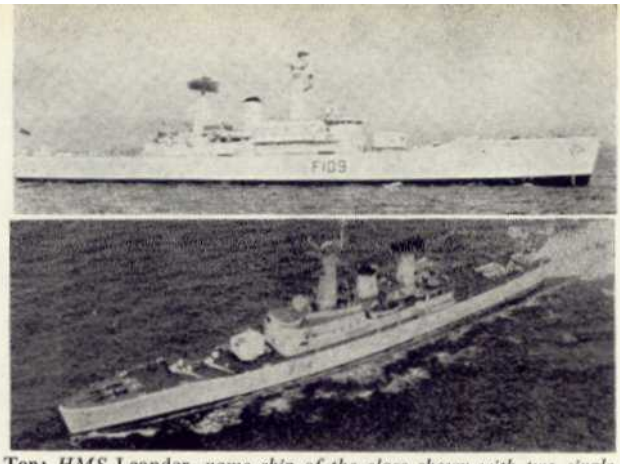
'Leander' class frigates

NOTES FOR THE NEW AIRFIX MODEL
BY PETER HODGES



Top: *HMS* Leander, *name ship of the class shown with two single Bofors guns on Bofors gun deck aft.* **Above:** *Top view of* Ajax *showing well for A/S mortar and ramp for VDS* (Pictures from 'Navy News' postcard series).

WHEN the building programme of the 'Daring' class was completed, it marked the end of an era, for these were the last warships of the conventional destroyer type to be built for the Royal Navy.

The ships which were to form what was heralded as 'Britain's New Navy' began to emerge in 1955, when the faithful 'maid-of-all-work' of the service, the destroyer, was replaced by a new-style frigate. The latter classification had itself been re-introduced during the second world war, and described an escort ship lying between the small corvette and the normal destroyer. The first to be so designated was the 'River' class, followed by the 'Lochs' and 'Bays': but after the war, all the existing corvettes and the 'Hunt' class escort destroyers—as well as the sloops—were re-classified as 'frigates', so that the original size-discrimination was lost.

The post-war frigate, however, was to be a much more powerful vessel, comparable to the Fleet Destroyer in speed and displacement but very differently armed, the most significant change being the total absence of conventional torpedo tubes.

Three distinct types were designed for anti-aircraft, anti-submarine and aircraft direction duties and they were allocated a type number accordingly. All A/S ships were in the 10 series; A/A ships were in the 40s; and the A/Ds in the 60s. Thus, the new A/S Frigates became Type 12 (joining existing ships of the Type 14, 15, and 16 groups) and the others Type 41 and 61, respectively.

All three types of new construction vessels had a basically similar hull, identified by a weatherly bow, a high fo'csle and a sloping deck leading to a gun-deck forward of the bridge; but while the A/S ships were given twin-shaft steam turbines, both the A/A and the A/D groups had diesel propulsion.

Forward, all three had a similar fire control system with its associated Director controlling a totally enclosed twin 4.5 inch DP gun mounting of the same basic type as that carried in the 'Daring' class. The remaining armament depended on the special function of the ship: the Type 12s had two 'staggered' 3-barrelled A/S mortars; the Type 41s, a second twin 4.5 inch in 'X' position; and the Type 61s, extra early warning radars. All supplemented these with a fully automatic STAAG twin Bofors—either amidships (in the case of the Type 41s) or in 'X' position (in the case of the others). In addition, the non-A/S types had a single 'Squid' mortar to give them some anti-submarine capabilities.

The 'Whitby' class Type 12s were by far the most successful and were extended on to a second run of ships—the 'Rothesay' class—which ended when *Lowestoft* was launched in June 1960. The Type 12s found favour in the Commonwealth, too. Australia built four in her own yards; South Africa ordered three; and India and New Zealand, two each. India also ordered three of the A/A ships and named them *Beas, Betwa* and *Brahmaputra* after three of her rivers.

During the overall building programme it became clear that the re-equipment of the Fleet with ships designed for specific duties would prove very costly and a decision was made to produce a General Purpose Frigate which could fulfil all the functions of the 12, 41 and 61 Types.

This resulted in the 'Tribal' class, or Type 81 Frigate—to give them their GP group designation.

These vessels—seven were launched between 1959 and 1962—were totally different from the earlier types in almost every respect. Their conventional hulls were reminiscent of the American destroyer in having no 'break-of-the-fo'csle'; they mounted two single 4.5 inch guns in 'A' and 'Y' positions controlled by a different fire control system; they had only one triple-barrel A/S mortar; and were propelled by a combined steam and gas turbine installation on one shaft. Additional flexibility was gained by providing a helicopter, housed in a hangar sandwiched between 'Y' gun and the A/S mortar. The aircraft lift formed the flight deck in the upper position.

The Type 81 Frigates had certain limitations in design, notably in the open aspect of the gun mountings and in the rather cramped Hangar/Flight Deck arrangements, but the 'General Purpose' concept promised better value for money. The principle was extended to a new class known as the 'Leanders', all named after classical characters of mythology whose names had been adopted by the old sailing frigates and also by several classes of pre-war light cruisers. The tidy minded will no doubt spot a bogey in *Cleopatra* who, from all accounts, was far from imaginary!

The new 'Leanders' reverted to the basic 'Whitby' style hull—in fact *Ajax, Dido,* and *Leander* herself were laid down as 'Rothesay' class ships; and *Penelope* was to have been the fifth A/D. Like the Type 12 they have a twin 4.5 inch in 'A' position but then combine all the special attributes of the earlier 'specialised' frigates.

Thus they have, in the 'fully-fitted' state:

(a) A 'bedstead' early warning radar on the mainmast.
(b) A triple-barrel A/S mortar.
(c) A Wasp helicopter;
and in addition:
(d) A Seacat guided weapon system aft.
(e) A variable depth sonar.
(f) The most modern radio and radar equipment.
(g) The latest gunnery fire control.
(h) Power operated hydraulic boat davits.
(i) Extensive internal air conditioning.

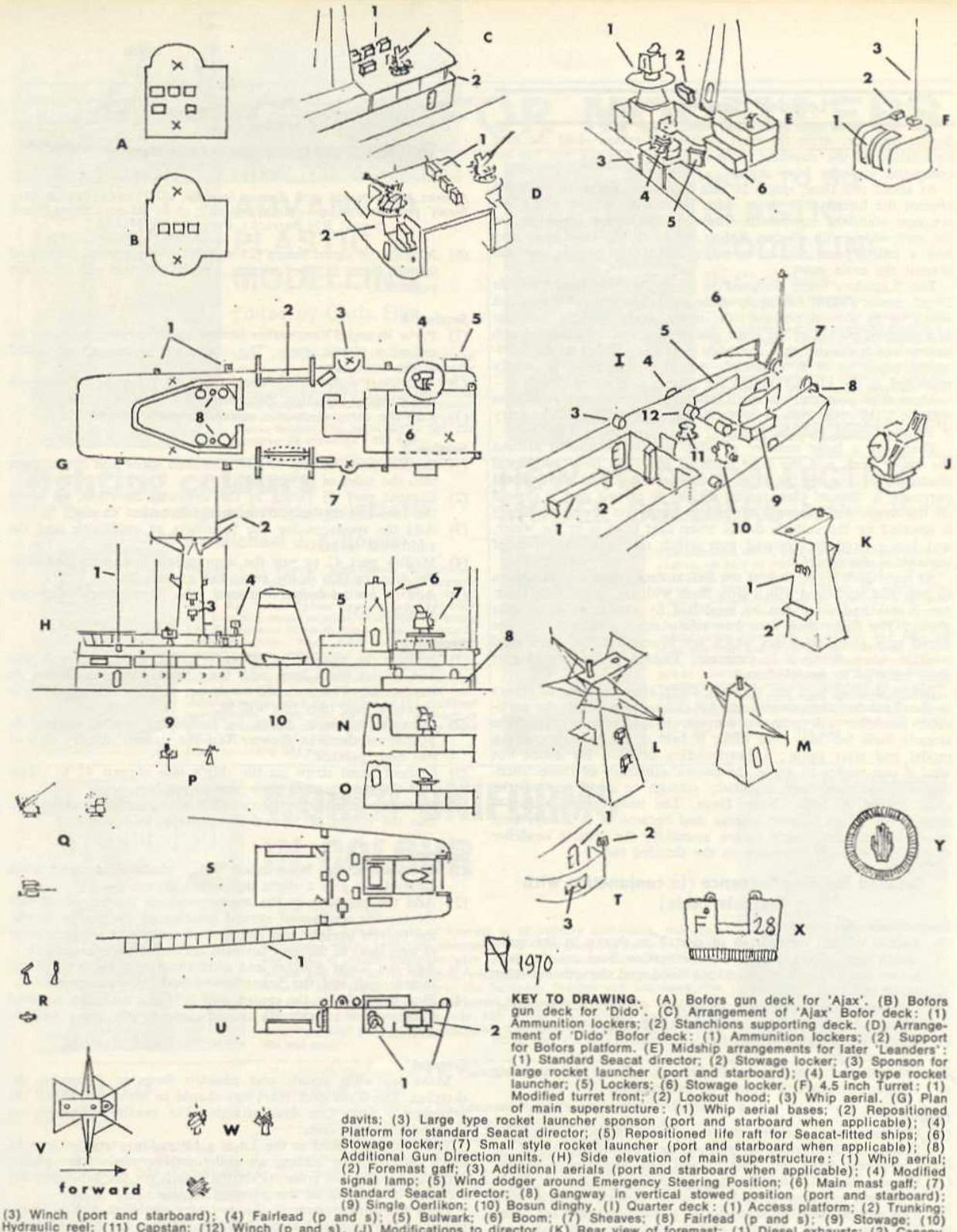
These eminently seaworthy vessels are acknowledged as the finest of their type in the world and have already been built for both the Dutch and the New Zealand navies. When the building programme is complete, there will be 26 in the Royal Navy supplemented by the 'Rothesay' class which are being converted as far as possible to the same equipment standards. This involves the suppression of their forward A/S mortar and the building of a 'Leander-style' flight deck and hangar.

The lead ship—*Leander*—was launched from Messrs Harland and Wolff's yard in June 1961, and as one might imagine, there are a number of variants within a class whose building programme will extend over ten years. Examples of these appear in the appropriate table and all are easily adapted from the Airfix kit.

Armament differences and extra fittings

The most noticeable difference between the variants centres on the close-range armament. The first seven ships were fitted 'for but not with' the Seacat system and mounted two single 40 mm Bofors instead. *Naiad* followed but had an interim lightweight

Continued on page 122



KEY TO DRAWING. (A) Bofors gun deck for 'Ajax'. (B) Bofors gun deck for 'Dido'. (C) Arrangement of 'Ajax' Bofor deck: (1) Ammunition lockers; (2) Stanchions supporting deck. (D) Arrangement of 'Dido' Bofor deck: (1) Ammunition lockers; (2) Support for Bofors platform. (E) Midship arrangements for later 'Leanders': (1) Standard Seacat director; (2) Stowage locker; (3) Sponson for large rocket launcher (port and starboard); (4) Large type rocket launcher; (5) Lockers; (6) Stowage locker. (F) 4.5 inch Turret: (1) Modified turret front; (2) Lookout hood; (3) Whip aerial. (G) Plan of main superstructure: (1) Whip aerial bases; (2) Repositioned davits; (3) Large type rocket launcher sponson (port and starboard when applicable); (4) Platform for standard Seacat director; (5) Repositioned life raft for Seacat-fitted ships; (6) Stowage locker; (7) Small style rocket launcher (port and starboard when applicable); (8) Additional Gun Direction units. (H) Side elevation of main superstructure: (1) Whip aerial; (2) Foremast gaff; (3) Additional aerials (port and starboard when applicable); (4) Modified signal lamp; (5) Wind dodger around Emergency Steering Position; (6) Main mast gaff; (7) Standard Seacat director; (8) Gangway in vertical stowed position (port and starboard); (9) Single Oerlikon; (10) Bosun dinghy. (I) Quarter deck: (1) Access platform; (2) Trunking; (3) Winch (port and starboard); (4) Fairlead (p and s); (5) Bulwark; (6) Boom; (7) Sheaves; (8) Fairlead (p and s); (9) Stowage; (10) Hydraulic reel; (11) Capstan; (12) Winch (p and s). (J) Modifications to director. (K) Rear view of foremast: (1) Diesel exhausts; (2) Canopy. (L) Front view of foremast. (M) General view of mainmast. (N) Seacat deck for 'Arethusa' only. (O) Seacat deck for 'Naiad' only. (P) Single Oerlikon. (Q) Single Bofors. (R) Small type rocket launcher. (S) Plan of quarter deck showing additional fittings: (1) Safety net in horizontal position. (T) Bridge wings: (1) Screen door; (2) Signal lamp; (3) Navigation lamp pocket. (U) Section through mortar well and Sonar pocket: (1) Reel; (2) Sonar body. (V) Plan of foremast yards and struts. (W) Large type rocket launcher. (X) Position of pendant numbers for ships with two-figure numbers. (Y) 'Hand of Ulster'—red circle and red hand on white disc.

Note: The following drawings are to 1 : 600 scale: A, B, G, H, N, O, P, Q, R, S, U, V, W.

Seacat director, while the next in line—*Arethusa*—had the first installation of the standard radar-controlled director but low-set compared with the later ships.

At about this time, single 20 mm Oerlikons began to be fitted abreast the foremast in those ships fitted with Seacat, and these are now standard equipment. They are not fitted, however, on the early ships with 40 mm Bofors. Most of the class have also had a multi-barrel rocket launcher added on a new sponson abreast the main mast.

The 'Leanders' were designed to carry the overstern Variable Depth Sonar (VDS) but again some ships are fitted 'for but not with'. In its stowed position, the towed body rests in a cradle in a recessed pocket of the stern and is launched by a pantograph gantry which ensures that the body remains parallel to the horizontal plane as it is extended. All this equipment is poorly modelled in the kit but details are shown in the drawings.

Most ships now carry a small inflatable assault craft and those without VDS often stow it in the Sonar pocket. The others carry it on the Seacat launcher deck.

There are a large number of whip aerials positioned around the upper deck and the later units of the class have additional electronic devices on the sides of the foremast. For recreational purposes, a 'Bosun' class sailing dinghy is carried and is stowed on the upper deck beneath the motor cutter on the port side. It is lowered by the cutter's davits when that boat is in the water, and has a brightly coloured hull which makes a nice spot of contrast in the model.

At main deck level, abreast the Seacat deck, there are gangways to port and starboard which stow flush with the guard rails when not in use and these can be modelled by simple strips of thin plastic. The flight deck area has safety nets combined with the guard rails along its edges which are lowered to the horizontal position when flying is in progress. 'Fishnet' nylon stocking is ideal material to model these.

Before dealing with the variants, there are a number of errors in the 'Leander' components and kit instructions which the particular modeller will wish to correct. Indeed, those who have already built her may well think it best to scrap their existing model and start again; a heartrending decision no doubt but vital if one wishes to avoid the caustic comment of those 'shellbacks' who have been fortunate enough to visit one of the class during, perhaps, Navy Days. The most glaring error—literally—is in the colour scheme and because it is always best to paint individual items before assembly, the critical modeller should make timely reference to the detailed list.

Detailed Building Sequence (in conjunction with Variants Table)

Instructions—Section 1

(1) Radius off the centre web of part 2 as shown in the scrap sketch and add a second square section boss on the gunhouse roof. One is the look-out hood and the other a whip aerial base.
(2) Cut out access doors into the mortar well and VDS pocket. A good effect is obtained if these are left 'open'.
(3) Add a hatch-cover (3 mm side) immediately abaft turret on the centre line.
(4) Cut off the upper part of the jackstaff (11). A separate wooden replacement should be added later.

Section 3

(1) Cut an access between the two signal lamps (29 and 30) leading to the projecting platform in front of the funnel.
(2) Cut access doors into part 22 and add portholes as shown.
(3) Discard parts 27 and 28: they are incorrect as single Oerlikons and are poor replicas of single Bofors. Replace them with repositioned Oerlikons to the pattern and plug the holes.
(4) The fire control director (26) is incorrect and has been moulded as a sort of mirror image of the prototype. Rebuild it as shown.
(5) Cut tiny slots in parts 23 and 24 to represent the navigation lights.

Above: *HMS* Naiad *with Seacat launcher aft* (Picture from 'Navy News' postcard series—prints available at 1s 6d each from 'Navy News', RN Barracks, Portsmouth, Hants).

(6) Modify the signal lamps (29 and 30) to the correct shape and mount them in the extreme corners of the gun direction position.

Section 4

(1) Parts 36 and 37 are rather lumpy and are better replaced by extended plastic sprue. The additional struts can be added at the same time.
(2) Add short stubs on the deck abaft the foremast to represent the gunnery direction instruments.
(3) Add the extra electronic aerials on parts 31 and 32.

Section 5

(1) Replace parts 46 and 47 with extended sprue and cut accesses into the sides of 43 and 44.
(2) Cement part 45 facing in the opposite direction, or along the fore-and-aft line, if the model is to be 'at sea'.
(3) Add the sponsons for the launchers as applicable and the additional lockers.
(4) Modify part 42 to suit the appropriate armament and alter the director (49) in the same way as part 26.
(5) Add a wind-dodger around the Emergency Conning Position (41).

Section 6

(1) Reduce the number of life-rafts (56) by one on each side and mount them level with the bridge wings, as shown on the box lid. There should be six per side but the moulding is overscale and only five will fit.
(2) Connect the boat davits by horizontal shafts, having repositioned them as shown. Add the 'Bosun' dinghy after it has been painted.
(3) Cement small strips on the ship's side abreast 42 to represent the gangways in their stowed position.
(4) Reposition the single life-raft (59) as applicable, making sure that the height of 58 and 59 conforms to 1 above.

Section 7

(1) Thin down the Wasp main rotor blades and bend them carefully to give a slight downward droop.
(2) Add the gangway in the mortar well on the starboard side (Note: the ceremonial stowed position of the mortar is with the barrels upright and angled forward); add a hatch cover (3 mm side) in the port forward corner of the mortar well.
(3) Add the Sonar winches and after capstan in the area of the mortar well and the Sonar towed body beneath part 67.
(4) Plug the hole for the ensign staff (69) and make up a tripod (similar to the jackstaff) located close to the Sonar well, as shown.

General

Make up whip aerials and position them as shown in the sketches. The flight deck markings should be symmetrical and the athwartship white line dead straight. The existing transfers can be modified with care.

The Wasp provided in the kit is a bit rudimentary but can be much improved by adding an undercarriage made from plastic sprue and a tiny tail rotor. (Painting details for the helicopter are included at the end of the painting scheme.)

Omit the hangar door if this is to be modelled in the 'open' position. The internal hangar deck should then be the same dark grey as the flight deck and the interior of the hangar, white.

To depict 'Flying Stations', leave a 3 mm gap at the foot of the 'roller shutter' type hangar door; arrange the safety nets in

Continued on page 147

'Leander' Class—from page 122

the horizontal position (drawing S) and also the (hinged) whip aerials in the after corners of the Seacat deck.

The 'stowed' positions for the armament are as follows:

(1) 4.5 inch turret—fore-and-aft at 5 degrees elevation; 4.5 inch director—fore-and-aft; Oerlikons—barrels outboard at zero elevation; rocket launchers—outboard; Bofors—trained aft at 30 degrees elevation; Seacat director—facing aft (in harbour), forward (at sea); Seacat launcher—upright as modelled or facing aft at 45 degrees elevation;; A/S mortar—upright and angled forward (ceremonial), 45 degrees to port and angled aft ('Flying Stations'). Note: the horizontal position in the kit instructions is the 'Load' position.

(2) Flags and Ensign. Union Flag—on jackstaff, in harbour only or ceremonial occasion at sea. At sea, the jackstaff is removed and its tripod collapsed. White Ensign—on ensign staff aft, in harbour and entering harbour; staff removed at 'Flying Stations', and Ensign flown from foremast gaff (usual position at sea).

(3) Draught marks. Vertically upwards from the stem to 4 mm below the anchors; above propeller shaft glands and above propellers to 4 mm below deck edge.

(4) Inflatable Assault Craft. One of these is carried occasionally and is best modelled by using a Carley Float from the spare parts box.

Painting scheme

Light grey	All superstructure unless otherwise detailed—including the anchors! (Note: paint the 'rim' of the two hull sections before cementing the deck (4) in position, to give 4 the correct grey border.); breakwaters, hatches and deck ventilators; all lockers and fittings.
Green	All decks, including bridge roof, mortar well and Sonar pocket *except* the Flight Deck; starboard navigation light.
Dark grey	Flight Deck from after hangar bulkhead to forward edge of mortar well.
White	Bollards and fairleads on deck edge; cable hawseholes and cable-holders on fo'csle; cables; wind dodger on ECP; life-rafts; after capstan; main topmast and aerial (34); Radar reflectors on directors; jackstaff and ensign staff tripods; draught marks on boot topping, 'Bosun' deck; Flight Deck safety nets.
Black	Funnel top; boot topping (1.5 mm wide); 4.5 inch gun barrels; other gun barrels (if fitted); after face of foremast, above funnel level; forward face of foremast in line with lower Radar aerial; Radar aerial (33); signal lamps; inflatable assault craft (if fitted); bridge windows; deck plates beneath anchor cables; draught marks above boot topping.
Red	Seacat missiles; port navigation lamp; bases of whip aerials abreast funnel; 'Bosun' dinghy hull.
Yellow	Sonar towed body; Seacat launcher centre boss; tips of main rotors.
Brick red	Hull below boot topping; fo'csle, forward of cable-holders (optional).
Silver	Muzzles of 4.5 inch guns; forward edge of 4.5 inch mantlet plates.
Bronze	Propellers; muzzles of mortar barrels; tips of Jack and Ensign staffs.
Wasp helicopter	Overall dark blue; grey main rotor blades; white dots on nose to represent squadron number; small white circle on fuselage side with red dot to represent roundel; black landing wheels; white dots on tail boom to represent 'Royal Navy' marking.
Boats	Above waterline—any colour except green (reserved for Cs-in-C). Below waterline—white. Decks and canopies—'varnished wood' effect, or white. Note: 'Bosun' hull can be any colour—including green—but red provides the best contrast effect.

CLASS LIST IN ALPHABETICAL ORDER

Name	Pendant No.	Name	Pendant No.
Achilles	12	Euryalus	15 (B)
Ajax	114 (B)	Galatea	18 (B)
Andromeda	57	Hermione	58
Arethusa	38	Juno	52
Argonaut	56	Jupiter	60
Aurora	10 (B)	Leander	109 (B)
Bacchante	69	Minerva	45
Cleopatra	28	Naiad	39
Charybdis	75	Phoebe	42
Diomede	16	Penelope	127 (B)
Danae	47	Scylla	71
Dido	104 (B)	Sirius	40

NOTES: (1) Two further ships are building on the Clyde. (2) (B) indicates ships fitted with Bofors in lieu of Seacat. (3) All pendant numbers have flag F superior. (4) It will be noticed from the above that *Leander* is in the 'Bofors-fitted' group and should not, therefore, be modelled with either the Seacat launcher or its director.