AMS CHRONICLE

IPMS DENVER ROB WOLF CHAPTER
FEBRUARY/MARCH 2019

2019 OFFICERS		2019 OFFICERS EMAILS
President	Bob Pridemore	Bob1.pride@gmail.com
Vice President	John Taylor	Jt737driver@gmail.com
Secretary	Matt Oursler	matthewoursler@hotmail.com
Chapter Contact	Cliff Davis	ctpmdavis@comcast.net
Treasurer	Bob Nixon	Bobnixden@comcast.net
Contest Chairman	Eric Cain	Earthball4000@hotmail.com
Newsletter Editor	Wayne Cassell	mwcassell@comcast.net

NEXT MEETING:		
03 APRIL 2019 1900	**Club Kit Auction**	**Get rid of your trash and buy my treasure!**

EDITOR RAMBLINGS FROM THE BUNKER

Another class over. Losing the first week of class made things interesting. Next Russian Civil War (RCW) class is at central starting 04APR. One new book on the shelf and 4 from the library. Prospector is your friend. I am also taking a class on Russian history through art and a class on the RN during the Napoleonic wars taught by a good friend. I am still undecided on what my new class will be but thinking something with Russian (or Soviet) history or Eastern Europe aka The Borderlands or The Bloodlands, or The Marchlands.

Looks like the theme this month is carriers.

Nikto ne Zabyt

Nichto ne Zabyto

A NOTE FROM THE PRESIDENT

Hi Everyone, I just wanted to again thank all the volunteers that participated at this years Rocky Mountain Train Show on March 2nd and 3rd. The weather was awful, but folks showed up and we were able to answer a few questions and promote our hobby. As discussed at our last meeting the club's location in the hall was not the best and the total number of visitors was very disappointing. I will be sending a note to John Gardburg asking for a better location next time.

That's all I have for now and remember that our next meeting will be the club auction so dig through the closet and find a few models to bring.

Bob Pridemore

MONTHLY MESSAGE FROM THE SECRETARY

20 members attended.

John Trueblood gave a presentation on Oregon auto, technology, and aviation museums.

Monthly club contest: the theme was ‘Twins’. Cliff Davis won.

John Taylor held a drawing to give away products from a company named Model Paint Solutions. Each member in attendance received a sample of the company’s products.

Business Meeting, led by Bob Pridemore:

Old business:

Rocky Mountain Train Show took place on March 2 and 3. The location of our booth limited the number of guests who stopped in. Bob to write a letter to the show organizers expressing displeasure with the location and the desire for better placement next year.

No contest next month because the club auction is scheduled for April. You must donate a kit to participate in the auction.

The annual club contest is scheduled for the May meeting. Ordering of awards was discussed.

New business:

Commiefest is scheduled for March 30th.

Black Hills Model contest is scheduled for May 18 in Rapid City, South Dakota.

Bob wants a new banner for the club which he will look into.

…2019 MONTHLY CONTEST THEMES

MONTH	SUBJECT/THEME	DESCRIPTION
January	Uncharted Waters	Subjects representing the first use of a design concept or technology
February	At Least a Dozen	Any subject with engine(s) of 12 or more cylinders. 2 engines with 6 cylinders does not count.
March	Twins	Any subject with 2 major design elements. Examples: F-82 Twin Mustang, ZU-23 twin gun anti-aircraft.
April	**Club Kit Auction**	**Get rid of your trash and buy my treasure!**
May	Club contest: Special Theme: NAFTA Special Category: Grab Bag	Theme: Any Canadian or Mexican subject. May be manufactured in either country or in national markings. Category: Entries from the December Grab Bag Exchange
June	Recon	Any subject specifically designed or used for reconnaissance
July	The Eagle Has Landed	In honor of the 50 year anniversary of the moon landings, any real space subject
August	In Memoriam	Remembering the departed through kits or subjects from departed members / friends / family
September	Worst Kit Ever!	The worst kit you have tried to build, finished or not. **Must be at least 50% built** + must explain reason why it's the worst kit
October	Tank Killers	Any subject with the primary role of destroying tanks, **but not a tank itself**. A/C designed with a primary anti-tank mission.
November	Monochrome	Any subject where the majority of the color scheme is black and/or white.
December	Cut Throat Gift Exchange	It's better to give than receive, but even better to steal what someone was given!

MARCH 2019 CONTEST

Cliff Davis won this month's "twins" theme contest with this 72nd Avis kit of the American Gyro AG-4 "Crusader".

Uncharted Waters

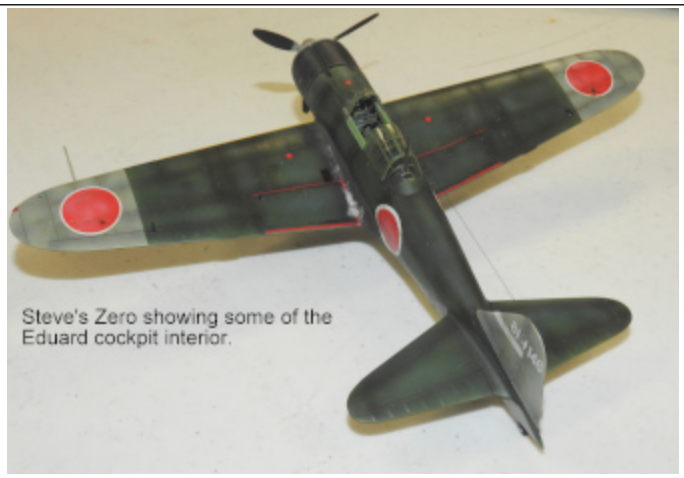
Subjects representing the first use of a design concept or technology

Contest Winner


Dave Bathke's
72nd Monogram
F-82.


Dave's F-82
redux


Steve Luevane brought in this Hasegawa A6M2 Zero with a really neat camoflage scheme.

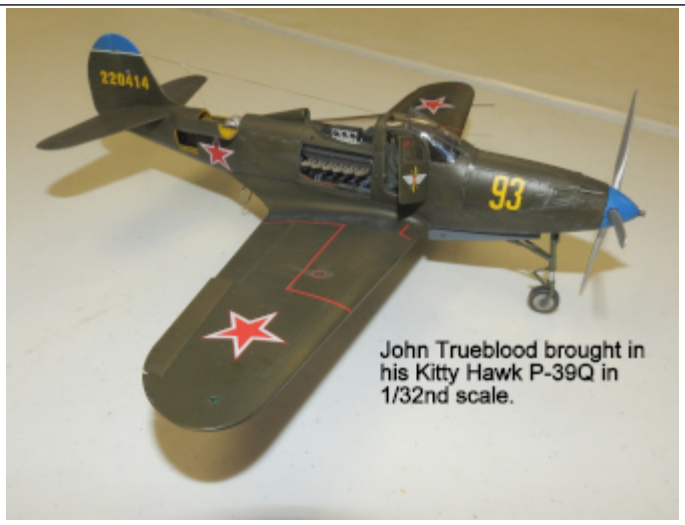

Steve's Zero showing some of the Eduard cockpit interior.


Steve L.'s A6M2. A 48th Hasegawa kit.


Last shot of Steve Luevane's Hasegawa 48th scale A6M2 Zero.

Eric Cain flew in this 72nd Revell Horten Ho229.

A slick looking "boomerang" from any angle.



John Trueblood brought in his Kitty Hawk P-39Q in 1/32nd scale.

Three quarter shot of John's P-39Q from Kitty Hawk.

Robert Pridemore's 1/350th Trumpeter Russian cruiser "Borodino". That's Prez Bob in the background.

The Borodino in all her glory.


Bob's Trumpeter Borodino


Wayne Cassell's
Meng Pz-38 Egg
tank. Wayne's says
it's not quite finished.


Wayne Cassell's 35th Roden
Holt 75 tractor done in
civilian colors.


Another view of Wayne's
Holt 75.


This is
Dan Gallegos
Mirror 35th
D-7.


Dan G's Mirror model
of the D-7.


"Mr. OTS", Matt Levesque's 72nd Mirage kit of the Polish Tp 7 light tank.


Matt's Tp 7

MAKING DIORAMA GROUNDWORK WITH DURHAM'S WATER PUTTY
AL GONZALAS, CENTENNIAL IPMS

Using a wooden base (cheap pine bases from a craft store work well, as well as fancier soft/hardwoods), drill 1/8-1/2" deep holes on 2" centers. Spacing is not critical, but the holes help the groundwork "anchor" to the wooden bases.

Seal the wooden base using any acrylic stain (color or clear is not important). Sealing the base with acrylic stains helps keep the wood from warping. Make sure to also apply stain to the drilled holes (Q-tips work great).

Once the acrylic stain is dry, mask the routed edges.

Build up uneven terrain using non-rusting aluminum or fiber brass screen over wooden shims, clay, Celluclay, paper mache, Styrofoam insulation, etc.

Now, mix Durham's Water Putty powder with water and stir.. The consistency of thin pancake batter is perfect. Add water/powder to adjust. You want to be able to pour it.

SLOWLY pour the mix over the base. Work slowly, and spread with a wet finger or wooden popsicle stick. A 1/16th inch thickness is just right.

While still wet, apply Water Putty over the wet mixture with a colander/sieve. The water from the poured mixture soaks into the dry powder, moistening and bonding it in place.

Allow the mixture to dry. Within 20-30 minutes, it's dry enough to make footprints, tire tracks, etc.

Once **completely** dry (usually overnight), turn the scene over a trash can and gently tap the bottom to dislodge surplus powder.

Use a brush (experiment with different stiffness – from firm toothbrush to wire brush) to scrub vigorously and remove more loose powder.

In a well-ventilated area (preferably outdoors), use compressed air or a blast of air from your airbrush hose to dislodge the rest of the powder.

You can use a variety of tools to carve in ruts, etc.

If you eliminate the dry powder (just pour the mixture and allow to dry), you can model featureless surfaces like mud flats or snow.

Paint and add shadows/highlights to suit your taste. Once the paint is dry, remove masking tape from edges, and you're done!

CUSTOM M17 PISTOLS ISSUED TO GUARDS AT TOMB OF THE UNKNOWNS SOLDIER (SIC)

Recently, Tomb Guards from the US Army's 3d U.S. Infantry Regiment (The Old Guard) were presented with 4 ceremonial M17 pistols at Arlington National Cemetery. These works of art were created by SIG SAUER specifically for use by the Guards.

Recently, Tomb Guards from the US Army's 3d U.S. Infantry Regiment (The Old Guard) were presented with 4 ceremonial M17 pistols at Arlington National Cemetery. These works of art were created by SIG SAUER specifically for use by the Guards.

This ceremony marks the first use of the M17, which will accompany the Sentinels of the Tomb of the Unknown Soldiers as they stand guard 24 hours a day, 7 days a week, 365 days a year.

The unique distinguishing features for the M17 Tomb of the Unknown Pistols include:

• Pistol Names: each of the four pistols bears the name of Silence, Respect, Dignity, or Perseverance and is featured on the dust cover. Dignity and Perseverance represent “The Sentinel’s Creed,” and Silence and Respect represent the request to the public by Arlington National Cemetery when visiting the Tomb of the Unknown, and during the Changing of the Guard;

• Custom Wood Grips: in 1921 the chosen Unknown was transported to the United States of America aboard the USS Olympia. The custom wood grips are made with wood from the USS Olympia and include the crest of the 3rd Guard, Tomb of the Unknown Soldier identification badge inset;

• Cocking Serrations: XXI cocking serrations are engraved on the slide to signify the twenty-one steps it takes for the Tomb Sentinels to walk by the Tomb of the Unknowns and the military honor of a 21 Gun Salute;

• Sight Plate: an engraved impression of the Greek Figures featured on the east panel of the Tomb – Peace, Victory, and Valor – are featured on the sight plate;

• Sights: a glass insert made with marble dust from the Tomb of the Unknown fills the sights of the ceremonial pistols;

• Engraved Magazines: the 21-round magazines feature an aluminum base plate engraved with the names of the Greek figures featured on the Tomb of the Unknown – Peace, Victory, and Valor – and include a name plate on the bottom of the magazine engraved with the Tomb Sentinel badge number.

• Serial Numbers: the pistols are serialized with a unique set of serial numbers that incorporate items of significance to the Old Guard: “LS” represents line six of the Sentinels’ Creed, “My standard will remain perfection; “02JUL37” to signify the first 24-hour guard posted at the Tomb of the Unknown on July 3, 1937; “21” to signify the 21 steps it takes the Tomb Sentinels to walk by the

Tomb of the Unknown, and the military honor of a 21 Gun Salute.

The full series of M17 Tomb of the Unknown Soldier Pistols serial numbers are LS02JUL37A21 (Silence), LS02JUL37B21 (Respect), LS02JUL37C21 (Dignity), LS02JUL37D21 (Perseverance)

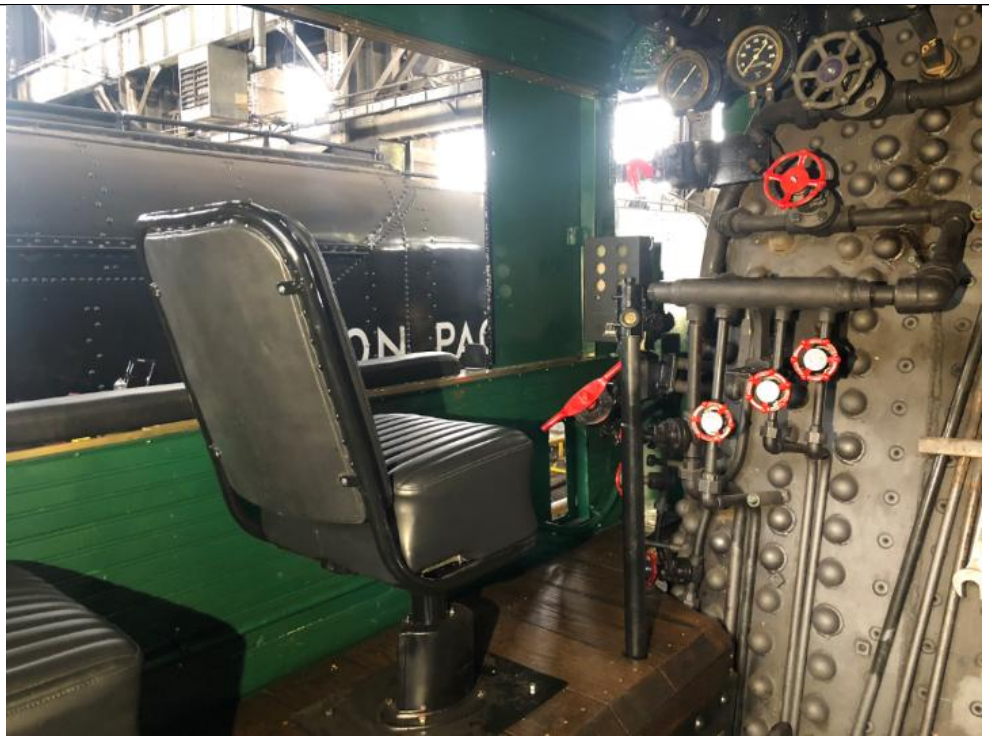
"A veteran is someone who, at one point in their life, wrote a blank check made payable to The United States of America for any amount, up to and including their life."

Our flag does not fly because the wind moves it. It flies with the last breath of each soldier/sailor/marine/airman who died to protect

MODELMAKING: HOW THIS HOBBY MAKES YOU SMARTER

Subject: Union Pacific Steam Club Update - No. 4014 and No. 844 Commemorative Tour Schedules Now Online

Union Pacific Steam Club Update No. 4 - Mar. 13, 2019



Here's the news you've been waiting for!

The commemorative tour schedule for the Big Boy No. 4014 and Living Legend No. 844 are now online at https://www.up.com/heritage/steam/schedule/index.htm.

The iconic steam locomotives will join together in a public display for the first time May 9 in Ogden, Utah, during Union Pacific's celebratory event marking the transcontinental railroad's 150th anniversary. The festivities include recreating the iconic photo taken May 10, 1869, when the last spike was tapped into place at Promontory Summit, creating America's first transcontinental railroad. Union Pacific no longer has tracks near Promontory Summit. They were removed to support the scrap metal projects during World War II.

No. 844 will leave Cheyenne, Wyoming, April 27. It will make several brief whistle-stops in communities along its route, arriving in Ogden on April 28. The Living Legend will be on display at Ogden Union Station through May 11.

No. 4014 will leave Cheyenne May 4 following a 9:30 a.m. MT christening ceremony at the historic Cheyenne Depot and arrive in Ogden for the May 9 celebratory event at Ogden Union Station. The Big Boy also will make several whistle-stops in communities along its route.

A comprehensive schedule for the April – May tour, including additional locations, display times and No. 844 and No. 4014 GPS location tracking information is available at http://upsteam.com. Due to the dynamic nature of these operations, running times and scheduled stops are subject to change.

The 150th anniversary celebration will continue throughout the year with No. 4014 visiting many states across the Union Pacific system. A tentative schedule with tour locations and dates will be published in the near future.

Folks who visit our Heritage Fleet during the upcoming Great Race to Ogden Tour will have a chance to "experience" railroading like they never have before.

The Experience the Union Pacific Rail Car is a brand new, multi-media walk-through exhibition providing a glimpse at the past while telling the story of modern-day railroading. Through sound, images and interactive technology, visitors will see how Union Pacific is building America in their communities and throughout the world.

After entering the converted baggage car, patrons will first learn about the investment, hard work and know-how that went into building the transcontinental railroad.

Moving forward along one wall they'll learn about the evolution of the locomotive, beginning with the world famous UP No. 119 and leading to the modern-day diesel powerhouses. On the opposite wall, rail fans will trace how fresh apples are delivered from California and Washington to New York, and understand every aspect of rail operations and innovation along the way.

Next, exciting interactive technology will show how Union Pacific is using lasers, cameras and other detection devices to accurately inspect moving rail cars and railroad track. Folks will be able to test their skills to see how they measure up as rail car inspectors.

Before leaving, exhibition-goers will be able to show us how they connect to the railroad using high-tech thermal reactive tiles. A final display celebrates the history of Union Pacific's Passenger Heritage Fleet through vintage photos.

The Experience the Union Pacific Rail Car will be included in the Heritage Fleet consist during upcoming tours, beginning with a special tour to Sacramento and Roseville, California; Sparks, Nevada; and Ogden, Utah, that kicks off April 19 at the California State Railroad Museum, 125 I St., in Sacramento.

Check up.com for the upcoming schedule and viewing hours.

That's all for now. Before we go, here's a Steam Club Safety Tip: Never assume tracks are abandoned or inactive – **ALWAYS expect a train** and assume tracks are active.

Thanks, and be safe!

Union Pacific Steam Club

(ED NOTE I want a 1/35 of one of these).

SAUDI RED FLAG INVOLVEMENT GIVES USAF GLIMPSE OF ADVANCED EAGLE

AIN online ^ | March 22, 2019 | Jon Lake

The Royal Saudi Air Force (RSAF) deployed six of its new Boeing F-15SA Advanced Eagles to participate in the latest Red Flag exercise (Red Flag 19-2) at Nellis AFB, Nevada. This afforded the U.S. Air Force its first close-up view of the latest variant of the second-generation F-15 Advanced, since the decision to include the similar F-15EX in the Pentagon's Fiscal Year 2020 budget request.

The F-15K Slam Eagle for Korea marked the first step on the road to the F-15 Advanced. A derivative of the F-15E Strike Eagle, the F-15K introduced an AAS-42 IRST (infrared search and track) system, an enhanced Tactical Electronics Warfare Suite, and the Joint Helmet Mounted Cueing System, and was fitted with an AN/APG-63(V)1 radar that incorporates digital processing. This made it upgradable to APG-63(V)3 standards via an Active Electronically Scanned Array (AESA) antenna modification. The F-15SG for Singapore was fitted with an AN/APG-63(V)3 AESA radar and a BAE Systems Digital Electronic Warfare System (DEWS), among other enhancements.

The F-15SA for Saudi Arabia was the first variant to formally use the F-15 Advanced/Advanced Eagle name. It introduced a fully digital cockpit and featured a digital fly-by-wire flight control system that permitted the reactivation of two outboard underwing hardpoints, known as Stations 1 and 9, which had been deactivated early in the F-15 program due to stability issues.

A Saudi F-15SA on the flight line at Nellis during Red Flag 19-2. The aircraft have been flying in the U.S. since handover and will be delivered to the Kingdom after the exercise. (Photo: DVIDS)

.

In 2010, the RSAF requested 84 new-build F-15SA jets and an upgrade/remanufacturing program to bring 70 (later reduced to 68) existing F-15S aircraft to the same standard. The rebuilt aircraft are sometimes referred to as F-15SRs. The first four F-15SAs ordered by the Royal Saudi Air Force (two new-builds and the first pair of F-15SR conversions) were delivered to King Khalid Air Base at Khamis Mushayt on December 13, 2016. Qatar ordered 36 further improved Advanced Eagles under the designation F-15QA, with large area displays and other improvements.

In early 2017 the U.S. Air Force approached Boeing, inquiring about the acquisition of a similar F-15 variant, dubbed F-15X. The USAF wanted to boost its shrinking force structure and to reinforce its air defense capabilities, but without disrupting the larger F-35 program. The proposed F-15X for the USAF (known as the F-15CX in single-seat form or as the F-15EX in two-seat form) combines the advanced features of the F-15SA and F-15QA with an AN/APG-82 AESA radar—as used by upgraded F-15E Strike Eagles. The new aircraft would offer a 20,000-hour service life as well as a dramatic reduction in hourly operating costs compared to the legacy F-15 or to the F-35A.

Procurement would likely start with eight aircraft that have been requested in the FY20 budget. There is a stated plan for a total of 80 through 2024, with roughly 18 each year from 2021 to 2024. A tranche of 144 aircraft would “initially refresh” squadrons that fly Cold War-era F-15C Eagles designed for air-to-air combat. The USAF might eventually hope to directly replace the USAF's entire 235-strong F-15C/D fleet and could eventually refresh the 218-aircraft F-15E fleet.

The budget request for new F-15s is, however, likely to face political headwinds in Congress, where there is opposition to any procurement that diverts funds that could be potentially spent on more F-35s.

ALLEGED FOOTAGE OF BRAND NEW RUSSIAN GUNSHIP OPERATING IN SYRIA SURFACES ONLINE

Sputnik International ^ | 23.03.2019

Earlier, it was reported that a prototype Mi-28NM was deployed to the Hmeymim Airbase in Syria's Latakia province to conduct field testing in high temperature and desert conditions, and to test out a new mobile radar complex.

A video purportedly showing the Mi-28NM gunship, operating in tandem with a Russian military Mi-24 in Syria's Hama province, has surfaced online.

In the footage, which has yet to be verified or commented on by the Russian Defence Ministry, the new helicopter, distinguishable by its unique ball-shaped radar installed above its main rotor, is seen making repeated passes over a local settlement thought to contain Nusra*-affiliated militants.

A second unverified video shows the pair of helicopters striking a ground target.

Russian media citing military sources reported on the deployment of the Mi-28NM attack helicopter to Syria for field testing last week.

Dubbed the 'Super Night Hunter', the Mi-28NM was created after taking previously accumulated Syrian combat experience into account, and features improved engines, control and anti-air defence systems, fuselage, navigation and communications equipment, and specially created helmets with an augmented reality function to project map, intelligence and helicopter status

information into the pilot and copilot's field of vision. The anti-armour helicopter is said to be capable of coordinating with autonomous drones, and can be armed with a new guided missile with a range of over 25 km. The first test batch of the new all-weather, day-night two-seater helicopters is expected to start delivery to the Defence Ministry next month. Developed in the early 1980s, the Mi-28 design has seen multiple upgrades during its service life, and is operated by the Russian, Algerian and Iraqi militaries.

*Aka al-Qaeda in Syria, outlawed in Russia and many other countries.

UK MULLS 'BASING' WARSHIPS IN INDIA, PLANS AIRCRAFT CARRIER COOPERATION

Web Desk March 16, 2019 10:03 IST

An F-35B fighter taking off from the HMS Queen Elizabeth | Twitter handle of HMS Queen Elizabeth

A British news report on Friday claimed the Royal Navy was considering basing future warships in India.

Forces Network reported that the head of the Royal Navy, First Sea Lord Admiral Sir Philip Jones, talked about the issue as he hosted his Indian counterpart, Admiral Sunil Lanba, on board the aircraft carrier HMS Queen Elizabeth in Portsmouth on Thursday.

The UK is developing a new class of frigates called the Type 31, five of which have been ordered at a cost of euro 1.25 billion. The new warships will begin to enter service by 2023.

Referring to the Type 31 frigates, Jones said, "We have not yet decided where we base those ships —there are many decisions to be made. But whether it is actually physically based in India, or whether it is just spending a lot more time working with the Indian Navy, I think there is a rich opportunity there for forward-basing."

Forces Network also reported that Lanba described the Royal Navy's increased focus on the Indian Ocean region as a “welcome step”. Lanba said, “We hope to partner the RN in leveraging our

collective strength to ensure safety and security of the region."

Forces Network added the possibility of the Royal Navy basing a warship in India would depend on the progress of its ongoing forward-basing trials. An in-service frigate, the HMS Monmouth, is currently based in Bahrain.

The proposal for basing Royal Navy ships comes as the UK expands activities in the 'Indo-Pacific' region in the wake of concerns over the rise of China. In August 2018 and January this year, Royal Navy ships passed through waters in the South China sea that Beijing had laid claim to. The HMS Queen Elizabeth is scheduled to travel to the Pacific Ocean, via the Indian Ocean, in 2021.

Interestingly, the Royal Navy and the Indian Navy have also formed a 'Carrier Capability Partnership', which aims to share "best practices" from the UK's aircraft carrier programme.

The Royal Navy's website, which reported Lanba's visit to the HMS Queen Elizabeth, quoted Jones as saying, "I am sure we will be able to develop further synergies in our respective future carrier strike capabilities. The important thing is that by developing these capabilities in tandem, we build in a level of interoperability."

The HMS Queen Elizabeth, which was commissioned in December 2017, will be joined by a sister ship, HMS Prince of Wales, in 2020. Both vessels will carry the advanced US F-35B stealth fighter.

The Indian Navy currently operates the INS Vikramaditya aircraft carrier, purchased from Russia, and will induct an indigenously built carrier by 2020. The Indian Navy uses the Russian-built MiG-29K fighter. Both Indian and Royal Navy carriers use the 'ski-jump' method to launch aircraft over an elevated ramp, instead of using powered catapults.

The proposal for cooperation in aircraft carriers is not unexpected as the first two aircraft carriers India operated were ships used by the Royal Navy.

ABOUT INS VIKRAMADITYA
THE NEWEST & LARGEST SHIP OF INDIAN NAVY

https://www.indiannavy.nic.in/content/about-ins-vikramaditya-newest-largest-ship-indian-navy

INS Vikramaditya is the newest and largest ship to join Indian Navy on 16 Nov 2013. The ship was commissioned on 16 Nov 13 by Defence Minister Shri AK Antony in Russia.

Background

At the time of attaining our Independence our visionary leaders saw the centrality of a powerful Navy and set us on the right course by envisaging an Indian Navy centred on aircraft carriers for sea control in our expansive areas of maritime interest. INS Vikrant, India's first aircraft carrier was acquired from Great Britain and commissioned on 04 Mar 1961. INS Vikrant was a Majestic class CATOBAR (Catapult Assisted Take Off but Arrested Recovery) carrier and operated Sea Hawk fighters, Alize (Anti-Submarine Warfare) aircraft and Seaking helicopters. Consistent with its vision, India next acquired HMS Hermes, a Centaur class STOVL carrier and a veteran of the Falkland War. INS Viraat was commissioned on 12 May 1987 as India's second aircraft carrier and India's first STOVL carrier operating the Sea Harrier aircraft. Soon after the acquisition of INS Viraat, INS Vikrant was also converted from a CATOBAR carrier to a STOVL (Short Take-off and Vertical Landing) carrier. INS Vikrant was decommissioned on 31 Jan 1997, after 36 years of glorious service under the Indian ensign. For almost a decade India had two aircraft carriers and the Indian Navy was fully cognisant of the criticality of having an aircraft carrier available for deployment on each seaboard to fulfil the Navy's assigned tasks. In recognition of the importance of aircraft carriers, the Indian Navy had already started exploring the possibility of indigenously designing and constructing an Aircraft Carrier, this project took off in right earnest in the late 90s as the Air

Defence Ship was conceived. However, given the long gestation period of such projects, the search for a replacement for INS Vikrant gained momentum as its decommissioning drew closer.

It was at this juncture that Russia offered Admiral Gorshkov to the Indian Navy. Negotiations over acquiring the 44,500 ton Admiral Gorshkov started in 1994. Various high level delegations who had assessed the ship had independently concluded that the ship's hull was in good material state and would be worth considering for exploitation in the Indian Navy with a suitable mix of aircraft.

Signing of the Contract

After detailed negotiations the two countries signed a memorandum of understanding in Dec 1998 during a visit by Russian PM Yevgeny Primakov. The Inter-Governmental Agreement which included acquisition of Project 11430 (Admiral Gorshkov) was signed between the Federation of Russia and the Union Government of India on 04 Oct 2000. After a Detailed Project Development Review, contractual negotiations and thereafter price negotiations, Government approved the acquisition on 17 Jan 04 at a cost of Rs 4881.67 Cr for the complete package of R&R of the ship, spares, infrastructure augmentation and documentation. The deal was signed on 20 Jan 04 and the effective date of the contract was established as 24 Feb 04. The R&R of the ship commenced from 09 Apr 04.

The repair and refit was being undertaken by FSUE Sevmash, the state owned shipyard at Severodvinsk, Russia. The R&R was scheduled to have been completed within 52 months. Though the refurbishment process was started in right earnest, soon it was realized that the work and equipment requiring replacement was significantly higher than originally estimated. Entire length of cable, large portions of steel hull, motors, turbines and boilers, etc. would have to be completely replaced with resulting in cost escalation and time slippage.

A protracted renegotiation for arriving at a mutually acceptable price for refurbishment was held in the ensuing months. Finally, in Dec 2009, the Indian and the Russian sides arrived at an agreement on the final price of delivery of this ship. More significantly, it was agreed that the delivery of the ship would take place only in the year 2012. Though the re-negotiated price was significantly higher than what was originally agreed upon, the fillip that the addition of Gorshkov would give to the Blue water requirements of Indian Navy compensated the greater price.

The Journey of Admiral Gorshkov (nee Baku)

The journey of 'Vikramaditya' began as the Kiev class aircraft carrying cruiser 'Baku'. Developed from the Moskva class helicopter carrying guided missile cruisers the Kiev class was a pioneering Soviet era design, featuring a flight deck arrangement capable of operating fixed wing VTOL fighters for the first time in the Soviet Navy. Baku was constructed by Chernomorsky Ship Building Enterprise, Nikolayev (now in Ukraine). About 400 enterprises and nearly 1,500 - 2,000 workers from different republics of USSR took part in building of the ship. The ship was commissioned on 20 Dec 1987. Conceived as an armed cruiser, Baku was heavily armed with twelve Anti-Ship Missile launchers, ten gun mounts of differing calibre and rocket launchers and depth charges. The air element comprised Yak-38 aircraft

Baku on Commissioning

'Baku' was envisioned to be a full-fledged aircraft carrier by Admiral SG Gorshkov, however, due to conflicting dynamics at that time, the ship turned out as the last 'compromise' ship of the Kiev series. After her development and construction, it became clear to the Soviet leadership that the vision of Admiral Gorshkov of a classical aircraft carrier with ship borne aircraft as the primary weapons was indeed the most logical way ahead to develop the surface forces. On 07 Nov 1990, the ship was named after Admiral Sergey Georgiyevich Gorshkov.

Baku/Admiral Gorshkov began its active operational service with the Northern Fleet and was deployed in the Mediterranean Sea and remained in active service till 1992 and thereafter continued in service albeit with limited operational deployments. The ship was finally decommissioned in 1996.

The Transformation

Project 11430

Admiral Gorshkov was put in hibernation after her last sailing in 1995. With most of her equipment lying un-utilised since then, the task of breathing life and converting her from a VTOL (Vertical Takeoff and Landing) missile cruiser carrier to a STOBAR aircraft carrier involved substantial degutting, equipment removal, refit and re-equipping. The major works envisaged were modification of flight deck to include ski-jump and arrester gear; modification of bulbous bow, aft aircraft lift & ammunition lifts; modification of 1750 out of 2500 compartments; installation of new main boilers; installation of new and additional Diesel Generators; replacement of existing distilling plants; fitment of Reverse Osmosis plants, new AC plants and Refrigeration plants and installation of new sensors and equipment. In 2007, as the refit and repair of the ship was in progress, the yard realized that the scope of work was much larger than initially estimated and so a revised timeline for completion of the task of modernization was agreed upon by both Russian and Indian sides. With a revised timeline the delivery of ship was expected by end 2012

A Peek at the Scope of Work

Creation of Ski Jump

Putting the 900 tonne Ski Jump in place

Creation of the flight deck with structural modification to convert the VTOL carrier to a STOBAR carrier was the most intricate and arduous. The task involved installation of Sponsons to increase the breadth at the Flight Deck and a fitment of a new 14 degree Ski jump, strengthening of arresting gear area, strengthening of run way area and elongation of the aft end to generate the required length of landing strip aft of the arresting gear. In all 234 new hull sections were installed to achieve the desired shape. Total steel work for carrying out structural modification on flight deck amounted to 2500T.

Modification of Super structure

The superstructure was modified to accommodate a host of sensors and equipment such as radars, Electronic Warfare suite and Action Information Organisation system and other systems to suit the requirements of ship borne fighters and rotors. A very unique structural modification that was carried out on board the ship was the installation of the aft mast for accommodating various communication antennae.

Machinery Modification

Vikramaditya in its older avatar was powered by boilers fuelled by heavy oil, FFO. The re-equipping included replacement of these old boilers with state of the art boilers utilizing LSHSD and providing a steam capacity of 100 Tonnes per Hour each.

Electrical re-cabling

The initial estimate included replacement of only 1400 kms of old cable with new cables. However, as degutting progressed and confined spaces were accessed it was realised that an additional 900 kms of cable will need to be replaced. Finally the mammoth task involved replacing 2300 kms of cable, which is a little short of half of the entire coastline of India.

Outfitting

The modification plan of Vikramaditya was not restricted to the gears and sparks alone. The change also necessitated revamp of the living spaces and galleys to cater to the needs of the Indian men in uniform. Of 2500 a total of 1750 compartments were completely re-fabricated. A host of new galley equipment suited for preparation of Indian food like dosas and chapatis was also installed.

Arrestor and Restraining Gears

The conversion of VTOL carrier to STOBAR involved fitment of three 30m wide arrester gears and three restraining gears. Installation of these equipment not only involved modification and strengthening of the flight deck but also changes to internal layout of compartments.

Summary

To sum it up, a total of 234 new hull sections were fabricated using 2500 tonnes of steel which is almost equivalent to the standard displacement of a mid-size frigate. Repair and re-equipping of Vikramaditya to give a new lease of life as a full- fledged carrier was no mean task and was probably as demanding a task as constructing a similar tonnage ship from the drawing board. The task was enabled by the expertise and experience of the Russian designers and yard workers working hand in glove with Indian experts. The extreme cold weather conditions of winter only made the work environment harder. At the end of this refit, spanning a little short of a decade, Vikramaditya has metamorphosed into a fully capable and potent platform.

Rise of the Phoenix …

Big & Agile

Vikramaditya sailed for the first time under own power at 1200 hrs on 10 Jun 12, after a gap of about 17 years.

The New Avtar ‘Vikramaditya’

An aircraft carrier carrying potent long range multi-role fighters is a platform inherently deigned for power projection. In as much as ‘Gorshkov’ was transformed to create ‘Vikramaditya’, so also

Vikramaditya will transform the face of the Fleet Air Arm of the Indian Navy.

STOBAR Carrier

Displacement : 44,500 T

Length OA : 284 m

Maximum Beam : 60 m

Speed : over 30 kts

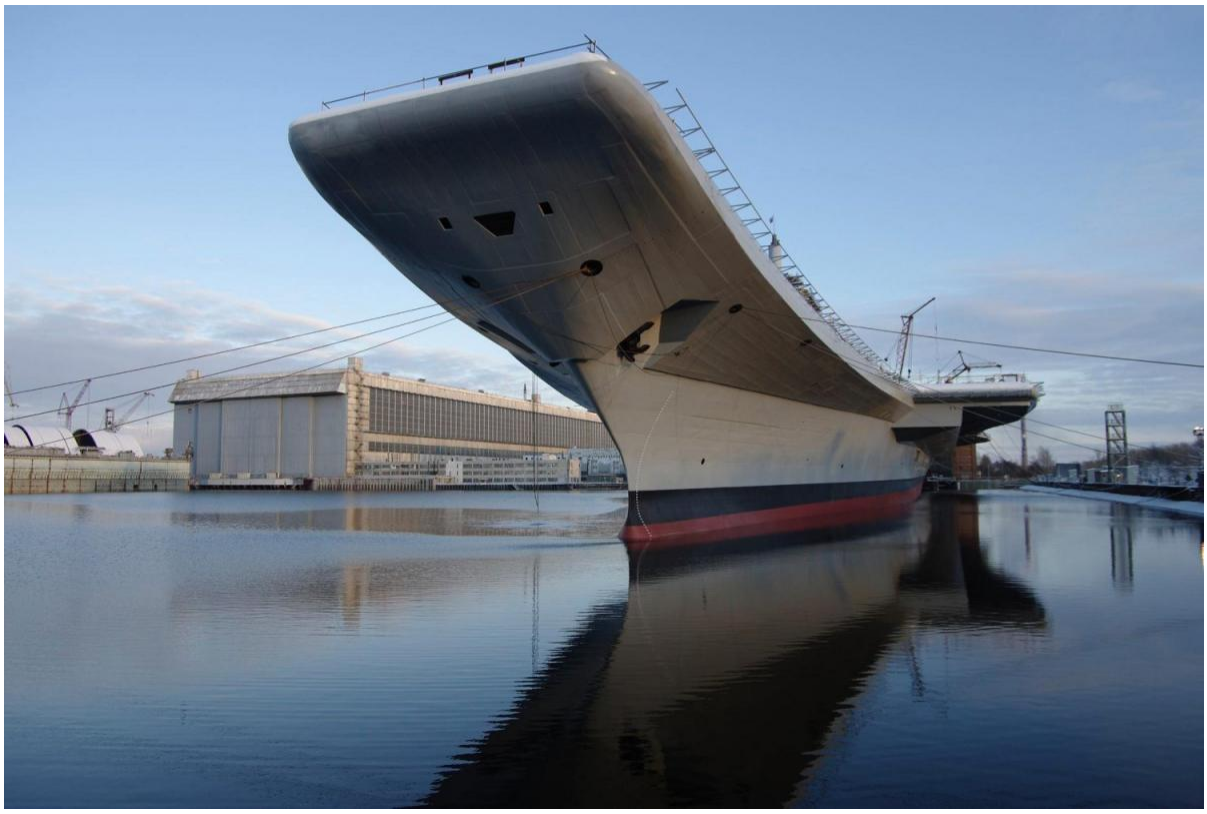
04 propellers

powered by 08 Boilers,

Aircraft component : MiG 29K, Kamov 31, Kamov 28, Seaking, ALH, Chetak

Vikramaditya, the floating airfield has an overall length of about 284 meters and a maximum beam of about 60 meters, stretching as much as three football fields put together. Standing about 20 storeys tall from keel to the highest point, the sheer sight of this 44,500 tonnes mega structure of steel is awe inspiring. The ship has a total of 22 decks.

With over 1,600 personnel on board, Vikramaditya is literally a 'Floating City'. Associated with this large population is a mammoth logistics requirement - nearly a lakh of eggs, 20,000 litres of milk and 16 tonnes of rice per month. With her complete stock of provisions, she is capable of sustaining herself at sea for a period of about 45 days. With a capacity of over 8,000 tonnes of LSHSD, she is capable of operations up to a range of over 7,000 nautical miles or 13000 kms.



Preparing for sea trials

To enable this 44,500 tonnes floating steel city to cut through the choppy seas with speeds of up to 30 knots, she is powered by 08 new generation boilers of steam capacity of 100 TPH at a very high pressure of 64 bars, generating a total output power of 180,000 SHP. Vikramaditya heralds in a new generation of boiler technology with a very high level of automation. These high pressure and highly efficient boilers power four enormous propellers, each greater in diameter than twice the

height of an average male. Such a four propeller - four shaft configuration is another first in the Indian Navy.

The 06 turbo alternators and 06 diesel alternators onboard generate a total electricity of 18 megawatts to power various equipment of the ship, enough to cater to the lighting requirement of a mini city. The ship also houses 02 Reverse Osmosis plants providing an uninterrupted supply of 400 Tons per day of fresh water.

An extensive revamp of sensors including fitment of Long range Air Surveillance Radars, Advanced Electronic Warfare Suite makes the ship capable of maintaining a surveillance bubble of over 500 kms around the ship.

The ship has the ability to carry over 30 aircraft comprising an assortment of MiG 29K/Sea Harrier, Kamov 31, Kamov 28, Sea King, ALH-Dhruv and Chetak helicopters. The MiG 29K swing role fighter is the main offensive platform and provides a quantum jump for the Indian Navy's maritime strike capability. These fourth generation air superiority fighters provide a significant fillip for the Indian Navy with a range of over 700 nm (extendable to over 1,900 nm with inflight refueling) and an array of weapons including anti-ship missiles, Beyond Visual Range air-to-air missiles, guided bombs and rockets.

Expansive Flight Deck during night

The ship is equipped with state of the art launch and recovery systems along with aids to enable smooth and efficient operation of ship borne aircraft. Major systems include the LUNA Landing system for MiGs, DAPS Landing system for Sea Harriers and Flight deck lighting systems.

The heart of the operational network that infuses life into the combat systems onboard the ship is the Computer aided Action Information Organisation (CAIO) system, LESORUB-E. LESORUB has the capability to gather data from ship's sensors and data links and to process, collate and assemble comprehensive tactical pictures. This state of the art system has been specifically designed keeping in mind the essential requirement on the carrier for fighter control and direction.

One of the most prominent equipment fitted on the super structure is the Resistor-E radar complex. Resistor-E is the automated system designed for providing air traffic control, approach/landing and short range navigation for ship borne aircraft. This complex along with its various sub-systems provides navigation and flight data to ship borne aircraft operating at extended ranges from the mother ship. The precision approach guidance system aids the fighters on approach to be directed down to a distance of 30 meters short of flight deck. Vikramaditya also boasts of a very modern communication complex, CCS MK II, to meet her external communication requirement. Installation of Link II tactical data system allows her to be fully integrated with the Indian Navy's network centric operations.

In Baltic Sea

Once integrated, INS Vikramaditya will bring transformational capabilities to the Indian Navy and will be a 'game changer'.

JOURNALISTS GET TOUR OF JAPAN'S IZUMO AMID DEBATE OVER EQUIPPING SHIP WITH AIRCRAFT CARRIER

the japan times ^ | March 13, 2019 | SAKURA MURAKAMI

YOKOSUKA, KANAGAWA PREF. - Journalists on Wednesday were given a guided tour of the Izumo — Japan's largest flat-topped helicopter carrier — for the first time since the Defense Ministry revealed a controversial plan late last year to convert it so that it could handle fixed-wing aircraft — which critics and some opposition lawmakers say could make it capable of offensive operations.

The Maritime Self-Defense Force's Izumo helicopter carrier is docked at the port of Yokosuka in Kanagawa Prefecture on Wednesday. The MSDF the same day conducted a guided media tour of the 195,000-ton vessel, which will be remodeled to accommodate fixed-wing fighter jets. | REIJI YOSHIDA

The pacifist postwar Constitution bans the possession of “attack aircraft carriers,” and calls for an exclusively defense-oriented posture. However, under a five-year defense build-up plan adopted in December, the 248-meter, 195,000-ton vessel will be undergoing a major remodeling to accommodate jet fighters, likely U.S.-developed F-35B stealth planes, which are capable of short take-offs and vertical landings.

The Defense Ministry has refused to call a remodeled Izumo “an aircraft carrier,” saying it would not regularly carry jet fighters and would also be used for missions including anti-submarine missions and rescue operations.

“My understanding is that aircraft carriers are designed specifically for the operation of aircraft only, like U.S. aircraft carriers,” Prime Minister Shinzo Abe said in mid-February at a Lower House budget committee meeting. “The Izumo is not designed for this purpose, and therefore is not an aircraft carrier.”

According to the ministry’s definition, “attack aircraft carriers” are those “to be used only for the carrying out of missions of mass destruction in other countries.” A remodeled Izumo would not fall within this category and thus would not be unconstitutional, according to the ministry.

Following the 2016 Kumamoto earthquakes, the Izumo was used to transport over 300 ground self-defense force troops to central Kyushu for disaster relief.

In the press tour on Wednesday, MSDF officers guided reporters around the Izumo, docked at the Yokosuka base in Kanagawa Prefecture, including a 170-meter-long cavernous hangar that experts say can accommodate about 10 F-35B fighters and two anti-submarine patrol helicopters.

The reporters were also allowed access to the ship’s deck, complete with its two gigantic elevators designed to carry aircraft that can weigh up to 30 tons from the hangar below.

Designed for a crew of up to 470, the Izumo can travel up to a speed of 30 knots.

The ship also accommodates a medical room with 34 makeshift beds and an ICU.

When asked, MSDF officials declined to comment on the details of the planned remodeling, saying officers operating the ship are not in a position to do so.

Still, at a Lower House meeting on defense issues held Friday, Defense Minister Takeshi Iwaya didn't deny the possibility that U.S. fighter jets may be allowed to land on the Izumo for refueling before launching attacks.

"Legally speaking, that sort of scenario is possible, so I'm not going to outright deny that it's a possibility," he said in response to a question from Toru Miyamoto, a lawmaker with the Japanese Communist Party.

"So you're saying it's legally possible for a F-35B from the U.S. military to take off for an attack from Izumo — doesn't this mean that the remodeled Izumo will be an 'attack' aircraft carrier, something banned under the Constitution?" Miyamoto asked Iwaya during the session.

The defense minister denied Miyamoto's suggestion, saying that providing fuel to U.S. planes would not be considered a "use of force" situation with offensive intentions by Japan, thus would not violate the Constitution.

Some experts also say carrying out viable offensive attack operations would be difficult from the Izumo as it can only support about 10 F-35B fighters.

According to the five-year defense plan, the changes to the Izumo's capabilities will raise the "overall improvement of anti-air defenses" in the airspaces over the Pacific Ocean and elsewhere in the waters around Japan.

CHINA BUILDING LONG-RANGE CRUISE MISSILE LAUNCHED FROM SHIP CONTAINER

- **Disguised weapon turns freighters into warships, ports to missile bases**

BY: Bill Gertz
March 27, 2019 5:00 am

China is building a long-range cruise missile fired from a shipping container that could turn Beijing's large fleet of freighters into potential warships and commercial ports into future missile bases.

The new missile is in flight testing and is a land-attack variant of an advanced anti-ship missile called the YJ-18C, according to American defense officials.

The missile will be deployed in launchers that appear from the outside to be standard international shipping containers used throughout the world for moving millions of tons of goods, often on the deck of large freighters.

The YJ-18C is China's version of the Club-K cruise missile built by Russia that also uses a launcher disguised as a shipping container. Israel also is working on a container-launched missile called the Lora.

Spokesmen for the Defense Intelligence Agency and Navy declined to comment.

Disclosure of the new missile comes as the Trump administration is nearing completion of a trade deal with China aimed at allaying American concerns over illicit trade practices by Beijing.

The new missile also could undermine China's current buying and building spree for international commercial port projects.

The YJ-18C container missile also is being developed as China is engaged in a major global program called the Belt and Road Initiative that will provide Chinese military forces and warships

with expanded access through a network of commercial ports around the world.

China operates or is building deep water ports in several strategic locations, including Bahamas, Panama, and Jamaica that could be used covertly to deploy ships carrying the YJ-18C.

Other locations include Pakistan's Gwadar port near the Arabian Sea and in Djibouti on the Horn of Africa close to the strategic choke point of the Bab el Mandeb at the southern end of the Red Sea.

LORA launch

Rick Fisher, a China military affairs expert, said he is not surprised China is copying the Russian Club container-launched missile.

"It fits with China's penchant for seeking asymmetric advantages against its enemies," said Fisher, a senior fellow at the International Assessment and Strategy Center.

The new missile also supports China's longstanding development of deniable technologies such as a hard-to-track shipping container fitted with missiles.

The weapon system also could be sold to Iran or North Korea as China has done in the past with other weapons systems, including long-range missile launchers that were transferred to North Korea.

Fisher said China also showcased a precision-guided multiple launch rockets concealed in a shipping container-launcher, similar to the Club-K concept during a military show in 2016.

Also, China has offered for export the SR5 precision guided artillery rockets deployed in shipping container-launchers

"Containerized missiles give China, Russia, and its rogue state partners new options for directly or indirectly for attacking the United States and its allies," Fisher said.

"Shipping container missile launchers can be smuggled through ports or via highway ports of entry and stored for years in a climate-controlled building within range of U.S. military bases, and taken out when needed for military operations," he added.

Container missiles also can be deployed on commercial ships that can sail off U.S. coasts or within

American ports prior to a conflict.

Club-K container

"Potentially, Chinese missile launching containers could be stored near the Port of Seattle, waiting for the day they can launch an electromagnetic pulse (EMP) warhead-armed missiles over the Bangor nuclear ballistic missile submarine (SSBN) base," Fisher said.

"The EMP blast might take out electronics on the [submarines] and all over the base without having to launch a nuclear missile from China. Washington would be in chaos, would not know against whom to retaliate, and perhaps China uses American distraction to begin its real objective, the military conquest of Taiwan."

Retired Navy Capt. Jim Fanell, a former Pacific Fleet intelligence chief, said a containerized YJ-18 anti-ship cruise missile would add a significant threat to the Navy given the volume of Chinese container ships that enter U.S. ports on the west and east coast, well within range of the vast majority of the U.S. fleet.

"If this capability is confirmed, it will require a completely new screening regime for all PRC flagged commercial ships bound for U.S. ports," Fanell said.

Additionally the container-launched missiles could be targeted in foreign ports used by Chinese-flagged merchant vessels.

China's state-owned Cosco shipping company is currently selling its Long Beach, Calif., shipping terminal as part of a deal completed last year to buy a rival container shipping line Orient Overseas International Ltd.

Retired Navy Capt. Chris Carlson who has written extensively on Chinese missiles, cautioned that the range of the YJ-18C is unlikely to be 1,000 miles.

"China has had considerable problems with propulsion of all kinds and the YJ-18 uses a reverse engineered Russian design turbofan in the subsonic cruise body," Carlson said.

The YJ-18 uses subsonic flight and then speeds up to supersonic flight shortly before striking a ship. It could not be learned if the YJ-18C is subsonic throughout its flight. One official called it a land-attack cruise missile.

However, based on the YJ-18 similarity to the Club missile, Carlson estimates four of the missiles could be deployed in one shipping container.

A standard shipping container is 8 feet wide by 8.5 feet high by 20 feet or 40 feet.

R. Evan Ellis, a research professor at the U.S. Army War College, says that China’s military activities in Latin America and the Caribbean are extensive.

During a conflict, "China’s substantial commercial base, its access to ports, and its military-to-military contacts in the Caribbean might prove useful," Ellis told Radio Free Asia. "All of these add up to growing Chinese influence in a region located close to the U.S. as well as its most important Atlantic coast military facilities."

Adm. Craig Faller, commander of the Southern Command, warned that China is expanding in the South American region.

"In the future, China could use its control of deep water ports in the Western Hemisphere to enhance its global operational posture," Faller said. "Particularly concerning is China's effort to exert control over key infrastructure associated with the Panama Canal."

China's port in Jamaica will serve as a transshipment hub for Chinese container ships arriving through the Panama Canal.

In Panama, Chinese President Xi Jinping signed multiple cooperation agreements with the government there and the country's leader President Juan Carlos Varel has voiced support for China's

CHINA ANNOUNCES INDUCTION OF NEW LIGHT BATTLE TANK MEANT FOR TIBET BORDER

https://www.theweek.in/news/world/2018/12/29/china-induction-battle-tank-tibet.html

Vehicles of China's People's Liberation Army being deployed on an exercise in the Tibet Autonomous Region | China's Ministry of National Defense

China's Ministry of National Defense (MND) on Thursday revealed that its forces are being equipped with a new lightweight tank, the Type-15. The Type-15 tank, which was first unveiled to the public at an airshow in 2016, is meant for deployment in high-altitude regions like Tibet, on the disputed border with India.

The information was provided by Senior Colonel Wu Qian, spokesperson for the MND, in response to a question on the Type-15 tank.

The *South China Morning Post*, a Hong Kong-based daily, reported that Type-15 tank weighs less than 35 tonnes and has a 105mm main gun. While its firepower is inferior to the Indian Army's fleet of Russian-made T-72 and T-90 and indigenous Arjun tanks, the Type-15's lighter weight makes it more suitable for combat at higher altitudes than the heavier Indian tanks. The T-72 and T-90 tanks weigh approximately 44-50 tonnes, depending on their armour, while the Arjun tank weighs close to 60 tonnes.

The heavier and larger tanks would struggle to manoeuvre in mountainous regions. Moreover, the higher altitudes, and thinner air, in Tibet and regions like Doklam, also hamper the performance of the engines of tanks. The Type-15 is reported to be equipped with a newer diesel engine that is able to function in environments with thinner air levels.

Shortly after the Doklam standoff with China in 2017, The Indian Army started framing requirements for a new lightweight tank optimised for mountainous areas. The Indian Army had previously expressed interest in having lightweight tanks in the past decade, but there was little forward movement. The Indian Army has previously deployed T-72 units in areas near the China border.

IPMS/USA MEMBERSHIP FORM

IPMS No.: _____ Name: _____
If Renewing First Middle Last

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ E-mail: _____

Signature (required by P.O.) _____

Type of Membership ☐ Adult, 1 Year: $30 ☐ Adult, 2 Years: $58 ☐ Adult, 3 Years: $86

☐ Junior (Under 18 Years) $17 ☐ Family, 1 Year: $35 (Adult + $5, One Set Journals) How Many Cards? _____

☐ Canada & Mexico: $35 ☐ Other / Foreign: $38 (Surface) Checks must be drawn on a US bank or international money order

Payment Method: ☐ Check ☐ Money Order

Chapter Affiliation, (if any): _____

If Recommended by an IPMS Member, Please List His / Her Name and Member Number:

Name: _____ IPMS No.: _____

IPMS/USA
Join or Renew Online at: www.ipmsusa.org

PO Box 56023
St. Petersburg, FL 33732-6023