



# The NStar Chronicle

## North Star Progress Report

*Bruce Gemmill*

Again, I'm pleased to report we have made some significant progress on several major items of work since December.



Rolls Royce Merlin Engine #2 partly re-assembled

The Number 2 engine is now being re-assembled after being completely dismantled, cleaned and treated. The crankshaft and pistons have been in-

stalled, along with the cylinder heads and valve train. All these items have been clear-coated to protect them from discolouration and corrosion in the future. Work is now underway to restore the ignition wiring and the auxiliary gearbox. We expect the engine can be installed in the frame by the end of this summer.



Volunteers Jim Riddoch and Bill Tate filling the radiators

The engine frame has also received some attention. The rear cowl ring that holds several of the external panels has been completely stripped and is being repaired before painting and re-assembly.

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The three radiators for the engine, intercooler and oil cooler were dismantled, cleaned and painted. These three units were then assembled and attached to the front of the engine frame. The radiators were then filled with inhibiting oil to prevent corrosion. There are many accessories that need to be refurbished before being installed on the engine frame. When completed, most of these items will be stored until after the engine is installed in the frame. This makes assembly much easier.

We have finally identified a supplier for headliner panels for the aircraft interior. The existing headliner panels have all been washed, and most of the panels from the cockpit have been repaired, although a few will require replacement because the fabric is badly torn and weak from exposure to the elements (Fig 3). Some of the headliners were installed behind the radio rack. This has allowed installation of cables and some electrical equipment in the rack (Fig 4). As well, we have installed new windshield wipers and replaced the padded leather bumpers along the edge of the instrument sunshield. Some of the forward parts of the fuselage have been polished.



Volunteer Karen Lochhead with repaired headliner



Cockpit radio rack

The aircraft will be moved outside for summer work sometime in May. This will allow for cleaning and painting of the navigator equipment rack, which is the last major part of the cockpit to be refinished. We are also hoping to install the control column and the centre console by the end of the summer. During this time, there will be several events at the museum that will allow us to show off the work we have done on the North Star.

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## Recollections of Operation Hawk

### The Korean Airlift

*Tim Timmins*

426 Squadron departed its Dorval Base at 1800 hrs on July 25, 1950, for McChord Air Force Base, located near Tacoma, Washington, where it would provide strategic airlift to Japan as part of Canada's commitment to the United Nations action in Korea. The North Stars were positioned on the tarmac with their crews lined up in front for inspection and

farewell remarks. The weather was overcast with the threat of rain, but there was a large audience of family members who would remain in Montreal, plus friends and media. With the formalities concluded, the Commanding Officer, Wing Commander C.A.M. Mussells DSO, DFC, CD ordered the crews to board their aircraft and prepare for departure. Twenty-four Rolls Royce Merlins roared into life, and six North Stars made a noisy exit, stage left, to the active runway. Day one of Operation Hawk.

The squadron flew in formation over the Parlia-

ment Buildings in Ottawa and then to Kingston and Toronto. At that point the aircraft proceeded on individual flight plans to Winnipeg for a refuel stop, then on to McChord AFB. With two crews on board, I was relegated to the second crew and a troop seat in the cargo compartment, which was crammed with spares and support personnel.

I had returned to Dorval at 0500 hrs on July 23 after an extended training flight to Europe, Africa and South America. The crew members, with the exception of the Mission Commander, Gordon Webb, were unaware of the developments at home base. We had missed the planning sessions, briefings, press coverage and farewell parties. Those of us living in quarters were instructed to clear out our rooms and be ready to leave for McChord AFB within 48 hours. It was short term chaos for us but, fortunately, the squadron had sufficient warning to prepare the selection of personnel and the organization of spares support, and the Nav Section had acquired the necessary maps and publications for the North Pacific route to Japan.

426 Squadron was to be based at McChord AFB as part of the strategic airlift to Japan and Korea under the operational control of the Military Air Transport Service of the United States Air Force. Airlift operations over the Northern Pacific Route (NOR-PAC) would commence immediately after arrival at McCord AFB. The initial tasking called for a 50 percent surge in aircraft utilization rate and the same for the crews.

The Squadron aircrew included mostly seasoned veterans, many with distinguished wartime records, plus a few sprog pilots, navigators and radio officers, graduates of the post-war aircrew courses. Our Squadron Commander was a results-oriented, hard-driving leader who was feared and revered in that order. His favourite quote was, "The difficult we do immediately. The impossible takes a little longer". We had a triple A capability: Anywhere to anywhere, anytime. 426 Squadron was ready; Operation Hawk should be a "piece of cake".

The six North Stars arrived at McChord AFB during the morning 26 July. I recall it was a bright sunny day with a clear view of Mt Rainier, located 35 miles southeast of the base. We were the first of several transport squadrons to arrive that would be based at McChord. The base provided support for the 325th Fighter Group (All Weather-flying F-82F Twin Mustangs) and did not have all facilities needed for a

large airlift operation. Aircraft had to be parked on the grass, and only temporary buildings or tents were available to house our spares as there was very limited hangar space. The situation called for a lot of improvisation.



The F82F was powered by Packard Merlin engines

Squadron personnel were accommodated in temporary quarters until closed barrack blocks could be re-opened, painted and furnished. The housing for officers had a large common room with a shared bedroom at each end. The common room was filled with cots; each bedroom had two cots. I found myself sharing a room with one of the squadron's most notorious characters known to all as Spooof. In appearance and behaviour, he could have been a fugitive from a Shakespearian tragedy. He socialized extensively and was given to eloquent and controversial dissertations on any subject. His escapades were legend (more later).

USAF personnel had difficulty understanding RCAF officers' ranks. If I explained that my rank, Flying Officer, was the equivalent to Lieutenant, henceforth I would be addressed as "Leeutenant". Our CO addressed the problem by authorizing us to wear equivalent USAF rank badges on our shirt collars. The North Star was routinely referred to as the C54 with in-line engines. So much for a RCAF identity at McChord AFB.

426 Squadron airlift operations got underway on 27 July. Three North Stars left for Anchorage and Tokyo with two reserve troops on board and a third with slip crews and servicing personnel. Two other North Stars departed for Dorval to pick up more spares. I did two trips to Dorval with the late Bob Edwards, the first post war trainee to be granted captaincy on North Stars, before I was assigned to Gordon Webb's crew. I flew fifteen trips to Japan with Gordon. To be continued.

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# Confessions of an aging Flight Cadet

## Or How I Came to Love the North Star (And Other Free Rides)

*Karen Edwards Lochhead*

Entering university in the 1960s, armed only with Grade 13 and a Red Cross Swimming Instructor's Certificate, I began to wonder how I would pay my way through four years at McMaster.



Karen

As luck would have it, a 2nd year student from my home town gave a talk one evening to the freshmen in my residence. She talked about her super summer employment as a Flight Cadet in the RCAF. As a student bent on obtaining an honours degree in geography, this sounded to me as the perfect way to get paid and to see Canada.

After searching out the Cadet Office on campus, and duly filling out many forms, I waited anxiously to find out if I had been selected to serve. As luck would have it, I received a phone call a couple of months later, informing me that I had, indeed, been selected as a Flight Cadet. Summer's employment was that of an admin clerk, sitting behind a typewriter for four months. Not to worry, I thought. It meant seeing the world and getting paid \$50 per month for four months and \$7.50 per week for the weekly parade during the university year. That was a king's ransom in those days!

However, as we know, the road to full employment never runs smoothly. Shortly thereafter, I received an alarming phone call from the University Squadron's clerk saying that he had made a mistake in informing me that I had been the one selected to represent McMaster in the RCAF University Reserve Training Plan (URTP). It was "that other tall girl", he said. Crushed, I wondered how else I could pay my tuition.

In the 1960s, the RCAF URTP recruited about fifty girls from universities across Canada each year. Of those fifty cadets, forty-six were assigned administrative duties and four were assigned positions as "Rec Specs" or Recreation Specialists. But the prerequisite for these positions was enrollment in a PE or Physical Education degree. Unbeknownst to me, the CO of the University Squadron was apparently chagrined at the mistake that had been made and sent a message to HQ in Ottawa asking if there were any positions left unfilled. As luck would have it, one of the four Rec Spec positions had not been filled and that position was offered to me. I was delighted.

After six weeks of basic training at Centralia, summer postings followed to Falconbridge, Namao, St Hubert and finally to 2 Wing, Grostenquin, France. In those postings I had the fun of teaching swimming, guarding the officer's pools, running playgrounds and playing golf in my spare time. Then there were the spare weekends when I begged flights on any aircraft, going anywhere!

Fast forward many eventful years.

In the summer of 2010, I attended the classic Air Rallye at the Canada Aviation Museum with the Mercedes Benz Car Club of Ottawa in my newly-renovated Mercedes 450 SL. It was a gorgeous hot summer day as I watched the air show, sat by my car and toured the exhibits.

Imagine my surprise to come across the North Star! Memories of my days as a Flight Cadet came flooding back as I vividly remembered a very noisy night flight on that aircraft, and even the place where I sat! Trying to recall the details, I concluded that it was a flight that returned me to Trenton from Namao in the summer of 1961. I was told then that it was the "last RCAF-scheduled run of the North Star". Perhaps...

I quickly paid my membership dues to Project North Star so that I could tour the aircraft. Bruce Gemmill, our PNS Project Manager, gave me a splendid tour. When Bruce gave me a blow by blow of his laborious restoration of parts of the cockpit, I was hooked. I wanted to help. Now, after nearly a month on a quick learning curve and thanks to Bruce's patient and quiet training manner, I am beginning to learn the ropes.

I love the work and the concentration and problem-solving it demands. I feel at home with the processes of meticulous documentation and restoration. My other hobbies include gemology and archaeology. After all, holding tiny gemstones in tweezers under a microscope or bagging and tagging small pieces of bone, ceramic, glass or metal from a Roman necropolis all demand similar skills.

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# Operation Re-Supply – 1951

*Jim Shipton*

As Tim Timmins mentioned in his article “Northward Ho” in the December 2010 NStar Chronicle, the first re-supply was carried out by the USAF; the second one would be a joint exercise with the RCAF and the third an RCAF-only operation. I was on the second as an aircrew member, and this is what I recall of that operation.

On April 13 1951, North Stars 17508 and 17514, with a total of four crews, departed Dorval (Montreal) for Resolute Bay to participate in the re-supply of the Joint Arctic Weather Stations of Mould Bay and Isachsen. The USAF provided three C-54's with accompanying ground staff and crews.



Resolute Bay, North Stars and C54s

On the 14th, with S/L Don Dickson at the controls, 17514 proceeded to Mould Bay and landed on the ice strip. (Gravel strips were not built until much later.) The aircraft ran off the end of the runway into a small snow bank. The Captain advised the Mould Bay staff that the strip was not the mandatory 4400 feet required for a North Star and that they would have to lengthen it before we returned.

It was a 24-hour-a-day operation, and at the end of your day you crept into a bed that had been occupied two hours before by another crew. Pulling the shades down on the window at midnight to darken the room was to no avail with the 24 hours of daylight prevalent at those high latitudes. The mess hall was also open 24 hours to serve the crews who were flying at all hours of the night and day. It was a sleep, eat, and fly operation.

To add a bit of competitiveness to the operation,

it was decided to see which crew could spend the least time on the ground off-loading the cargo at the weather station. On landing and during the taxiing to the off-loading area, the Navigator, Radio Officer, Flight Engineer and Load Master would rush to the back of the aircraft and commence unstrapping the tied-down cargo. Most of the cargo consisted of diesel fuel in 45-gallon drums which we would place on their sides and roll to the rear of the aircraft, causing a nose up attitude. A call came from the front end as they had no nose wheel steering. We rolled the drums forward to get the nose wheel back on the ground, and the contest was soon terminated.

When the rear cargo door was opened, the ground personnel would place a small ramp up to the door. The crew would roll a drum down the ramp and it would end up in a nearby snowbank, followed shortly by the next drum. It did not take long to unload a cargo of oil drums, but other cargo took a lot longer to offload.



Resolute Bay, C82 wreck

Our crew flew seven flights to Mould Bay and two to Isachsen in four days. A total of 368,000 pounds of freight and 84 passengers were airlifted to the sites from Resolute Bay by the USAF and RCAF. The North Stars delivered 231,000 pounds of cargo in twenty-eight trips.

To a 22-year-old newly minted aircrew officer, fresh from a seven-month tour on the Korean Airlift, it was another experience to add to what would become a long list of thrilling adventures.

(Jim Shrimpton and Tim Timmins were fellow course mates and served on 426 Squadron North Stars as Radio Officers. After cross-training, both went back to the squadron as Navigators.)

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# Overhauling a Merlin 622 Engine

## Second in a series

*Ted Devey*

Working on Number 2 engine has proven to be very messy as the lubricating oil was non-detergent. This resulted in substantial sludge deposits in the various sub-assemblies. The lower crankcase was full of black sludge and the two oil-scavenge pumps were frozen solid with dried sludge which had to be freed up using solvents. Number 1 engine used detergent oil, deposits were uniform throughout the engine and sludge deposits were absent. It was in the 1960's that detergent oils came on the market. The advantage of detergent oils is that sludge remains in suspension in the oil, drains out with oil changes and leaves no deposits. After several changes of non-detergent oil, sludge can accumulate in the engine, requiring a thorough flush-out or cleaning.

Sub-assemblies were cleaned inside and out. External cleaning is done by glass-beading after oil deposits are removed with Varsol and soap and hot water. Holes are masked over to keep glass beads from inside passages and from bearings if the latter are not removed. Internal surfaces are cleaned with Varsol and metal surfaces are scrubbed. After cleaning, external surfaces are sprayed with "clear coat" for protection against oxidation and corrosion, thus maintaining the brightness of the engine over the years. Internal surfaces of castings and components are coated with 'flyway oil' by spray or brush to prevent corrosion.

Pistons were scrubbed clean with mild abrasive pads and Varsol after removing the rings. Several broken rings were replaced. Cylinder bores were pitted due to corrosion, and these were glass-beaded and honed.

The crankshaft was completely taken apart, cleaned and reassembled, and the cleaned main bearing was re-installed in the upper crankcase which is the foundation of the engine. After cleaning the connecting rods, these were installed on the crankshaft and the pistons were then reattached.

The cylinder heads were cleaned, the valves and springs removed, the coolant passages flushed out and the valves lapped with valve-grinding compound, then all parts re-assembled. The outside surfaces of the cylinder blocks were glass-beaded, coolant passages flushed out with hot water and the cores glass-beaded and honed. Then the heads were fastened to the blocks and re-installed over the pistons - very carefully! - and finally bolted into position with the long studs anchored in the crankcase with nuts torqued to specification.

On one of the cylinder heads, there was evidence of considerable repairs to the block studs anchored in the heads. A number of studs that pulled out of their anchor points were replaced with new studs where the holes were drilled out and re-threaded or fitted with coils. Opposite each repair point, there is an ERS number which indicates what was done. Rolls-Royce had an "Engine Repair Scheme" which detailed operations to be carried out to bring the unit into serviceable condition again. A number of corroded studs were replaced.

Both camshafts were completely taken apart, cleaned meticulously and re-assembled. They will be attached to the heads after the wheelcase is completed and re-attached to the engine. The wheelcase provides drives to the camshafts which will be fitted into the heads when a crankshaft/camshaft timing procedure will take place. This is necessary so that the engine can be turned over without open valves damaging pistons.

At this time, the wheelcase and supercharger drive clutch assembly is being treated.

In the fall of 2010, the Merlin crew moved into the Museum Engine Shop which is equipped with many useful facilities. Progress on Number 2 engine is much faster than Number 1 due to experience gained and a larger crew. Engine Number 1 took about 3 1/2 years to overhaul and this one should be completed within 2 years. We expect to be able to mount the engine on the engine nacelle frame by this summer.

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## Notes from the President

*Richard Lodge*

We are now officially in spring and our thoughts and activities are moving to the outside. Once again there

are plans to move the North Star out of the hangar during the summer to enable work to be done which requires good ventilation. We will also be actively assisting the museum with two major public events, one in the middle of June and the second being our

traditional Canada Day presentation.

The last three months have seen much activity both on the plane and in the development of the association. We have an increasing number of new volunteers becoming available to work during the week and we have also benefited from more help from volunteers working on projects not directly connected with the plane restoration but very necessary for a growing association such as ours.

In my last message, I referred to the decision of the Board of Directors to delegate functions of the association's activities to individual directors or volunteers. This delegation has made it possible for the association to move forward in several ways at the same time. The two most important results of this delegation are that a new logo for the association has been designed and a Deputy Project Manager has been appointed.

It has been felt for some time that the logo of the association did not adequately reflect our connection with the North Star. Our new logo shows the North Star in-flight above an image of a maple leaf. The new logo has been received with enthusiasm and will be introduced within the next few weeks to our stationery and clothing items.

Our cooperation with the museum is evolving a very satisfactory way. We are continuing the regular monthly meetings with the Director General, Stephen Quick. The museum is demonstrating increasing confidence in our ability to carry out complex restoration work. As a result the board felt it necessary to appoint a Deputy Project Manager to ensure that we can continue to grow as an organization and be able to provide restoration assistance to the museum on other aircraft as required in the future.

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## Volunteers' Corner

### Francis D Reardon

Now for something completely different!

I retired from the University of Ottawa after thirty-five years as a Professor of Human Physiology in the Faculty of Health Sciences. My primary research interests were metabolism, intrinsic and extrinsic factors affecting blood pressure and cutaneous blood flow and whole body heat loss.



Frank Reardon

During the last fifteen years at the University, I worked extensively with the Defense and Civil In-

stitute for Environmental Medicine, the Defense Research Board and the Deep Mining Research Consortium helping to design thermal systems for personnel working in extreme heat conditions. My colleagues and re-designed, re-engineered and re-built the Snellen Whole-body Calorimeter for the American Navy – the only functional air calorimeter in the world today.

What, you may ask, is Reardon doing at the Canadian Aviation and Space Museum and in particular with the PNS program? Well, apart from an interest in things mechanical, including the human body, calorimeters and motor cars, I have a keen interest in things mechanical that fly! And besides, Ron Lemieux was very convincing. To date the PNS program has not disappointed; it has proven to be great learning experience and I have benefited from the experience and "know-how" of all of my PNS colleagues to whom I am forever indebted – even Ron!

### Phil Chrysler

For as long I can remember, I have been fascinated with aviation. As a teenager, I held a private pilot's license before a driver's license. After a short stint in the RCAF, I worked as an assistant controller at Toronto International Airport before joining the Canadian Forces in 1968 as an Air Traffic Controller.



Phil Chrysler

On completion of my military training, I was posted to Cold Lake where I qualified as a tower, arrival and a terminal controller. Postings to Namao, Prince George (in recruiting), Chatham and Corn-

wall (Military Air Traffic Control School as an instructor) soon followed. I then spent a very rewarding tour as the Base Air Traffic Control Officer at Shearwater. Next was a posting to the Air Staff at National Defence Headquarters in Ottawa where I completed my time in uniform in 1999. Since then I have split my time working part time as a consultant/security officer in a consulting firm dealing mainly with the Department of National Defence, and volunteering at Project North Star. On joining the North Star project, I lacked the technical skills of some of the other volunteers, skills that they freely pass on and that I enjoy learning. Taking apart and restoring the various parts of the aircraft has renewed my interest in aviation. It is like being a kid in a candy store!

## Milestones

Bruce Gemmill – 4000 Volunteer Hours  
Ronald Lemieux – 1000 Volunteer Hours

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# PNSAC Quarterly Meeting

April 2, 2011

*Jim Riddoch*

Project North Star Association President Richard Lodge welcomed members of the association and thanked them for coming. He introduced Guy Poirier as a new member and a potential photographer for the association and took the opportunity to remind members that March 31 was the end of the association's fiscal year and that renewal memberships are due for 2011. He also announced that a slide show would be presented by Bruce Gemmill during his presentation and that the last slide should be of particular interest.

Richard reported that monthly meetings with Stephen Quick, Director General of the Canada Aviation and Space Museum are proving very successful and informative and Stephen is very supportive of our association and of the North Star restoration project.

In closing, Richard announced that Garry Dupont has been appointed Deputy Project Manager to assist Project Manager Bruce Gemmill.

Treasurer Paul Labranche apologised for arriving late from a trip to Labrador. He picked up a speeding ticket on his way to the museum, so his attendance cost him a little more this time. He reported that

net income for the financial year end is expected to be approximately around \$2000 and that in all other respects the association's finances are in good order. Richard Lodge reminded members that monthly donations are a good way of continuing their pledges. This can readily be done with credit card or bank account transfers.

Bruce Gemmill then presented an update on the status of the restoration project and provided an interesting slide show demonstrating the attention to detail and the workmanship of volunteers on various airframe and engine components. The initial slide was a ground picture of the North Star taken in 1981 by Bill Upton, and it showed that the external condition of the aircraft was very good at the time.

The last slide depicted the new association logo with the North Star shown in flight with the Maple Leaf in the background. Richard Lodge thanked Phil Chrysler, Bill Tate and Jim Riddoch for their work on the design and production of the new logo. He pointed out that this crest would replace the current one on all new ball caps, badges, T-shirts and golf shirts.

Bill Hough suggested we consider stickers for car rear windows as this is a striking emblem and would attract much attention. He kindly offered to finance their production with a generous donation of \$1,000.

Richard then presented Certificates of Apprecia-

tion to Bruce Gemmill (4000 hours) and Ron Lemieux (1000 hours). He applauded Bruce's dedication, not only for the number of hours he has spent on the restoration project itself but also for his other contribution as Membership Director, Project Manager, Website Manager and in countless other ways.

Vice-President Bill Tate informed members of the public display days in 2011, namely Planes, Wheels and Tracks on June 18, which replaces the August Classic Air Rallye, and of course Canada Day.

Bill then reported on the very successful monthly meetings with Museum Director General Stephen

Quick. The museum has agreed to provide family passes for association members, to the sale of North Star promotional articles in the museum's souvenir shop and to the manning of our kiosk on display days as well as on busy days at the museum. There are also tentative plans to erect a temporary shelter for the Halifax restoration project, a shelter which might be used for work on the North Star.

The meeting ended with the traditional 50/50 draw. Bruce Gemmill drew his own ticket and graciously contributed his winnings to the association.

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## Calendar of Events

**June 2, 2011** Board of Directors' Meeting

**June 11, 2011** Annual General Meeting  
Board of Directors' Meeting

**June 18, 2011** *Planes, Wheels, and Trucks*

**July 1, 2011** *Canada Day at the Museum*

**September 15, 2011** Board of Directors' Meeting

**September 24, 2011** Quarterly Members' Meeting

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