





SECRET

4. Procurement. CBNS Washington are investigating three possible modes of procurement: lease, sale and return or purchase. Our strong preference is for lease as we would not wish to be committed at this stage to long term retention of Vulcan Phalanx. Speed is of the essence and we shall be exploring with the Americans whether the weapons might be released in advance of final settlement of the terms.

5. Costs. Detailed costs and associated timescales will be available following CBNS's response but broad order of magnitude for outright purchase based on an exchange rate of \$1.77 to £1 is as follows:

	\$M	£M
Two systems (including 12 months spares)	10.0	
Ammunition (12000 rounds at \$5 per round)	0.18	
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	10.18	5.75
Shipfitting		0.15
Contingency		1.15
		<hr/>
		7.05
VAT 15%		1.05
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	TOTAL	8.10

These costs are highly provisional, and we are not yet sure whether they cover such expenses as transport. Estimates of costs and timescales will be refined on Friday when the US Project Officer may be available in London for consultations.

6. Because the hire or procurement of new ordnance from the US is involved, the political aspects will require considerable care and discretion.

7. We need further information before forming a view on whether the risks and costs (including a substantial bill in foreign currency) are outweighed by the advantages. But meanwhile, I should be glad to have your approval to pursue the negotiations with the United States authorities. I propose to make a further submission to you when the issues have been clarified.

LSB

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BACKGROUND NOTE

1. Threat. In considering the likely threats set against UK forces by the ARA during OPERATION CORPORATE, the one posed by SSGW against the CVS assumes immediate and great importance: probably more so than the current threat in the EASTLANT area. This is because it is known that ARA destroyers and corvettes have been armed with the French MM38 EXOCET SSGW and that their Super Etendards may have the AM39, an air launched version of EXOCET. Both missiles present the same threat to the CVS and other units of the British Task Force in that the missiles are sea-skimmers with a radar active homing terminal phase. Because it is only Subsonic (MO.9), the missile is a difficult, but not an impossible target for SEADART. In the event of a co-ordinated ARA SSGW/ASGW attack the vulnerability of the CVS will be reduced by fitting CIWS.
2. CIWS Options: In considering CIWS options previous studies have examined three types of system: VULCAN PHALANX (UNITED STATES) GOALKEEPER (DUTCH) and SEAGUARD (SWISS). The need to provide one all round channel of fire has dictated the need for two CIWS units for the CVS. Indeed two units provide some degree of overlap on certain bearings. SEAGUARD and GOALKEEPER, having a heavier round of ammunition are able to cause missile destruction at typical ranges of 1800-800 metres as opposed to the 1000 to 60 metres of the 20 MM Phalanx round. However the SEAGUARD and GOALKEEPER Systems are not available in the CORPORATE timescale. VULCAN PHALANX is fitted widely in the USN and has been well proven by trials and is an effective system.
3. Operational Capability. The VULCAN PHALANX is an automatic, 3000 round/minute, 20 MM gun system with an integral search and track radar and closed loop spotting sub-system designed to operate totally independently of the ship AIO System.
4. The automatic search function is carried out against sea-skimming missiles up to an elevation of 5°.
5. Shipfitting. It is proposed that two systems be fitted to HMS ILLUSTRIOUS, one forward on the foc'sle and one on the flight deck on the stbd quarter. Both systems would be temporary fittings allowing for eventual return to the US or to store if it was subsequently deemed that the systems should be conserved for future use.
6. Training. This is a critical area. US practice uses a 3 month training package including six weeks in General Dynamics for maintainer and operator training and a further 3 weeks training on the ship installed system. Some of this training time could be reduced and installed system time could be included in setting to work time and work up firings.
7. Ammunition. The Vulcan Phalanx 20 MM ammunition is a 20 MM Armour-piercing discarding Sabot Tungsten Alloy type round. Each gun mount can take 1558 rounds which allows for up to 15 target engagements of 100 rounds per target. It is proposed to purchase 6000 rounds per system giving each system an average of 60 engagements. It is intended that 700 rounds per system should be used for installation, sea acceptance and practice firings. Reloading of magazines after engagements takes approximately 10 minutes.