



TIGER FORCE PACIFIC

THE ROYAL CANADIAN AIR FORCE'S PLANNED CONTRIBUTION TO "TIGER FORCE" PACIFIC
BY T.F.J. LEVERSEDGE

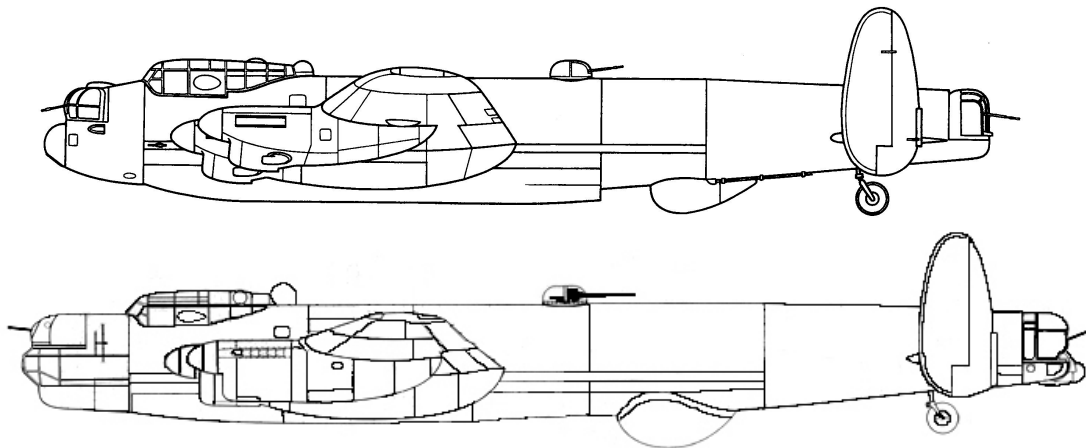


(NOTE -The initial version of this article appeared in *Airforce* magazine. Special thanks to Jens-Ole Kjølberg both for the special creation and use of RCAF Tiger Force bomber images.)

TIGER FORCE PACIFIC

By 1942, the Allies had agreed that their combined strategy should be to defeat Germany first and only then to concentrate on Japan, by redeploying bombers to the Far East, after they were no longer required in the European Theatre. To that end, during the latter part of 1943, the British Air Ministry's Directorate of Bomber Operations drew up tentative plans for the bombing of Japan. This involved the creation of a Very Long Range (VLR) bombing force, which would become the Commonwealth's contribution to what was primarily an American-led campaign.

Early drafts of these plans were based on an aircraft capable of carrying a "suitable" bomb-load over a radius of 2,414 kilometres (1,500 mi), operating from airfields in either Burma, China, Formosa, the Philippines or the Marianas. At that time, of course, few of these basing options were actually available and the Royal Air Force (RAF) had no actual bombers with the required performance. Although, the Avro *Lancaster* had now become the première type in RAF Bomber Command, it lacked sufficient range to meet the vast operating distances required in the Pacific Theatre. The bombers would require this 2,000+ km radius of action in order to reach industrial targets in southern Japan, but with its standard fuel tankage and existing weight constraints, it was calculated that, at this distance, a *Lancaster* Mk III would only be able to deliver just 1,632 kilograms (3,600 lb) of bombs (as compared to 5,442 kg (12,000 lb) maximums being used for European targets). The options available to improve this performance were primarily either to increase fuel capacity or to refuel in-flight. With a view to extending the range of the Avro *Lancaster*, serious consideration was therefore given to various options including employing in-flight refuelling (a technique that Britain had previously experimented with prior to the outbreak of the war) and / or to further modify existing variant(s) of the *Lancaster*, and / or to develop a larger and more capable variant of the *Lancaster* (which subsequently became known as the Avro *Lincoln*).



An Avro Lancaster Mk.VII (top) is seen here with a Lincoln Mk. 1 for comparison purposes. The larger size and different equipment fit of the Lincoln is clearly evident.

Bomber Command

On 21 August 1944, the Bomber Command was advised of the current position of the British Chiefs of Staff regarding the projected Far East VLR bomber force:

As a matter of policy, the British Chiefs of Staff have agreed that it is desirable that a substantial British Heavy Bomber Force should be deployed to take part with the Americans in attacks against targets in Japan.



Unless Russia enters the war against Japan, no bases will be available from which bomber operations could be conducted against Japan with standard British heavy bomber aircraft. In order that the range of the Lancaster aircraft can be extended to the maximum, development is proceeding in the technique of refuelling the Lancaster bomber in the air from another Lancaster equipped as a tanker. By this means it is estimated that the radius of action of the standard Lancaster can be increased by about 45%. This would allow operation from bases in Formosa or in the China coastal area, opposite or North of Formosa.

The intention is that after the defeat of Germany, a force of up to 40 Lancaster squadrons from the UK should be moved to the Far East theatre as soon as bases become available. Twenty of these squadrons would be equipped as bombers and 20 as tankers.

If, however, bases become available within the normal range of Lancaster aircraft, or should attack be required against targets other than Japan, the entire 40 squadrons would be available as standard heavy bombers by removal of equipment from the tanker aircraft.

Bomber Command staffs were not enthusiastic about this plan, as they did not consider in-flight refuelling on active operations to be practical. The reluctance to adopt flight refuelling was apparent in all official correspondence and Bomber Command staffs believed that increased range could better be achieved by simply increasing fuel capacity, along with employing long-range cruise techniques to reduce fuel consumption.

Second Quebec Conference

During their five-day transatlantic voyage to Canada in September 1944, Prime Minister Winston Churchill and his Service Chiefs held preparatory discussions before meeting President Roosevelt and his Chiefs of Staff for the “Second Quebec Conference”. Among the subjects considered was British participation in the bombing of Japan, as the minutes recorded:

The exact date of deployment of this force cannot be determined until the date of availability of bases is known and the priority for the movement of the units decided. Assuming that squadrons can start withdrawing from Europe by 1st October, the earliest date by which the first squadron might be ready for operations is probably the early summer of 1945; the whole force being completed by September or October 1945 – provided that the necessary priority is given to their movement.

Approval in principle to proceed was given at the Conference, and the British Chiefs of Staff were invited to submit additional details to provide a basis for further planning. On 27 October 1944, the US Chiefs of Staff released a signal welcoming the offer of Commonwealth VLR bombers to participate in the bombing of Japan, but stipulating that the deployment of *Lancasters* would be primarily governed by the availability of suitable air bases.

Canada was prepared to contribute fully, but the scale of the effort was initially uncertain. Canada’s Air Minister, Charles Gavin “Chubby” Power, looked on the force as a means of further forging a truly nationalized Canadian Air Force. Prime Minister Mackenzie King was much more dubious about the enterprise but still supported a strong Canadian commitment.

Early Proposals for an Order of Battle

Perhaps not surprisingly, the ensuing composition of this planned VLR Force changed more than a few times, reflecting both the progress of the war on both fronts and the availability of aircraft types and squadrons. In November 1944, it was expected to comprise three operational Groups of *Lancasters* (to eventually be replaced by



the larger *Lincolns*), with each Group having six bomber squadrons and six refuelling squadrons, together with another six long-range fighter squadrons (initially to be equipped with the single-engine, P-51 *Mustangs*, pending deliveries of twin-engine de Havilland *Hornets*). The bomber squadrons that had been earmarked, as of 17 November 1944, are listed below at Table 1.

GROUPS	ASSIGNED SQUADRONS
One Group, formed mainly from RAF personnel, to remain in the UK until required for operations in the Pacific. Included in this group would be two Royal Australian Air Force (RAAF) squadrons.	Nos 9, 12, 44, 57, 83 (Pathfinder), 90, 115, 150, 156 (Pathfinder), 218, 460 (RAAF) and 467 (RAAF) Squadrons.
One Group, largely manned by Canadian personnel, to assemble in Canada before proceeding to the Far East.	Nos 405 (Pathfinder), 408, 413 (in Coastal Command at that time) 415, 420, 424, 425, 426, 427, 429, 432, and 433 Squadrons. Canadian participation was subsequently amended so that four squadrons (Nos 413, 432, 433 & 434) would remain in the UK, while others (Nos 405, 408, 415, 419, 420, 424, 425, 426, 427, 428, 429, & 431 Squadrons) would proceed to the Far East.
One RAF Group to be deployed but retained in Air Command South East Asia (ACSEA) until required for operations in the Pacific.	Nos 7 (Pathfinder), 15, 97 (Pathfinder), 101, 166, 617 Sqns.

Table 1- Bomber squadrons earmarked for the projected VLR Force as of 17 November 1944.

At this stage, it was anticipated that Lancaster tanker aircraft would become available from February 1945 onward, with Lincoln tankers joining them by May. (In actual fact, neither of these dates would be realized. In the case of the *Lincoln*, an initial production contract had been placed in August 1943 and the first prototype had flown (as the *Lancaster IV*) in June 1944. Subsequent deliveries were, however, further delayed by ongoing technical problems such as engine and propeller vibrations.) In Canada, the Victory Aircraft plant in Toronto began gearing up to switch over from the production of *Lancaster* Mk X bombers to the design and production of 200 *Lincoln* Mk XV bombers (and similar plans were underway in Australia). As with the *Lancaster* Mk X designation, any Canadian-produced *Lincolns* would actually be equivalent to UK produced Mk I type aircraft but their fitment would include American-designed and / or manufactured equipment such as engines and radios. The Mk XV designation for Canadian-built *Lincolns* simply denoted these minor differences (*Lincolns* to be produced in Australia were similarly given a differentiating designation as the Lincoln Mk XXX)

The In-Flight Refuelling Technique



Two Boeing B-29 Superfortresses are seen here using an early air-to-air refuelling technique that was eventually superseded by later flying boom and / or probe & drogue techniques. - USAF Photo

The plan to employ in-flight refuelling envisaged that the tankers and bombers would fly as pairs until each had consumed 5,455 litres (1,200 Imp gal) of fuel at which point, about 1,600 kilometres (1,000 mi) into the outbound leg, the tanker would refuel the bomber and then return to base, either extending the range capacity of the bomber by about 1,600 kilometres or permitting it carry a correspondingly greater weight in bombs. Refuelling in-flight also meant that aircraft could operate at normal weights from standard (rather than extended) runways, and it was also possible to demonstrate further savings in terms of crews and aircraft per ton of bombs dropped.





The refuelling operation planned for Tiger Force was a complicated arrangement where two Lancaster aircraft would fly side by side with the receiver aircraft trailing a weighted hauling line. The tanker aircraft would then fire a projectile to intercept the hauling line snagging it with grapnels so it could be reeled into the tanker aircraft where the operator would manually connect the hauling line to the hose nozzle. The hose would then be hauled back across to the receiver aircraft where it coupled hydraulically into a fuel receptacle. Fuel then flowed under gravity into the receiver aircraft. On completion of refuelling, the nozzle would be released; the hose let out, and as the two aircraft would fly apart until a weak link designed into the hauling line would sever the connection. This methodology was eventually flight tested in the post-war period as seen in this photo, but the technique was quickly superseded by better (and safer) approaches more commonly used today. Bomber Command staff officers were therefore correct in their wariness of the effectiveness of the planned air-to-air refuelling techniques for Tiger Force. - FRL Photo

The range and bomb load capabilities of flight-refuelled *Lancasters* and *Lincolns* were examined in detail in December 1944, when Bomber Command's reluctance to adopt this techniques was once again apparent. Based on European experience, this exercise resulted in the following estimated figures:

Aircraft Type	Take-Off Weight	Bomb load / Radius of Action
<i>Lancaster</i> III (standard)	29,484 kg / 65,000 lbs	1,814 kg / 4,000 lbs / 1,770 km / 1,100 mi
<i>Lancaster</i> III with flight refueling	29,484 kg / 65,000 lbs	3,402 kg / 7,500 lbs / 2,414 km / 1,500 mi
<i>Lancaster</i> III overload take-off	32,659 kg / 72,000 lbs	1,814 kg / 4,000 lbs / 2,414 km / 1,500 mi
<i>Lincoln</i> (standard)	34,019 kg / 75,000 lbs	1,814 kg / 4,000 lbs / 1,851 km / 1,150 mi

<i>Lincoln</i> with flight refueling	34,019 kg / 75,000 lbs	3,402 kg / 7,500 lbs / 2,414 km / 1,500 mi
<i>Lincoln</i> overload take-off	37,648 kg / 83,000 lbs	1,814 kg / 4,000 lbs / 2,414 km / 1,500 mi

Although on the surface the proposed in-flight refuelling technique appeared to be a comparatively straightforward, Bomber Command staffs feared significant difficulties would be encountered if it were to be employed under large-scale operational conditions in the Far East. Because refuelling in the dark was considered to be impractical, the VLR Force would be committed to operating in daylight hours with prolonged periods of formation flying by many pairs of aircraft. With several hundred aircraft flying in close proximity, it was expected that radio communications alone would be problematic. Further complications were expected from issues such as failure to make refuelling contact due to turbulence or adverse weather, crew errors and / or various other unserviceability's. In view of these anticipated problems, even though flight refuelling was still the official policy, and planning was to continue on that basis, alternative means of extending range and/or increasing the bomb load were actively explored by Bomber Command.



A modified Lancaster is seen above with a TALLBOY bomb being mounted in the bomb bay. The nose turret has been deleted to save weight and improved Rolls-Royce Merlin engines have been fitted, along with other modifications. - RCAF Photo PL-446097

The case for simply operating bombers at “overload weights” was then strengthened by the attacks that had been made against the German battleship *Tirpitz* in Norway by *Lancasters* of No. 5 Group in November 1944. These bombers had been fitted with additional fuel tanks and improved Merlin 24 engines, and had 1,043 kg (2,300 lbs) of equipment (including one crew member) removed. Carrying massive 5,443 kg (12,000 lb) “earthquake” *TALLBOY* bombs, the aircraft had taken off at an all-up weight of 31,071 kgs (68,500 lbs), which was 1,587 kg (3,500 lbs) above the existing current maximum, and then had flown a round trip of 3,862 kilometres (2,400 mi).

By the end of the year, the *Lancaster* Mk III had been cleared for operations at an all-up-weight of 32,659 kg (72,000 lbs) for “very special operations”. If this higher limit were applied the VLR Force, it would provide a radius of action of 2,414 kilometres (1,500 mi), which was sufficient to reach Tokyo with a 1,814 kg (4,000 lb) bomb load. Similarly if the *Lincoln* could be cleared to 37,648 kg (83,000 lbs) it would have the same performance, making it comparable with the American B-29 *Superfortress*. Still at these higher weights, take-off and landing performance in tropical conditions were expected to be marginal, so Bomber Command further suggested that this could be overcome by using rockets to boost take-off performance along with the fitting of reverse-pitch propellers to reduce the landing runs.

Initial Deployment Plans

In 1944, the codename *MOULD* was assigned to cover the administrative planning for the deployment of the VLR Force. On 14 February 1945, a "Nucleus Planning Staff – VLR Force" was established as a lodger unit at Bomber Command HQ at High Wycombe, England. Ten days later Air Vice Marshal (AVM) Sir Hugh Lloyd was appointed as the Force Commander "Designate". In April, Lloyd was promoted to Air Marshal (AM) and, on 3 May, his new unit was renamed as the "Nucleus Planning Staff – Tiger Force". He summed up the size of the undertaking as: "[It was] a small Bomber Command, but with the many implications inherent in it being based upon a small island in the Pacific 14,000 miles by sea away from its home base...It had to take the equivalent of [a] Maintenance Command, Civil Repair Organization, Signals Groups etc. Everything, in fact, had to be taken with it, and except for a few spares by air, it would have been two and a half months away by sea from its sources of supply."

The time required to deploy the projected VLR Force was first considered in detail in May 1944. In order to train and equip the first eight squadrons, it was thought that it would be necessary to withdraw them from the front line for at least a month, both for re-equipment and training with tropicalized aircraft, as well as potential further training time on refuelling techniques. In addition, it would take at least six weeks for the ground support echelon, which had to travel by ship, to reach the Far East.

At a meeting of the VLR Force's Redeployment Sub-Committee held on 16 February 1945, the American Service Chiefs had reconfirmed their earlier agreement to the participation of the VLR Force in the Pacific. It was expected to operate under the command of the USAAF's 20th Bomber Command, but at the same time, it was also required to be largely self-supporting. It was further noted that flight refuelling experiments were now underway, although a decision as to whether to continue with this approach still depended on the outcome of the trials. At a follow-on meeting, on 24 February 1945, a planning date of 1 April 1945 was assumed for the end of the German war, and it was estimated that it would then take another seven months for the first Group to be deployed to the Pacific. This initial force was to be planned to consist of eight VLR bomber squadrons plus one squadron of photo-reconnaissance / meteorological de Havilland *Mosquitos*.

The larger Avro *Lincolns* were not now expected to begin to be available until August 1945. Nevertheless, although it was still intended that both the full complement of RAF and RCAF Groups (each with 200 aircraft) would be equipped with *Lincolns* before they moved to the Pacific, the initial deployment (of 200 aircraft) was planned to deploy with modified *Lancasters*, which would then be retained until the *Lincoln* production caught up. Plans were also underway for at least 540 *Lancasters* to be modified for in-flight refuelling.

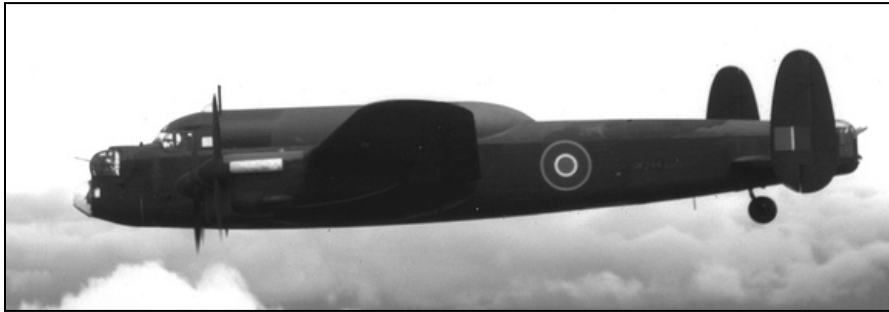
Whichever aircraft type were involved, the required performance for *Tiger Force* was stipulated to be a range of 4,828 km (3,000 mi) (or a 2,414 km (1,500 mi) radius of action) with 14% fuel reserves, while still delivering a 2,721 kg (6,000 lb) bomb load.

At a meeting on 18 April 1945, a decision on in-flight refuelling was finally taken when it was decided to abandon the planned technique in favour of simply concentrating on improving the availability of the larger and more capable *Lincoln* as the primary *Tiger Force* bomber. The revised plan now called for the first four *Lincoln* squadrons to be ready by 15 November 1945, to be joined at a rate of another four squadrons per month until the force had built up to a total of twenty squadrons.

To provide the necessary range / bomb load for the *Lancasters* providing the interim capability, various means of augmenting fuel capacity were explored, involving combinations of bomb bay tanks, 'Tirpitz-style' fuselage tanks or a large fuselage "saddle tank". Range and bomb load were calculated for each configuration, assuming a takeoff



weight of 32,659 kg (72,000 lbs), with the mid-upper turret removed, and with 1,591 litres (350 Imp gal) of fuel remaining.



The saddle tank option resulted in a full-scale trial in May/June 1945, in which two *Lancasters* were outfitted with these tanks, which fitted along the top spine of the fuselage and were faired into the cockpit canopy. After initial handling trials in the UK, the aircraft had been

flown out to India for tropical trials. It had been calculated that, with a 5,455 litre (1,200 Imp gal) saddle tank plus the standard installed tankage of 9,792 litres (2,154 Imp gal), the *Lancaster*, operating at weights up to 32,659 kg, would be able to meet the stipulated requirement. The tropical handling trials, however, revealed this radical modification to be something of a “monster” with various handling issues and overall poor performance. This option was consequently abandoned in favour of other more conventional modifications.

Basing Options



In March 1945, AM Lloyd visited both Canada and the United States to discuss with the American Chiefs of Staff the allocation of airfields and facilities for *Tiger Force*. Despite some inevitable competition from the USAAF forces (the UK-based 8th Air Force was also expected to redeploy to the Pacific after the fall of Germany), he was tentatively offered a base in the north of *Luzon* in the Philippines. In April, this was changed to the island of *Miyako Jima*, only 1,770 km (1,100 mi) south-west of Tokyo and, on 17 May, the Air Ministry cabled a formal request for *Miyako Jima* to be allocated to the VLR Force. The American’s plans changed, however, and planned capture of this island was later postponed.

In April, with a more realistic prospect of being able to operate from island bases only a few hundred miles from the intended targets, the previously stipulated range and fuel requirements could be revisited. The *Lincoln* could now reach all important targets with its standard fuel load. The *Lancaster* could reach all targets south of Tokyo but to reach the capital itself still required an additional 1,818 litres (400 Imp gal) of fuel.

When the Americans finally overcame Japanese resistance on *Okinawa* in June 1945, they offered basing facilities (to be shared with USAAF B-29s) on the island for an initial ten Commonwealth squadrons (with a total of 220 aircraft). Additional Commonwealth squadrons would be accepted later as required. This was a very satisfactory arrangement as *Okinawa* was only 1,287 km (800 mi) from Tokyo, which meant that *Lancasters* could now deliver

up to 6,803 kg (15,000 lbs) of bombs and *Lincolns* up to 8,164 kg (18,000 lbs) without any of the payload / range problems that had plagued earlier estimates.

In a further meeting with American Chiefs, AM Lloyd discussed such considerations as airfield construction, areas of responsibilities, and the phasing and acceptance of shipping convoys. The Americans were planning to have two Groups of B-29s operational on *Okinawa* by mid-August, four more by mid-September, with a total of twenty by January / February 1946. Engineers were already working on airfield construction. The Americans would be responsible for port development and defence, while the British would provide logistic support and their share of road and airfield construction. In July, Lloyd flew out to the *Pacific* Theatre to meet local commanders and to personally survey the airfields and accommodations.

Aircraft Preparations

In Canada, on January 9, 1945, a “Secret” letter was sent from Chief of Air Staff, RCAF to the UK’s Liaison Mission asking that the “Air Ministry be asked to supply details of all signals radar, navigation and armament equipment with which is proposed to fit Lancaster aircraft for operations in the South Eastern Asia theatre of war” ...[with] signals and radar information to include information on the main W/T [wireless transmitter] liaison set, the main command R/T set, intercommunication amplifier, radar search and/or navigation equipment, IFF [Identification Friend or Foe], and any other equipment. In terms of armament: the types of turrets to be used, calibre of guns, types of bomb racks and beams, and types of gunsights in use. Additional questions included items like: “Will the British Dead Reckoning compass be used? Will an Air Position Indicator be fitted? Details were requested of any additional nav equipment to be fitted”

The formal end of the European war, on 8 May 1945, permitted detail planning for the deployment of *Tiger Force* to gain momentum, although its precise composition and the associated dates continued to change reflecting uncertainties in aircraft availability and modification states, and the availability of Pacific bases. Before the month was out, with further delays in *Lincoln*’s development, the stated intention was to initially equip the main force with tropicalized *Lancasters* Mk I FE (for Far East) and Mk VII (FE) aircraft variants modified to operate at an all-up weight of 32,659 kg (72,000 lbs) with one additional 1,818 litre fuel tank mounted in the rear of the bomb-bay. This latter plan to add bomb-bay fuel required the complete elimination of the heavier, electrically-controlled, US-made, *Martin 250 CE 23A* turret equipped with two 12.7 mm (.50 inch) machine guns, previously being retrofitted to FE variants (The *Lincoln* did not have this problem and retained an upper turret equipped with 20 mm cannon).

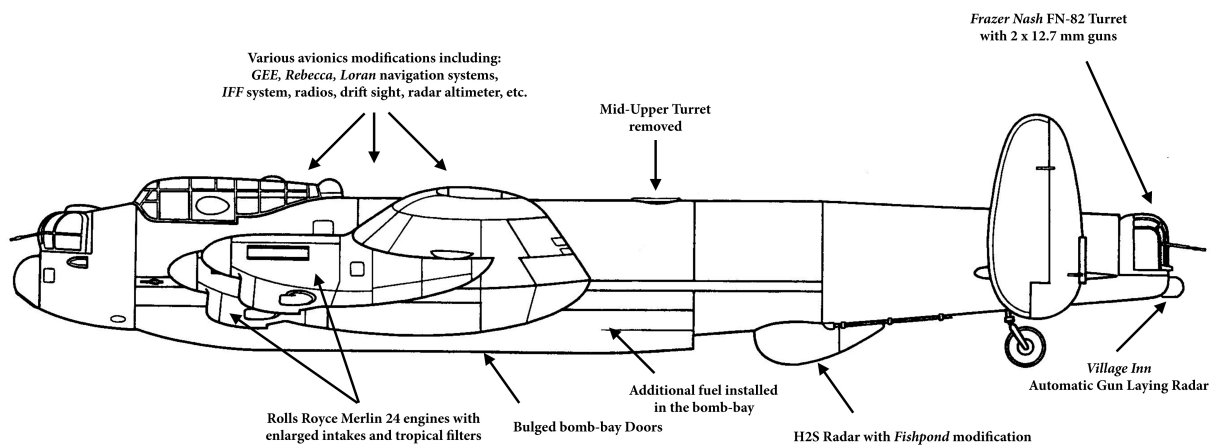
The Air Ministry decided that the standard of preparation for *Tiger Force Lancaster* aircraft would include the fitting of Rolls-Royce *Merlin 24* engines with enlarged intakes and tropical filters, the installation of a strengthened *Lincoln* undercarriage, enlarged bomb bay doors, a new *Frazer Nash FN-82* rear turret fitted with two 12.7 mm (0.50 inch) machine guns capable of being equipped with gun-laying radar, and the removal of the mid-upper turret and fitting of blanking plate. The aircraft were also to be fitted with improved radio and navigation equipment suitable for the Pacific theatre. The electronic warfare and countermeasure technologies had taken on far more importance in the European theatre and this translated into careful consideration for operations against the Japanese. This modified radio/radar fit included:

- *H2S* Mk IIIG or H - a ground-looking navigation radar system
- *FISHPOND* - An add-on to *H2S* that provided additional (aerial) coverage of the underside of the aircraft to display attacking fighters on an auxiliary screen in the radio operator's position.
- *GEE* Mk III - A receiver for a navigation system employing synchronized pulses transmitted from a ground station; aircraft calculated their position from the time delay between pulses. The range of *GEE* was 483-644 km (300-400 mi).



- *REBECCA* Mk II - a short-range radio navigation system
- *LORAN* Mk I - a long-range hyperbolic radio navigation system
- A radio altimeter
- An Air Position Indicator
- An Air Mileage Unit
- A US Navy Drift Sight
- Identification Friend or Foe (IFF) equipment
- twin VHF radios
- A *Bendix* Radio Transmitter
- A radio range receiver

Lancaster FE (Far East) Modifications



The proposed Lancaster FE modifications for RCAF Mk. X Lancasters are seen in the top diagram. The colour image above clearly depicts the revised FE colour scheme; in this case illustrating a No. 419 Sqn aircraft. - Simulation screenshot courtesy of Jens-Ole Kjølborg

Conditions in the *Pacific* theatre would be very different from those in Europe and it was further decided that temperate camouflage was unnecessary and that the upper and side surfaces would instead have heat-reflecting white paint while the under-surfaces would retain the matt black, anti-searchlight finish. The bombers would also wear Southeast Asia roundels which eliminated the red centre to avoid any confusion with Japanese *hinomaru* markings. Unlike European Bomber Command squadrons, the *Pacific*-based *Lancasters* would carry a crew of just six.

Training

The first units earmarked for the Pacific had been withdrawn from operations on 18 May 1945 and transferred to the control of *Tiger Force* HQ. Work promptly began to select and train crews to the required standard. For RAF and RAAF units, this program was to be overseen by No. 5 Group, but the Canadians of No. 6 Group were to fly back to Canada for their initial training period.

In addition to the No. 6 Group squadrons already flying *Lancasters*, four other squadrons: No. 405 “*Eagle*”, No. 408 “*Goose*”, No. 420 “*Snowy Owl*” and No. 425 “*Alouette*” Squadrons were re-equipped with the Lancaster Mk. X in lieu of their previous Handley Page *Halifax*’s. In June, these eight squadrons flew their aircraft back to Canada to begin preparation for the planned offensive against Japan. The RCAF squadrons assigned to *Tiger Force* were separated into four wings under their previous (RAF Bomber Command’s) designation, and these operational wings were to be initially formed up at the following bases in Canada:

- 661 Wing, commanded by Wing Commander F.R. Sharp, DFC, to be formed at Yarmouth, Nova Scotia with 419 and 428 Squadrons;
- 662 Wing, commanded by Group Captain J.R. MacDonald, DFC, to be formed at Dartmouth, Nova Scotia with 431 and 434 Squadrons;
- 663 Wing, commanded by Group Captain J.H.L. Lecomte, DFC, to be formed at Debert, Nova Scotia with 420 and 425 Squadrons; and
- 664 Wing, commanded by Group Captain W.A.G. McLeish, DFC, to be formed at Greenwood, Nova Scotia with 405 and 408 Squadrons.

The Canadian squadrons of No. 6 Group had each been re-equipped with Canadian-built *Lancaster* Mk. X bombers so that, at the outset of *Tiger Force* training, they would all have the same equipment. 141 brand-new or relatively low-time *Lancaster* Mk. Xs were assigned to the RCAF’s *Tiger Force*. Following the end of the war in Europe, the *Lancaster* Mk.Xs already in service with the RCAF were then flown to Canada by their crews in order to be further modified, and properly crewed for *Tiger Force* operations.

Flying out of England, over a period of several weeks, they journeyed to the *Azores* and from there to airbases in Nova Scotia and Newfoundland and, finally, on to No. 4 Repair Depot at RCAF Station *Scoudouc* in New Brunswick. Only one aircraft was lost enroute, forced to ditch in the ocean off the *Azores* due to mechanical problems, but no aircrew were lost.

In addition to navigation and bombing training, crews were to be familiarized with the geography of the Far East theatre, the air/sea rescue organization, aircraft maintenance and medical factors. In addition to technical training on radio and radar equipment, ground personnel were also to undergo battle training in preparation for airfield defence duties. Flying exercises were planned to include 12-hour flights, to gain proficiency in navigation and fuel management on long-range/duration sorties. The planned heavier all-up-weights of the *Tiger Force* aircraft all necessitated further modified evasive manoeuvres. The standard tactic of survival in the European theatre to evade

fighters was to throw the aircraft into a violent “corkscrew” manoeuvre but the heavier all-up-weights being used in the Far East would have necessitated a modified (gentler) corkscrew manoeuvre.



RCAF Lancasters destined for Tiger Force were flown back from Europe to Canada’s east coast in preparation for their deployment to the Far East. These No. 661 Wing Lancasters are seen at Yarmouth, NS on 12 June 1945. Note the differences between the upper turrets fitted to some of the aircraft - RCAF Photo RE64-2302



In the background, RCAF Lancasters by the dozens are lined up No. 4 Repair Depot in Scoudouc, New Brunswick awaiting Tiger Force modifications in June of 1945 - RCAF Photo

The RCAF also deployed liaison officers into theatre to gain operational insight. Group Captain Henry M. Carscallen, DFC, was a veteran of Bomber Command operations, having commanded both a squadron and a station in No. 6 Group. In late June 1945, Carscallen was dispatched to the *Pacific* where he was “placed on temporary duty with Headquarters, Deputy Commander, Twentieth Air Force, in an observer status with the mission of familiarization with operations of V.L.R. (Very Long Range) aircraft against Japan.”



G/C Henry M. Carscallen, in England, circa 1942. DND Photo PL-15470

It was later indicated that “Group Captain H.M. Carscallen spent approximately one month (July-August 1945) at North Field Guam as an observer of [B-29] V.L.R. operations with the 39th Bomb Group V.H.B. (Very Heavy Bomber) ...In this capacity he didn’t limit his observations to ground activities alone, but voluntarily flew operational missions in order to gain first-hand information on the tactics of long-range bombardment.” (Carscallen almost certainly was the last RCAF officer to fly a bombing mission during the war. On August 14, 1945, the day Emperor Hirohito announced Japan’s surrender, 752 B-29s still attacked seven different targets. Carscallen was then on the raid to Isezaki, Japan, which involved 86 *Superfortresses* dropping incendiaries.)

The Evolving Order of Battle

For planning purposes, by late May 1945, *Tiger Force* was expected to comprise:

- Twenty heavy bomber squadrons each with 20 aircraft;
- One *Mosquito* “Pathfinder” squadron with 30 aircraft;
- One *Mosquito* Meteorological squadron with 16 aircraft;
- Four transport squadrons each with 30 aircraft; and
- One air/sea rescue squadron of *Lancasters* with 20 aircraft.

As before, this force was to be organized as one British and one Canadian Group, with a third, British Group remaining in South East Asia Command as a reserve in case reinforcement was required. It was still intended that the force should ultimately be equipped with *Lincolns*, these were still not expected to be available for the initial deployment. The first four bomber squadrons (and one *Mosquito* squadron) were to be operational by mid-October 1945, with the next four bomber squadrons following a month later.



Simulation screenshot courtesy of Jens-Ole Kjolberg

It was also recognized that an initial deployment of just four squadrons would be insufficient either to carry out effective area bombing or to destroy smaller precision targets so early attacks could have little more than a

'nuisance' effect, their main value being to accumulate experience of in-theatre operations. When the force had built up to eight squadrons, however, it was anticipated that its destructive power, focused by the use of H2S technology and *Pathfinder* aircraft, would be sufficient for it to make a more positive operational impact.

By 6 June 1945, it was decided to reduce the bomber element of *Tiger Force* to just eighteen squadrons, comprising eight RAF, eight RCAF and two RAAF units. In the meantime the New Zealand Cabinet had given approval for the RAF contingent to include, the largely NZ-manned, No. 75 Squadron. General Spaatz, commanding US Strategic Air Forces in the Pacific, had also specifically requested that the British contribution should include two *TALLBOY*-capable squadrons and Nos 9 and 617 Squadrons were included in the planned "order of battle" to satisfy this request. By mid-June 1945 it was anticipated that the first ten squadrons to be deployed would comprise eight of *Lancasters* (five British, two Canadian (No. 419 and 428 Squadrons) and one Australian), including the *TALLBOY* squadrons, one of *Mosquito* Mk B35 "Pathfinders" and one PR/Met squadron equipped with *Mosquito* PR.34s. This initial deployment included a combined HQ element of which Canadians would be an integral part. The RCAF was, however, planning for a national command group HQ to follow-on as the Canadian contingent built up to full strength.

Almost inevitably, these plans were subject to further change and, by late July, the advance element had become nine Lancaster squadrons (six RAF (including No 75 Sqn), two RCAF and one RAAF) and the *Mosquito Pathfinder* squadron. The follow-up force was now expected to comprise eleven *Lincoln* squadrons (four RAF, six RCAF and one RAAF) plus an air-sea rescue squadron with a mixture of *Lancasters* and *Catalinas*, with the USAAF providing the necessary photo-reconnaissance and meteorological cover. The first five squadrons (the *Mosquito* unit, the two *TALLBOY* units and two main force units) were expected to be operational by 1 December 1945, ten by 1 January 1946 and fifteen by 1 February 1946; all twenty bomber squadrons were expected to be in-theatre and available for operations by 1 March 1946. The number of personnel allocated to *Tiger Force* was up to 34,200, (including 2,500 Canadian military engineers). Further reinforcing parties, air-sea rescue, and communications units would follow until the Force reached its full strength, estimated at 66,305 personnel, by mid-April 1946.

Deployment and Swift Disbandment

The initial deployment plans had envisaged that the first ground echelons would sail on or about 30 June 1945, with aircraft and crews beginning to fly out on or after 15 August 1945. To pave the way, a survey party was dispatched to *Okinawa* by air while the first of seven ship convoys, carrying personnel, equipment, armament and vehicles, was being prepared. The first convoy, codenamed *SHIELD*, comprising eight ships carrying 3,000 airfield construction personnel, 15,000 tons of construction equipment, 1,000 vehicles and a mobile field hospital, sailed for the *Ryukyu* Islands via Panama at the end of June. Components of the second convoy, codenamed *VACUUM*, sailed in July but other ships were delayed for a time due to a backlog of shipping at *Okinawa*, and the third convoy, codenamed *FORTIFY*, was never to leave.

When the ships sailed, there was still no specific destination for the British force but on 12 August, a signal from the USAAF's 20th Air Force HQ advised that *Futema* airfield on *Okinawa* would be ready to accept *Tiger Force* in October.

On 6 August, the day on which the first atomic bomb was dropped, *Tiger Force's* Advanced HQ Party had already left the UK in order to be established in-theatre in time to receive the first wave of the deployment. A second atomic bomb was dropped on 9 August and, on the 10th, Japan began to seek surrender terms. At 18:00 hrs on that same day, the Force Commander announced that *Tiger Force* would not now be required to bomb Japan. The convoys that had been enroute were instead diverted to Hong Kong and Singapore respectively to begin their reconstruction activities.



In Canada, on August 15, 1945, Air Vice-Marshal C.R. Slemon, the designated leader of the RCAF's *Tiger Force* component, reported to his headquarters in Greenwood, NS, thanked the men for having volunteered, and wished them well as they immediately disbanded. He then commenced a round of similar visits to Debert, Dartmouth and Yarmouth. Plans to produce the Avro *Lincoln* Mk XV for the RCAF were also dropped and only one prototype aircraft was ever produced (it flew for the first time on 25 October 1945) although the RCAF later evaluated a couple of RAF *Lincoln* aircraft in cold-weather trials. The overall *Tiger Force* HQ was officially disbanded in the UK as of 15 September 1945.



The RCAF Tiger Force was planned to be re-equipped with the improved Avro Lincoln (originally know as the Lancaster Mk IV) as seen here. This example in post-war Edmonton (Namao), Alberta was one of several used by the RCAF for cold-weather trials. - RCAF Photo PL-130089



RCAF Lincolns deployed as part of Tiger Force would probably have looked like this No. 420 (RCAF) Squadron example as denoted by the squadron code letters "PT". Note the Far East paint scheme. - Simulation screenshot courtesy of Jens-Ole Kjolberg

***Tiger Force* References:**

Library & Archives Canada Files:

- Lancaster Aircraft. 1945. File. RG24-E-1-c. Volume/box number: 33384.
- Lancaster Aircraft - Technical Aspects. 1942-1945. File. RG24-E-1-b. Volume/box number: 4974. File number: 620-38EA.
- Lancaster Aircraft - Program for. 1942, 1945. File. RG24-E-1-b. Volume/box number: 5032. File number: 938-EA-1-15.
- Avro Lincoln XV - Production of. 1946-1948. File. RG24-E-1-b. Volume/box number: 4969. File number: 606-38EA2.
- RCAF [Royal Canadian Air Force] Overseas HQ [Headquarters] file - Re-Deployment Committee - Minutes of meetings for period March to June 1945 - Concerns re-deployment of RAF [Royal Air Force] units following end of European war, with emphasis on Tiger Force. 1945. File (Accession level).
- RG24, R112. File number: 181.006 (D415). BAN: 2016-00510-6.

Other Publications:

- Gardner, Brian, "Tiger Force and Flight Refuelling" - *RAF Historical Society Journal* - Volume 44
- Halliday, Hugh, "Tiger In Waiting" - *Legion Magazine*, January 28, 2015
- Pitchfork, Graham, "Tiger Force", *Flypast Magazine* - January 2017

