





Dr. Rachel Pawling  

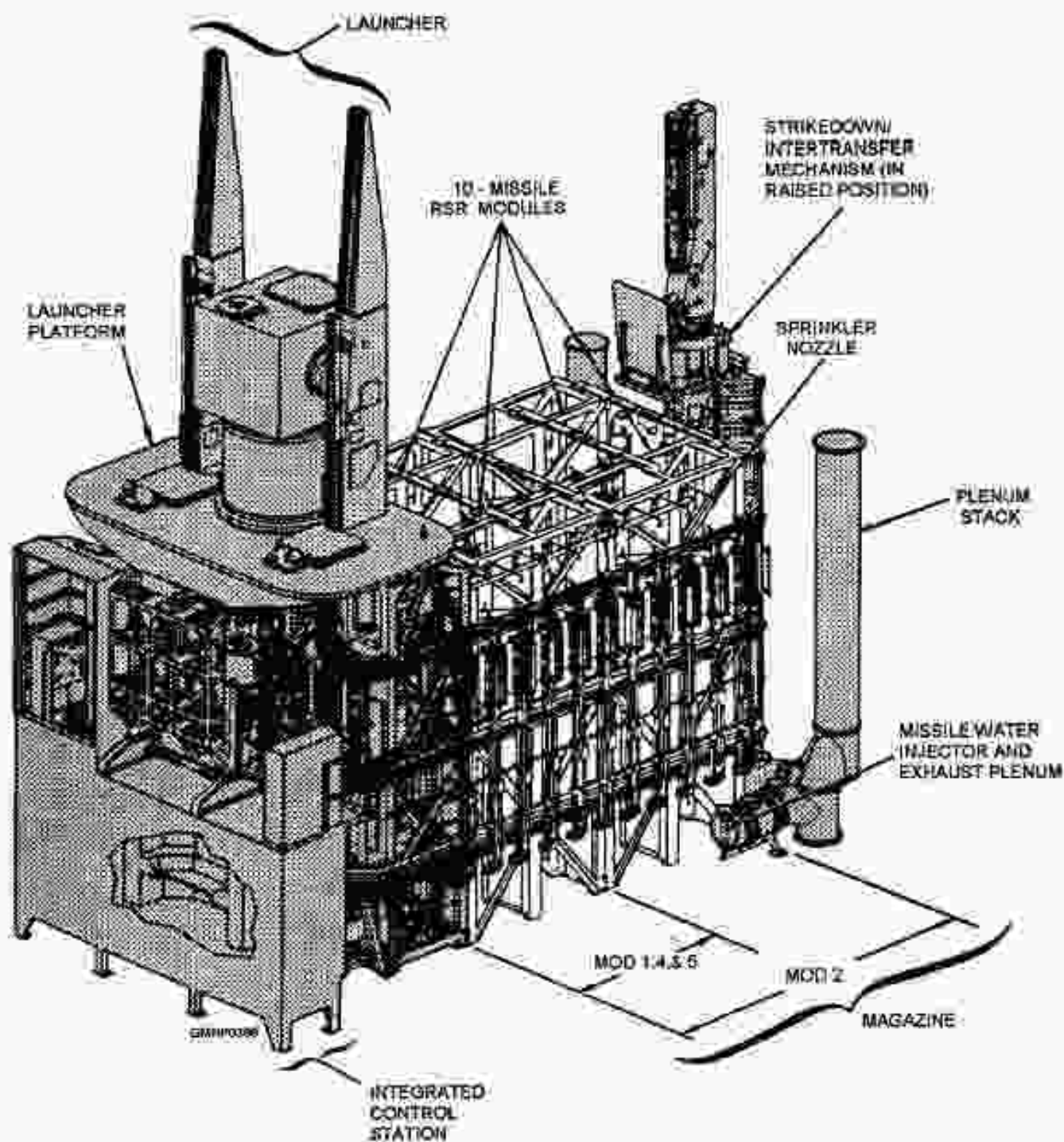
@R\_P\_one

13 Tweets • 2022-10-07 •  See on 

rattibha.com 

Thread on reloading VLS? Thread on reloading VLS.  
1/n

Trainable launchers could be loaded by either stuffing new rounds down the rails, or a separate built-in loader - the strikedown mechanism to the right of this USN image. Weapons would be brought aboard in travel containers and then fed into the below-decks machinery 2/n



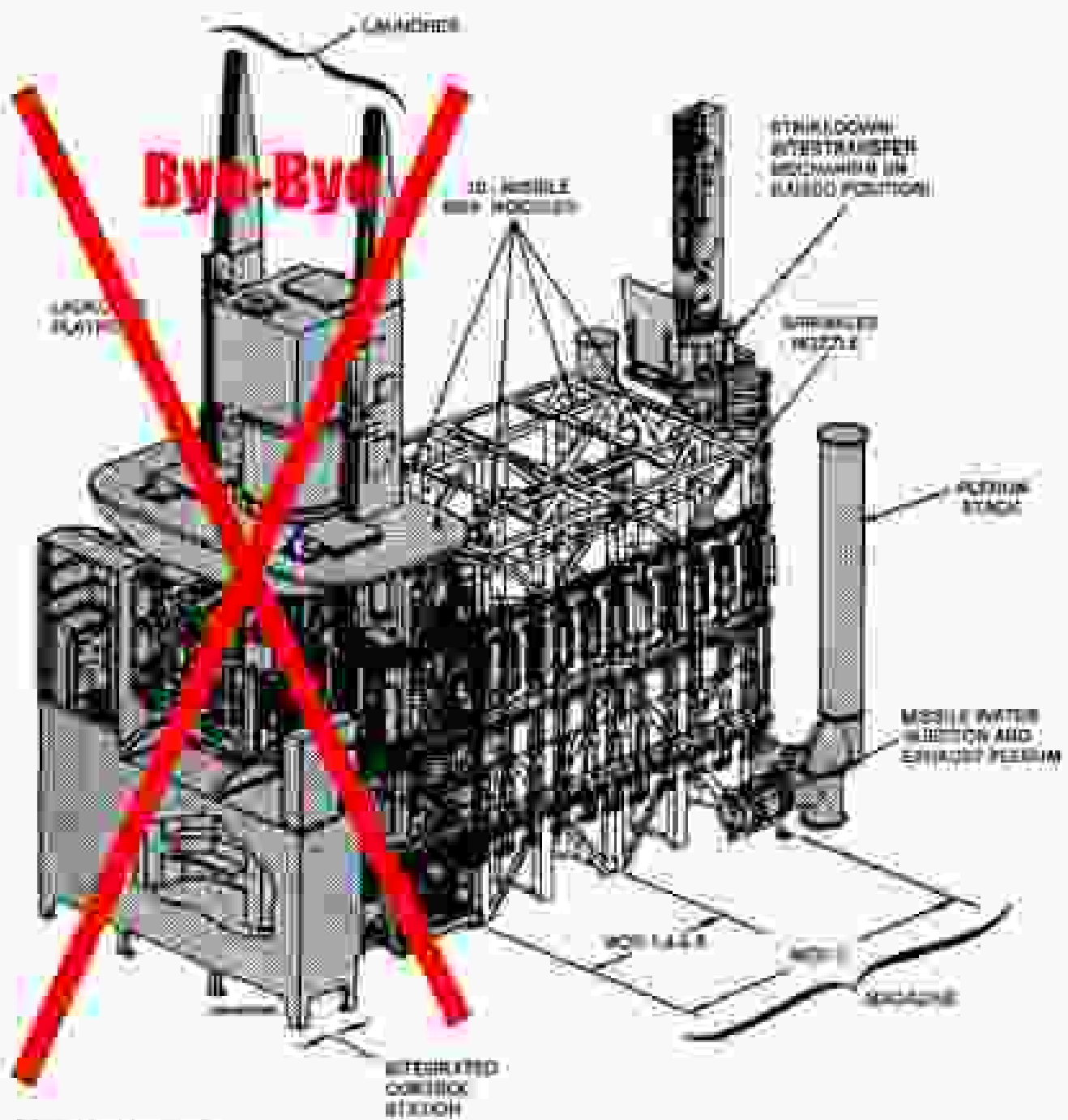

**BASIC SYSTEM**  
 (GMLS MK 26 MOD 0 & 3)

Whilst these containers are lighter than a launch cannister they are still hefty and this operation required a lot of people and calm seas - RN Type 42 reloading Sea Dart shown here via @NavyLookout .  
3/n



Switching to VLS increased magazine capacity by removing all the underdeck handling equipment - the missiles were usually stored vertically anyway. But in a Cold War scenario even these additional weapons would be used up fast - remember RSR "Dance of the Valkyries" 4/n

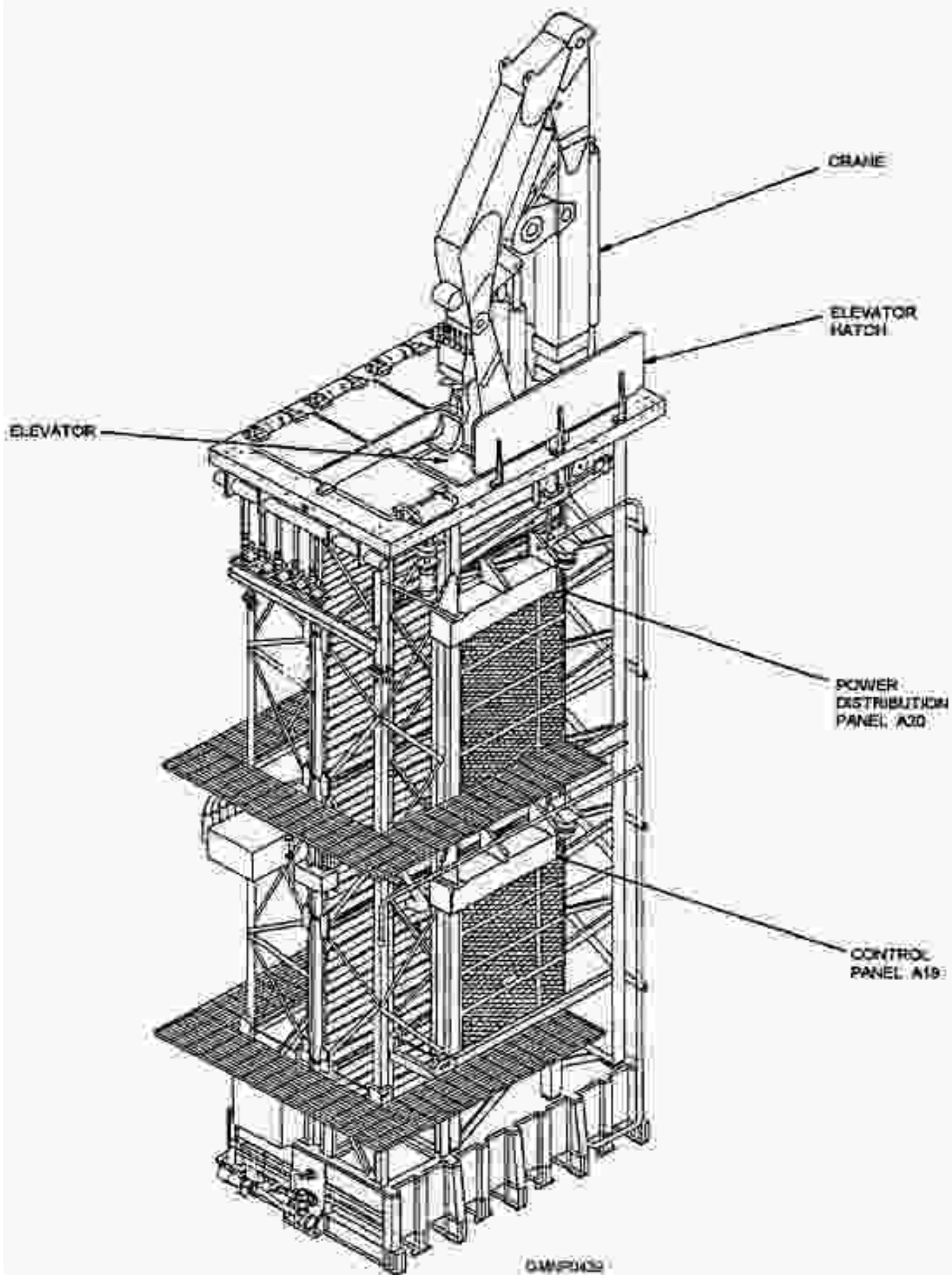
**Bye-Bye**



SAFETY SYSTEM (THIS IS A FICTITIOUS)

Enter this thing. A folding crane that fits in the space of 3 Mk41 VLS cells. As you can see it is... minimalist. It wasn't very popular and was removed. However, the requirement still remained, and the problem was that this was too... well too weedy. 5/n





It turns out that if you aren't constrained by having to fit in 3 cells, you can make a much better system, and this was developed and demonstrated in the '90s. 15 missiles / hour in sea state 5. (Which is credible for the machine itself) 6/n

*Underway Replenishment System Modernization*



*Figure 9. Team from Unrep ship maintains the VLS rearming device and operates it on the comitant VLS ship.*



*Figure 10. Rearming device is operationally checked out on the Unrep ship before transfer to VLS ship sliding padeye.*



*Figure 11. Rearming device is lowered at sliding padeye to a swing arm which rotates device to land it on three rails on top of MK 41. Device is connected to ship hydraulic power. VLS canister is transferred like the rearming device. Swing arm positions canister so device can pick it off with the two clamp arms.*



*Figure 12. Rearming device moves to position VLS canister over empty cell. Device tilts the canister vertical and canister is lowered into cell.*

Compared to how they're loaded on land that's an improvement (ASTER cannister shown here). But it turns out the loading machine isn't really the problem - it's things like where do you preposition the weapons? How many people to move them from the RAS position to the loader 6/n





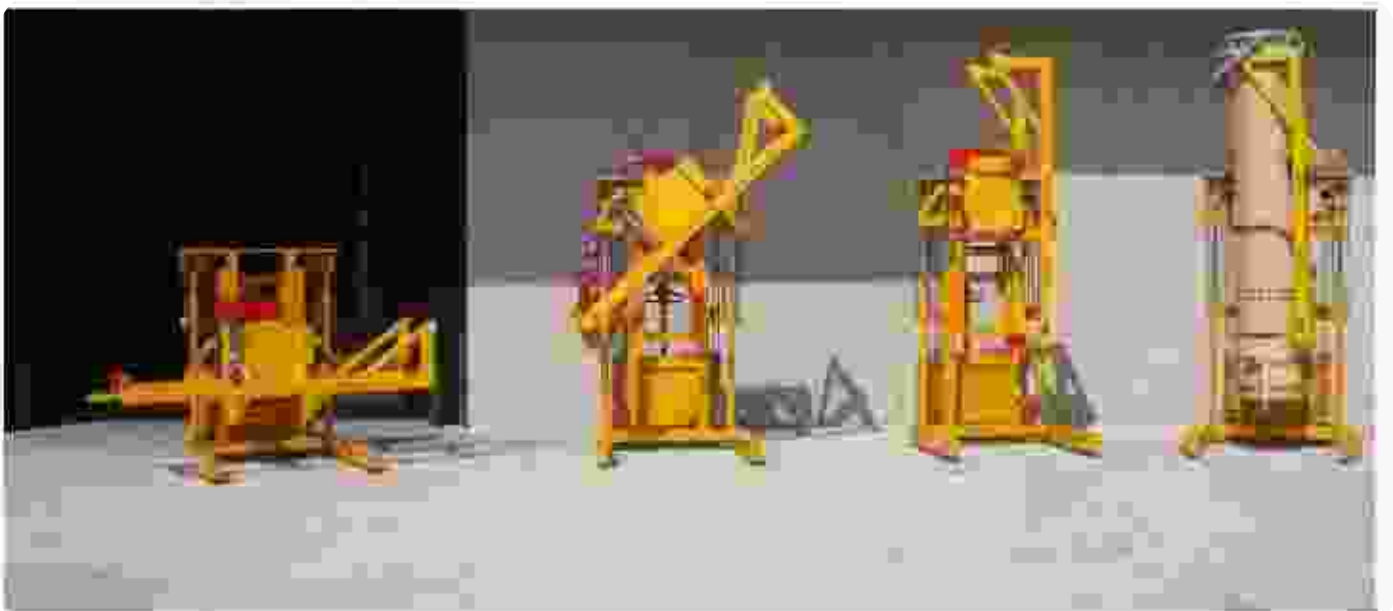
From a NATO heavy RAS perspective this is all do-able, but you need to design it into the ship from the start - even if you can retrofit the loader, what about the rest? BTW PLAN DD have a built-in loader crane and machine, but possibly only used alongside 7/n



That's what this thing is - the stowed loader. This was when they were still using their (simplified/sensible-fied) derivative of the bonkers Soviet launchers (that's another story for another time), which had something similar. 8/n

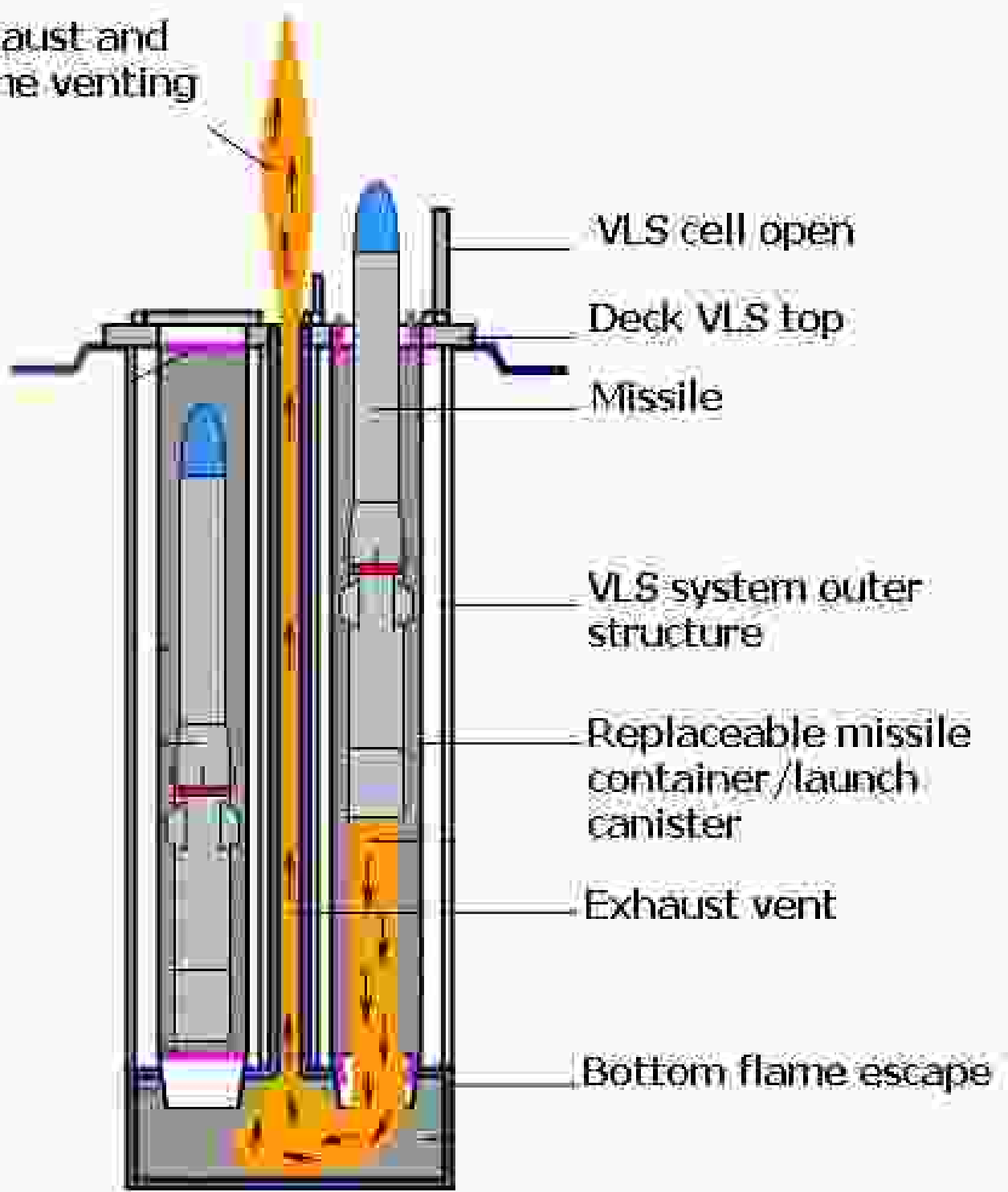


The RN also had Stanley Handling Ltd develop a reloader for VL SeaWolf (GWS-26) - a 1.9 tonne hydraulic "Cannister Rotation Unit". I don't know the operating limits for this - it may simply have been for supporting reloading alongside. Of course Mk41 has a complication... 9/n



MK41 uses "hot launch" - the booster fires in the tube - and important have a common exhaust plenum. It is thus "rather" important that the cannisters connect to the plenum. Sea Wolf, CAMM, HHQ-9 etc either use "soft launch" or have the plenum built into the cannister 10/n

Exhaust and  
flame venting



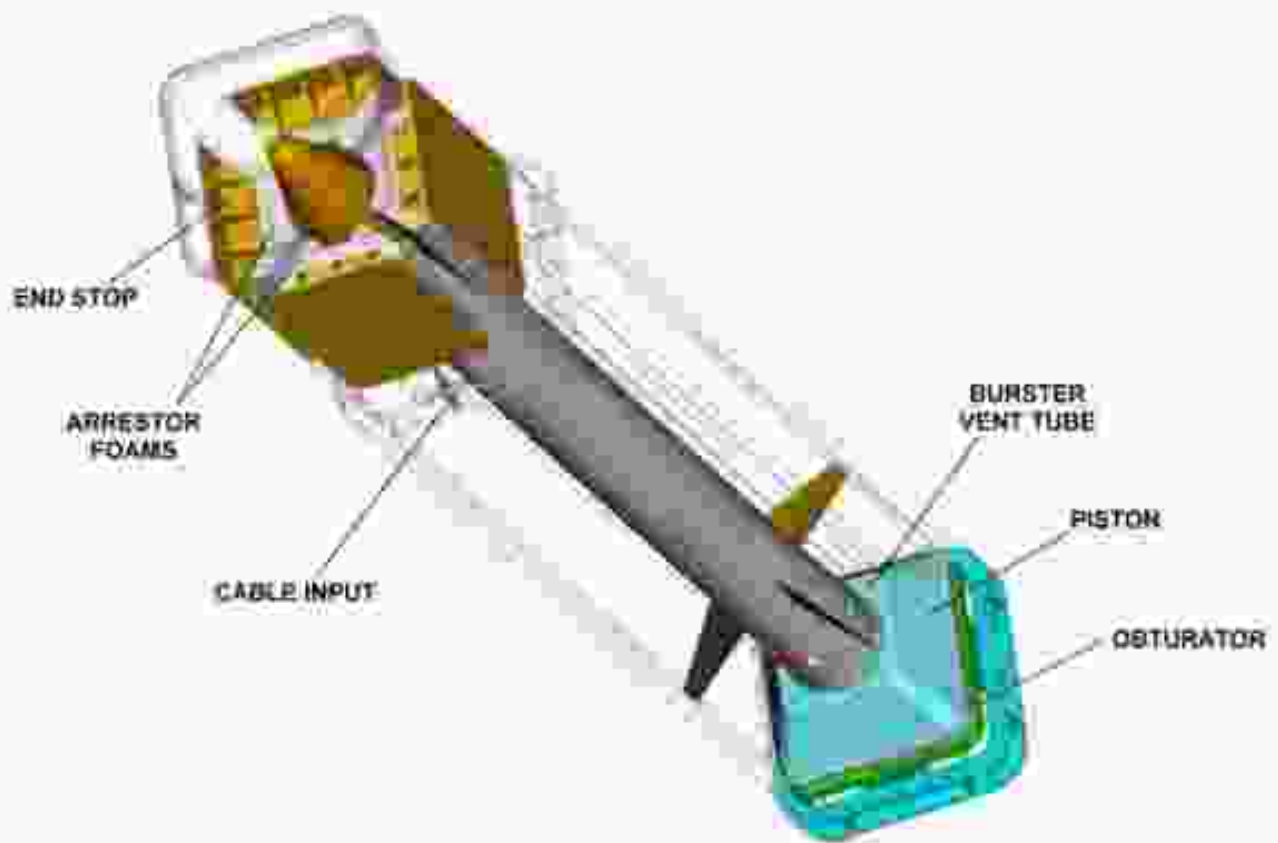


Figure 12 : SVL™ Phase 2 System Configuration



mobile anti-aircraft missile system



... to the defence of Army and Air Force installations.  
mobile

### Secret Filton

The Cold War period was a time of great  
development in guided weapons. BAC's Fleet Guided  
Missiles team worked together with colleagues at  
Hawesley to develop a series of missile systems to  
defend British bases. Both on land and at sea.  
Few people outside the Company would have known



South West Aviation  
Photographers  
© Kev Slade

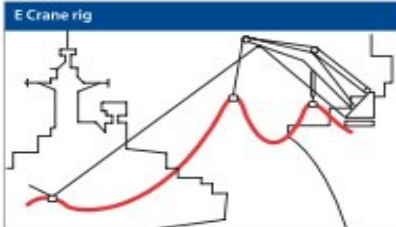
That should make them a bit more "plug and play" as the hot'n'spicy bit is either fully self container or outside the ship entirely. SO reloading VLS is at sea should be a "do-able" thing, particularly with RAS/UNREP unit size increasing BUT you need to accept two things: 11/n





1: space, weight, money - don't scrimp, because the sea is certainly generous with her punishment. 2: integrate - it needs to be something integrated with the design and built in, or limitations on the wider \*process\* will limit it. 12/end

# Fact Sheet

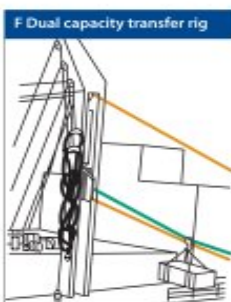


## E Crane rig

In this rig, a conventional shipboard crane is modified to include a refuelling rig arrangement. The hose is supported in two saddles, one rigged from the jib head and the other hung on a block and tackle positioned approximately at the jib midpoint. A separate recovery line is rigged to the receiving ship and this, together with the jib midpoint saddle line, are operated by independent winches, the crane hoist winch controlling the outer saddle line.

### Application

This rig is fitted to some tankers but is also carried aboard some large naval vessels such as aircraft carriers for transferring fuel to smaller units.

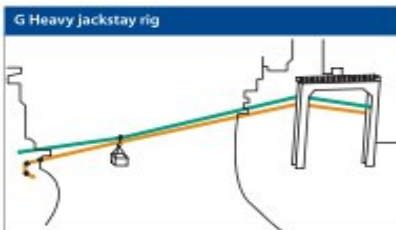


## F Dual capacity high performance transfer rig

This rig enables refuelling and solids transfer to be carried out independently from a single station, utilising a jackstay system similar in principle to units C and G with improved controls and winch units. This enables the rig to operate in worse sea conditions than existing designs, undertaking one-stop operations with appropriate liquids/solids support vessels such as the UK's AOR. For solids transfer, the elevating trolley drive incorporates a compensation system that prevents the load being pulled towards or away from the ship as it is lowered or raised. During the transfer and on the return, the load is under control of both an outhaul and an inhaul winch fitted on the supply ship. A variation on the system is to separate the rig into two single capacity rigs—for liquids or solids. Each incorporates the advances made during the development of the dual capacity rig.

### Application

The rig is intended for one-stop support vessels that carry both liquid and solids, and can transfer to all but the smallest vessels.



## G Heavy jackstay rig

This solids transfer rig comprises an auto-tensioning jackstay winch, an inhaul winch, an elevating trolley (padeye) drive, a travelling block and a fixed post. In operation, a load is attached to the travelling block at the stores ship's deck level. It is raised to a suitable transfer height by elevating the trolley in the fixed post structure, hauled across by the receiving ship and returned under control of the inhaul winch. During these operations, the auto-tensioning jackstay winch maintains tension between the two vessels, continuously adjusting for relative ship motion. A variation of this rig uses a downhaul to lower and raise the load as an alternative to the elevating trolley.

### Application

Used for solids transfer to vessels of frigate size and upwards.

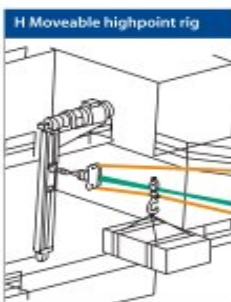
## H Moveable highpoint

Rolls-Royce has developed an easily installed moveable highpoint system for use aboard receiving vessels when they are being supplied with solids using the highline or jackstay methods. The system duplicates the function of the elevating trolley arrangement aboard the supply ship and enables the transferred load to be lowered to the vessel's deck for disconnection and stowage. An alternative method is to use a drop wheel arrangement as part of the travelling block in the heavy jackstay rig.

## Total spares and through-life support

Renowned as underway replenishment and specialist deck machinery equipment designers and manufacturers for over 100 years, Rolls-Royce is internationally recognised for providing innovative solutions for a wide range of applications.

Rolls-Royce has in place a team dedicated to providing effective and efficient through-life support, including highly skilled service engineers ready to fly the world to offer rapid response to customers' maintenance needs and requests for technical assistance.



And now I remember it was “Dance of the Vampires” I  
AM GOTH HOW DID I FORGET VAMPIRES?

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