



The NStar Chronicle

Project North Star Association of Canada

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Editor's Notes

Roger Button

This past year started off as a repeat of the difficult year the Association experienced in 2014. Consequently there was little news and less enthusiasm for publishing the Chronicle on any regular basis. However, as a result of changes to the management of the museum organization there is a renewed sense of hope that we will be able to move forward in 2016, as expressed in the Notes from the President. One of those changes is the appointment of Chris Kitzan as the new director general of CASM. You will find a message from Chris in this edition. Chris and his boss Alex Benay, the CEO of the museum corporation, are enthusiastic supporters of our organization. We are also commencing a new feature highlighting the members of our Association and starting off with Bruce Gemmill, our Project Manager. In addition, we are adding a "Miscellany" feature which lists items of interest to our members. If any of our readers wish to contribute an article, have suggestions for future articles, have suggestions for the "Miscellany" feature, or have any comments about the Chronicle please let me know.

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Message from the CASM Director General

Chris Kitzan

Chris Kitzan was appointed the new director general of CASM last November. Previously he was the chief of staff at Library and Archives Canada. Before that he worked as a curator and exhibit manager at what was then known as the Canadian Museum of Civilization.

My tenure at the Museum is just beginning, but already I have observed first-hand the contribution volunteers are making, from my meetings with members, to my perspective as a father watching you enthusiastically cater to my eight year old son's interests, to the communications I have received from you with ideas and offers of support, and finally from guests who have written thanking the Museum for experiences they have had interacting with you on the floor. I have never worked in an organization that had so many individuals willing to donate anywhere near the amount of time and energy you do. Given that, is it fair to want more? I hope so. With your support, I would like to tap a little deeper into your energy and discuss ways we can further work

together to innovate and inspire.

I recognize that increased collaboration between passionate parties will sometimes create moments of turbulence. I feel it is a small price to pay if we are all committed to the ultimate goal – maximizing the potential of this organization. That is why, on the North Star front, Richard and CASM staff are currently trying to find solutions that allow us to meet our collective objectives. And why I hope that these initial conversations lead to increased discussions, and volunteer /staff collaboration on a wider range of fronts.

On the one hand, the Canadair North Star was a reliable, versatile Canadian aircraft that provided our country with excellent service on both the military and civilian fronts for decades. On the other, it made such a bloody racket that wherever it went it could not be ignored. To my mind it's a worthy symbol of the kind of Museum I would like to see us continue to develop. Based on its collection, its staff and its volunteers CASM has already established a reputation as a world-class Museum. That standard cannot be sacrificed. At the same time, there is room for us to make more noise; to try new ways to reach Canadians, catch their attention, and further share our rich collection and stories with them.

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Notes from the President

Richard Lodge

As I write these words I am watching the falling snow and preparing for a nasty weather mix this evening and at the same time thinking of the spring and summer and our outdoor activities with the North Star aircraft. 2016 has every chance of being an interesting year for the North Star volunteers. Although full details are not available yet, we are expecting to be able to show off the plane to the general public and to other groups several times this year.

We are continuing to work closely with the Museum conservation staff to develop plans for extended hours working which basically means running a restoration shift on one or more Saturdays each month. This should enable some members to become Restoration Volunteers even though they are not available for work Mondays to Fridays. We had hoped to start the shift before Easter but it looks now as if the start date will be in the fall. There are still

some details of supervision, security and safety to be worked out. Running a Saturday shift is a new endeavour for the Museum and it is important for everybody that we take the necessary time to get the operation properly setup so that we have a successful start and a good model for any further out of hours working arrangements for PNSAC or any other volunteer organization working on a museum corporation artifact.

We were very pleased to welcome Chris Kitzan, the new Director General of the Canada Aviation and Space Museum to our first Members' Meeting of 2016 which was held in the Bush Theatre on February 27th. Chris acknowledged the importance of the partnership between the museum and Project North Star. Following the meeting, I saw Chris having a lively and upbeat conversation with our members, over coffee and snacks.

Prior to the Members' Meeting, several of us ran into Mike Charters, who is a volunteer maintenance mechanic at the Warplane Heritage Museum in Hamilton. Mike was one of the team who flew to

England in the summer of 2014 for the tour of the UK by the Canadian Lancaster together with the British Lancaster. Mike generously agreed to speak to the members for a few minutes and had some very interesting stories about the trip.

One of the best activities for our members is to become an active volunteer. Our volunteers fall into two categories, Restoration Volunteers and Association Volunteers. The former are those who work on the North Star restoration and have to be limited in number because it is not possible to have too many people working at any one time; this is mainly for supervision and safety reasons. Association Volunteers are those who volunteer for other activities in our

Association. There are many different things which need to be done in a volunteer organization and we encourage our members to contact us to volunteer for such things as meeting the public on aircraft open days, helping to organize events and assisting with sales of our merchandise. Volunteering has many rewards, from comradeship with other volunteers, enjoying involvement with an interesting aviation artifact and personal satisfaction derived from doing something worthwhile. If you are interested in exploring volunteering opportunities, do contact any one of our directors whose contact information is shown at the end of this newsletter.

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Project Manager's Progress Report

November 2015

Bruce Gemmill

The aircraft spent considerable time outside this year, but since we are short of volunteers, not as much work was done as hoped. The aircraft is still outside because we are waiting for space to be freed up in the storage hangar. We also expect the North Star to be moved outside again in early spring, much sooner than normal, to accommodate other uses of the storage facility. This extended time outside has delayed some work, and may result in additional weather damage.

Nr 4 Engine

The last engine to undergo restoration was disassembled last fall. Since the engine shop crew have cleaned, painted and re-assembled much of the engine on the engine assembly stand. The refurbished crankshaft has been installed in the engine block, and the connecting rods and pistons cleaned and polished. Also completed are the more complex cylinder heads and valve train assemblies, and work has begun to restore many ancillary pieces, such as the magnetos and other electrical components, and accessories.

The auxiliary gearbox was removed from Nacelle 4 and has been completely rebuilt, along with the generator. These won't be installed on the aircraft until shortly before engine 4 is ready to be installed.

Work has also begun on the engine frame which holds the 12 cylinder engine and supports the surrounding cowl panels. Once the engine frame is ready, the engine will be transferred to it from the

engine stand. Because of a lack of space and shortage of qualified volunteers, we don't expect to have engine 4 completed before 2017. A great deal of work is also needed on the cowl panels. We hope to start work on these in the New Year.

Fuselage and Main Cabin

Work has continued in the main cabin. After removing all floor and wall panels, as well as numerous fittings, the floor was cleaned and all cargo tiedowns thoroughly treated to remove corrosion. Several required removal and repair. The starboard windows were repainted and new Plexiglas installed, then the windows were re-installed on the aircraft. The port windows were then removed and repaired, but had to be installed prior to completion so the aircraft could stay outside this summer. These will need to be removed again this winter and the new glass installed before being returned to the aircraft. Some corrosion damage along the exposed ribs and sub floor has been completed. The rear bulkhead required considerable work. This involved removing a large corroded floor panel and three rear bulkhead panels. New panels were made and are being installed.

The forward bulkhead and forward half of the floor have been painted, but further painting was stopped by the arrival of cold weather in October. The painting will have to be completed next summer.

The forward cargo door was cleaned, painted and new seals installed. The door was put back on the aircraft to secure it while outside this summer. This winter we plan on removing the rear cargo door for similar work.

The tail section and rear belly compartment un-

derwent some cleaning and repair. This work will also continue this winter in the storage hangar.

Cabin Liners and Troop Seats

Most original cabin liners have now been repaired or replaced with new liners. The liners still need to be painted and many stencils need to be applied, as well as many new snap fasteners.

The troop seats were built last year and placed in storage. Some work has been done to restore the many fitting needed to install the troop seats, along with litter straps and tiedowns for litters and cargo.

Planned Restoration Work—2016

Over the next year, we will continue to work on Engine 4 and the main cabin and doors. The aircraft will be moved outside in the late winter or early spring to allow setup for a planned Star Trek exhibit. Work will not begin inside the aircraft until the weather warms up, so further delays are inevitable.

We will be able to make new wall panels and either replace or restore the wood floor panels.

We hope to have all main cabin painting done this summer, so that the wall and floor panels can be installed.

One other work item that may be started is to clean and restore the four engine nacelles. Pipes and fittings need to be removed, followed by a thorough cleaning and a fresh coat of paint. This work may be delayed until qualified volunteers become available.

March 2016 Update

Since our report at the November AGM, the aircraft was moved inside, so that it could properly sealed against the weather, as it will spend much of 2016 outside. The aircraft was moved out again in March. During this time, very little work was done on the aircraft, except for replacement of the Plexiglas in the port windows, and the installation of the ARC-552 UHF radio, kindly transferred to the museum by the Department of National Defence.

Nr 4 Engine

The engine frame has been refurbished, and the engine was transferred to the frame, so that ancillary equipment can be installed. Work has also begun on the supercharger, as well as such items as the starter motor and header tank. Some work is also being done on the cowl panels.

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Our Members

Interview with Bruce Gemmill

Bruce Gemmill has been involved with Project North Star since 2005 and has exceeded 9,000 volunteer hours. Bruce is presently the Project Manager, as well as a member of the board of directors.

1. What is your background in aviation?

Before joining Project North Star, I served in the Canadian Forces for 38 years as a communications and electronics officer. Although I never flew as air crew, I worked on air force communications and radar systems, air traffic control, and NORAD air defence. I served on several air force bases, including North Bay and Trenton, and my last air force position was senior communications adviser to the Commander of Canadian NORAD Region in Winnipeg.

2. How long have you been involved with Project North Star and how and why did you get involved?

After I retired from the Canadian Forces in 2005, I wanted to do something that was technically challenging and interesting. I'd done some woodworking and motorcycle restoration, and one day I was

riding past the Aviation Museum and decided on a whim I would ask if there was an opportunity to volunteer on an aircraft restoration project. Six months later I started on Project North Star.

3. What has been the history of your involvement to date?

Since I had no specific aircraft maintenance training or experience, I began working on electronic assemblies that had been removed from the aircraft cockpit during the early days of the project. With no test equipment, manuals or spare parts, the work was mainly cleaning and repainting the cases and front panels. As I got more familiar with the equipment, I learned how to spray paint, and did minor repairs to wiring. I also worked on electrical components from the Merlin engine, such as the magnetos

and starter motor.



Propeller assembly.

The most demanding job was removing several of the propellers so they could be shipped for restoration. Years of corrosion had sealed the spinners onto the propeller hubs. Removal required the use of dental picks and a large sledge hammer!

After helping with restoration work on Engine One, I began working on the cockpit as a major project. I spent approximately five years working with other volunteers, beginning with removal of as much equipment as possible from the cockpit and crew lounge, including the control column, rudder pedals and center control console, seats and headliners. A lot of time was spent cleaning and repairing corrosion damage before painting the cockpit and installing new insulation. I found it very rewarding when we began installing previously restored equipment to the "new" cockpit, but also very challenging.



Forward cockpit – complete.

A lot of equipment and fittings had been removed prior to me joining the project, and not all removal work had been documented. Detective work was required to search out photographs that showed where

some equipment was installed.

4. What has been the highlight of your involvement?

Completion of the cockpit and crew lounge has certainly been the most significant achievement for me personally. The project team has received high praise from numerous visitors who have commented on the high quality of the restoration work. Although we consider the work done, I do still want to complete the restoration by finding a few missing radios and instruments that were removed by the RCAF.



Navigator rack.

5. What has been the most challenging part of your involvement?

Finding spare and missing parts for the aircraft has always been a challenge. Our ability to search out possible sources is limited, as are funds. We have been lucky to get most parts needed for the Rolls Royce engines, but many items for the airframe are not easy to come by. These include everything from very large and expensive items, such as the de-icing boots for the wings and tail, to door and window seals. Rubber and fabric items are particularly hard to find, since these items deteriorate with age. Finding the correct paint has recently become a major challenge because of stricter environmental laws. Our goal of achieving an authentic restoration of the North Star will only become more difficult with the passage of time.

Volunteers Working on North Star Restoration

Tom MacGregor, Legion Magazine

You have to be careful opening up the panels covering the engines, you never know if a bird or some animal might have made its home there.

That's one lesson a group of dedicated volunteers has learned in its 10 years of painstaking work restoring a Royal Canadian Air Force North Star aircraft at the Canada Aviation and Space Museum in Ottawa.

The aircraft had sat neglected outside the museum for years. "Essentially, the RCAF flew this one into the Rockcliffe Airport when it was decommissioned. It sat in a field until Robert Holmgren said someone should do something about it," said project manager Bruce Gemmill.

The airplane had been stripped of its non-essential gear and turned over to what was then the National Aeronautical Collection, housed in hangars built during the Second World War at the former RCAF station at Rockcliffe in Ottawa. Time and weather took its toll. Birds and animals made nests where they could get inside the panelling.

"We approached the museum about restoring the aircraft. At first, they didn't know how to take us," said Gemmill. "The museum had its own professional conservation staff but it had never worked with a team of volunteers."

Eventually the museum agreed to work with the volunteers who formed the Project North Star Association of Canada with the late Robert Holmgren as president. "We became the model for other volunteer groups now working with the museum," said the association's current president, Richard Lodge.

Now the aircraft gets towed into a hangar where it is available to the volunteers between September and May before it is towed outside for the summer.

The North Star was built by Canadair in the late 1940s and 1950s. It was the RCAF version of the DC-4 civilian aircraft except that it used four Rolls-Royce Merlin engines. Canadair built 71 of the aircraft.

The RCAF assigned the first North Stars to 412 Squadron where they transported VIPs and were used in various transfigurations for reliable, long-range transport services.

During the Korean War the North Star was used by No. 426 (Thunderbird) Sqdn. to ferry supplies across the Pacific Ocean to Japan (Operation Hawk: The Korean Airlift, July/August). They would fly

599 round trips over the Pacific and deliver seven million pounds of cargo and 13,000 personnel on return trips. All this was achieved without a fatal crash.

Most of the air force's North Stars were declared surplus in the 1970s.

In the 10 years that Project North Star has been in operation, the group has restored two of the four Merlin engines with a third one nearly completed.

Each engine had to be taken off the aircraft, brought into the museum's shops where they were taken apart. Each item was tagged, catalogued and usually photographed. "We take a lot of photographs. That's how we know how they go back together," said Lodge.

Engine project leader Garry Dupont said, "The first engine took us about four and a half years to restore. We're almost finished the third engine which as taken us about two years. So we are getting faster." The propellers were restored separately by Hope Aero Propeller and Components Inc. in Mississauga, Ont. All restoration work has to be up to the professional standards set by the museum.

The group plans to restore the aircraft to its original look, not to have it fly again.

Lodge said that they have some RCAF manuals but a lot of time they do not help when it comes to putting 50-year-old parts together today.

The aircraft itself, 17515, has seen countless hours of work put into restoring the cockpit with all its switches and navigation equipment and a small galley for the crew of seven.

Still to be done is work in the cargo section and painting the exterior of the aircraft.

"We know this aircraft flew during the Korean War. In fact, we have pictures showing it configured with litters to bring the wounded back to Canada," said Gemmill. "We don't want to put in the litters but we have people working on creating the rope seats that were used."

The plan is to paint the aircraft to its post-1965 markings, since it was painted with the Maple Leaf flag on it.

Still the search goes on to find new members for the association. "The important thing is to find new people to whom we can pass on this knowledge and skills we are developing," said Lodge.

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Miscellany

1. "The Canadian North Star." This book and others referencing the North Star is available through Canav-books (www.canavbooks.com).
2. "Short on Silence" is an article on CASM's North Star, included in the February 2016 edition of the British publication [Fly Past Magazine](#).
3. Models. There are only two metal models of the North Star left, and it is not presently intended to re-order. The models are for sale at CASM's gift shop.

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Calendar of Events

May 26, 2016
July 01, 2016
September 15, 2016
September 24, 2016

Board of Directors' Meeting
Canada Day
Board of Directors' Meeting
Annual General Meeting

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