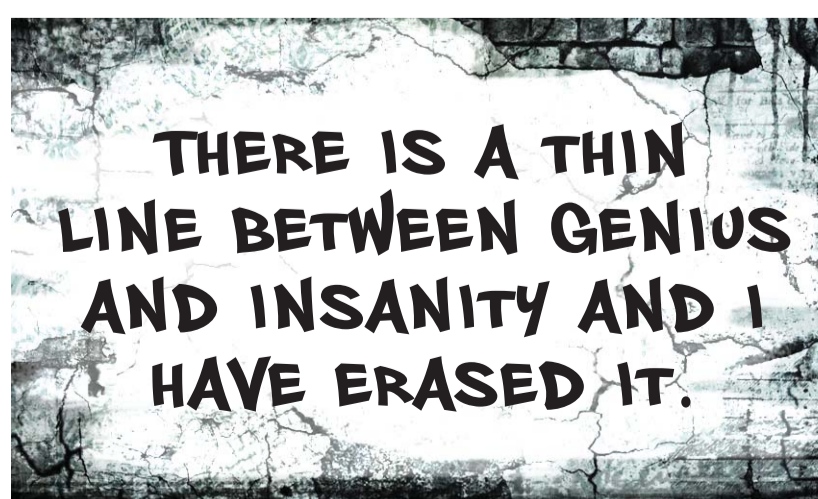
We had 12 Mi-4 helicopters and positioned ourselves at Daudkandi at 0730 on 14 Dec to take 23 Div troops and their load to Baidya Bazar. However, due to marshy terrain and exhaustion, the first lot of troops arrived at only around 1030 hrs. 12 helicopters and its crew sat and fretted for three hours at Daudkandi, deep within enemy lines, with each minute appearing like an hour. We had made three groups of 4 helicopters each. The first group was called Black, second one was called Red, and third one was called Green, no idea why we did that. Must have sounded like a good idea at the time!

Between 1100 and 1630, we did a total of 79 sorties crossing the Meghna river at its widest part, and carried 810 troops and 22,650 kgs of load from Daudkandi and Baidya bazar, a distance of about 25 kms. Daudkandi is 66 kms, southwest of Agartala. Baidya Bazar is north of Narayanganj, southern outskirts of Dacca. A large part of 23 Div personnel crossed by boats. We carried the rest with their stores and guns, which had been left behind.

On 15 Dec '71, early morning, before a ceasefire came into effect, we used 7 helicopters and continued our airlift of the stragglers of 23 Div from Daudkandi to Baidya Bazar. We did 43 sorties and carried 402 troops and 16,650 kgs of load. Between 14 and 15 Dec, we had ferried a total of 1212 troops and 89,300 kgs load of 23 Div from Daudkandi to Baidya Bazar in 122 sorties, flying total of 62.20 hours.

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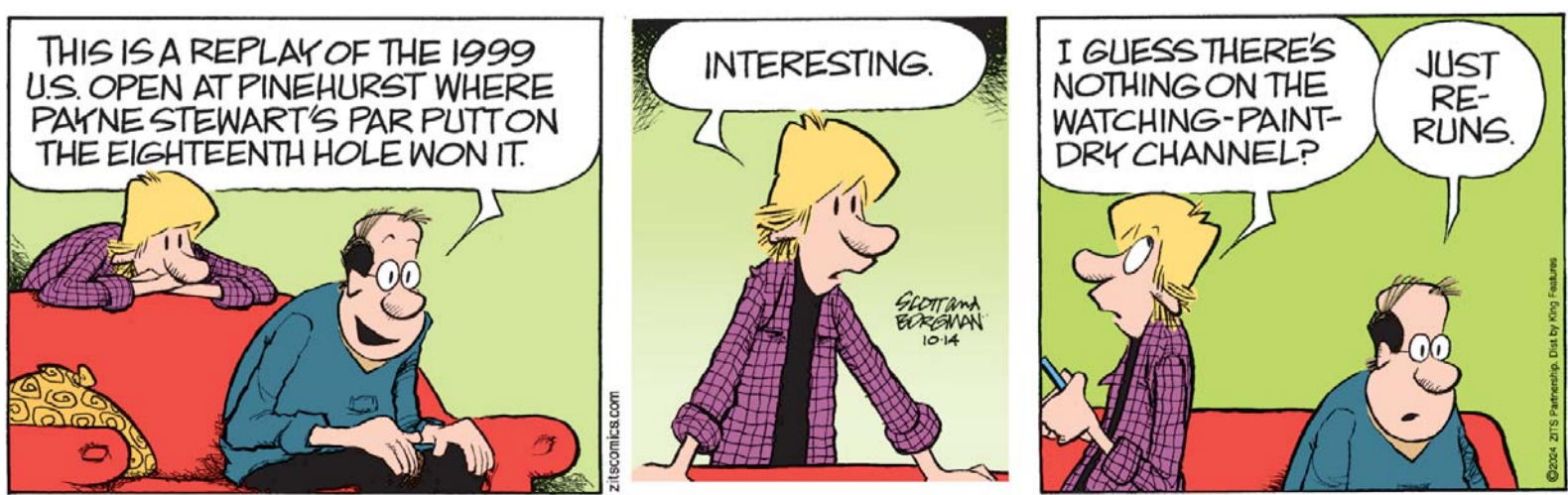
## THE WALL



## BABY BLUES



## ZITS



## Go Caroling Day



Any fan of old classic movies knows that carolers were one of the hallmarks of any Christmas themed movie. Whether it was 'It's a Wonderful Life' or Charles Dickens's 'Christmas Carol', you could be certain at some point that some warmly bedecked singers would arrive at someone's door, belting out the traditional songs for Christmas. While Caroling is slowly falling out of style, there's still time to preserve this time-honoured tradition, and Go Caroling Day is your call to arms.

From reconnaissance report of armed Kilo Flight Chetak over Daudkandi and Bhairab Bazar, it was reported that large number of ferries and country boats were still available at Daudkandi and that Pakis had run away across the Meghna to Dacca. On 13th Dec morning, Sagat Singh took Chandan and went to visit Maj Gen Rocky Hira, GoC 23 Mountain Div, trying to cross Meghna at its widest part at Chandpur. Sagat was impatient at the slow progress of 23 Div, and wanted them to cross over quickly and blockade the southern part of Dacca. So, it was that Sagat and Chandan planned the 4th and the largest SHBO across the widest part of the mighty Meghna to take 23 Div across.

## #SPECIAL HELI BORNE OPERATIONS 1971

TOTAL HELICOPTER AIRLIFT BY MI-4s				
FOUR CONTINUOUS (24 X 7) SHBOs, 7- 15 DEC 1971				
Sector	Troops Lifted Forward	Air Load (kgs) Lifted	Sorties	Hrs Flown
Kalura to Sylhet	649	13,000	113	66:15
Brahmanbaria to Raipura	1,286	12,530	57	33:50
Brahmanbaria to Narsingdi	1,570	1,00,650	166	152:05
Daudkandi to Baidya bazar	2,408	73,230	129	64:20
<b>TOTAL</b>	<b>6,011 (+)</b>	<b>2,02,810 (+)</b>	<b>465</b>	<b>316:30*</b>

It was like the movies, when the Americans drove into Paris at the end of WW2. It was a wonderful feeling of success and victory in war. There were so many Bengali people, with guns, firing in the air in jubilation. It is a wonder that none got shot.

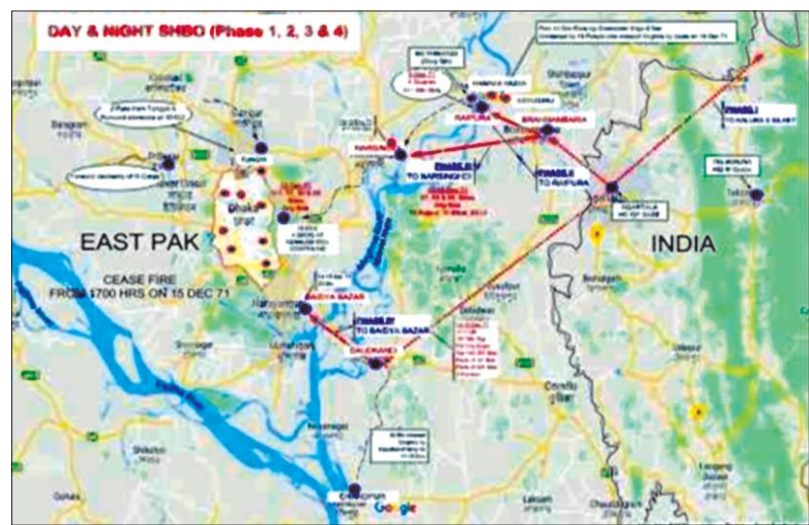
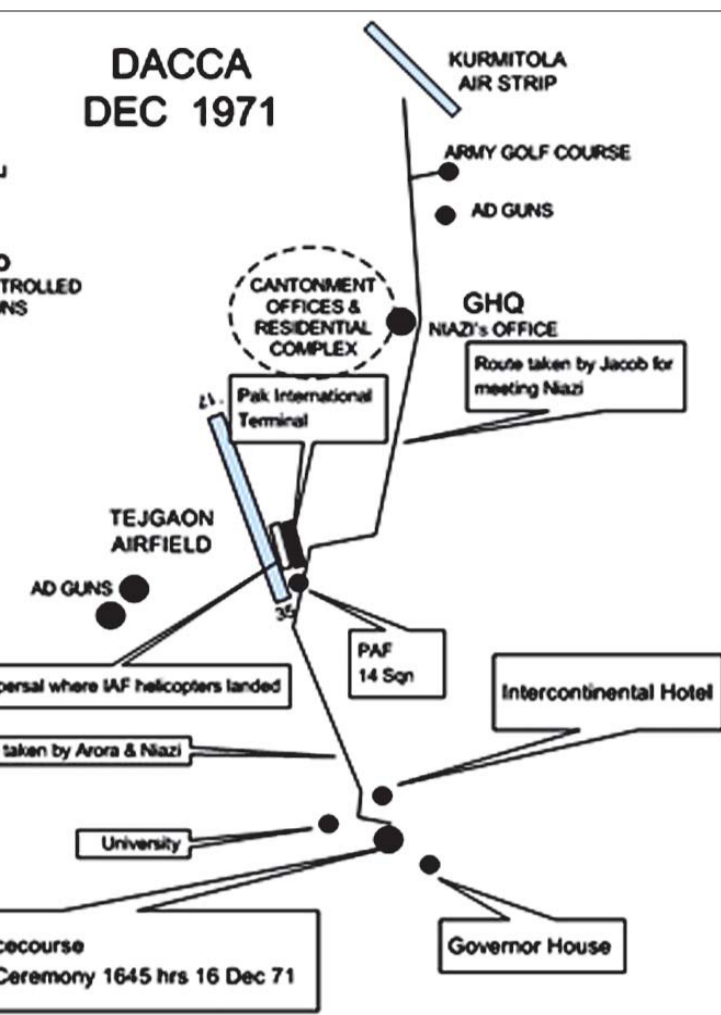
Army Engineers with 23 Div had managed to capture ferries and country boats. While we did the quick hops across effortlessly, we could see troops of 23 Div laboriously crossing the mighty Meghna floodplains struggling up steam. During this combined operation, on receipt of a SOS from army, we sent one helicopter to carry vital equipment and ammunition to Narsingdi as well as evacuate serious casualties. Another helicopter, Z 640, on its way to Kumbhigram for servicing, had a transmission failure just six miles short of Kumbhigram. They forced landed short of Kumbhigram. The air crew escaped unhurt and helicopter was recovered later.

## Notes

- Sorties/Hrs above do not include Cas-evac and misc communication sorties flown (it is only for SHBOs). For 110 HU alone, these total additional (approx.) 61 sorties/93:05". There were also large numbers of Alouettes of 112 / 115 HUs, and Mi-4s of 105/111 HUs, who did these tasks more often, about which I have no record.
- The load indicated does not include the weight of 'Troops.' The Troops indicated include combatants of Indian army, support personal, Mitro Bahini (pioneers and combatants embedded into fighting units

airlifted), total number of heads. In the case of 4 Guards airlifted to Raipura, Maj Chandrakant Singh confirmed that the fighting strength was approx. 800+ including the FAC. Their unit also had approx. 100 + Mitro Bahini porters embedded with them. So, the additional 386 could have been follow-on troops, inducted by 311 Mtn Bde to set up roadblocks at Mathikanda when 4 Grds ran forward to Narsingdi. The figures are modest and approx., as noted by me in my pocket diary, as reported by the pilots daily in after action briefings as well as Adjutants'/Despatch coordinators of army units. In reality, we actually had to fly more sorties daily than my daily flight planning figures, to ensure that we did not leave anyone or anything behind.

By Rick Kirkman & Jerry Scott



like to fly in our cocktail shaker. However, there were large number of lesser men, and press reporters. So, I was asked to fly them to Dacca in Mi-4s. I was told that my pilots, not needed for flying duties, should be left behind. However, I ignored the instructions. I reasoned that after risking their lives and flying to their limit, my pilots and flight engineers deserved to see this once-in-a-lifetime surrender ceremony.

Therefore, all pilots and flight engineers, besides other personnel, who fought the war together with me, were 'smuggled' on board five Mi-4s, which followed the long line of Alouette helicopters heading for Dacca. A tumultuous reception awaited us. Flying Officer S Krishnamurthy, called 'Kruts' in 110, in his exuberance also managed to 'phobomb' Gen Niaz, signing the surrender document in presence of General Aurora and the who's who of Indian military brass. Much to the chagrin of Gen Jacob, Kruts even had his hand over the General's shoulder, which, in my opinion, is a right display of camaraderie and exuberance of winning a war.

We took as many reporters as we could. There were men and women reporters from so many different parts of the world. There was no restriction. We still had no clamshell doors or seat belts for passengers. They hung on to anything they could find, or to each other, can you imagine that? We made no passenger manifest!

When we landed at Dhaka, and parked next to Pak International Terminal at Tejgaon, there were thousands of Bengalis milling about cheering us, each wanting to shake our hands or carry us on their shoulders. A multitude of cars, buses, rickshaws, cyclists, even bullock carts wanted to take us to witness the public surrender ceremony at Ramna Bahini from executing Paki POW and await the Govt. of BD in exile to come and take control. During the night of 16 Dec '71, Military Intelligence reported to him that a large number of Mizo rebels, who had been sheltered by Pak army in the Chittagong tract, Rangmati area, were making a break to Burma. Immediately we ordered another Mi-4 SHBO by 110 to airlift 2 Jat and other elements of Indian army from Chittagong to Parva and Lawngtlai (Mizoram) to intercept the Mizo rebels (Op Battle Axe, Dec 1971). But by the time the IA moved in to take control, the Mizo rebels escaped. Op Battle Axe lasted for a while. (Another story by itself!)

## THE SHBO TEAMS

**110 HU (1-16 Dec '71) Pilots**  
1. Sqn Ldr CS Sandhu, OC  
2. Fl Lt PK Vaid (Flt Cdr)  
3. Fl Lt T Jayaraman (Dy Flt Cdr)  
4. Fl Lt PN Rao  
5. Fl Lt SS Hundal  
6. Fg Offr HS Chatwal  
7. Fg Offr BLK Reddy  
8. Fg Offr C Dsouza  
9. Fg Offr MKJ Ali  
10. Fg Offr SB Mohan  
11. Fg Offr Srinivasan  
12. Fg Offr V Sampath  
13. Fg Offr JN Awal  
14. Fg Offr Jagdeep Singh  
15. Fg Offr SS Krishnamurthy  
16. Fg Offr HS Sodhi  
17. Fg Offr RV Chitnis  
18. Fg Offr AK Oberoi  
19. Fg Offr M Ramakrishna  
20. Fg Offr RM Sridharan

**Tech Officers**  
1. Flt Lt A Shankaran  
2. Fg Offr SK Katyar  
3. Fg Offr PK Kamra  
4. Fg Offr S Borikar

**Flt Eng & Tech Airmen**  
Approx 80  
Total Mi-4 Ops (110, 105 % 111 HUs)  
32 Pilots, (2 Vrcs)  
4 Tech Offr  
84 SNOcs & Airmen  
14 Mi-4s.

**105 HU (7- 16 Dec '71) Pilots**  
1. Sqn Ldr PN Chabra, OC  
2. Fl Lt RV Singh  
3. Sharma  
4. Francis Gomes  
5. IM Simoes  
6. Shiva Krishna  
7. RS Murthy  
8. NLK Reddy  
Flt Eng & Tech Airmen  
Approx 16

**Included.**  
rajeshsharma1049@gmail.com



Off-loaded Arty Guns being manhandled by troops and Mitro-Bahini at Narsingdi.

By Jerry Scott & Jim Borgman