G.1.0 APPENDIX G - AIR SEA/LAND DELIVERY MISSION AREAS, DESCRIPTION OF CURRENT SYSTEM OR SITUATION

The Air Delivery Mission Elements addressed in this appendix include, Airdrop, Air Landed, Air Movement, and Air Supply.

Airdrop includes the unloading of personnel or materiel from aircraft in-flight.

Air Landed passenger (PAX) or cargo delivery is movement by air, then disembarked or unloaded, after the aircraft has landed or while a helicopter is hovering.

Air Movement involves the air transport of units, personnel, supplies, equipment.

Air Supply is the delivery of cargo by airdrop or air landing.

Collectively, these missions would normally be referred to as Logistics Support, Combat Logistics Support, or Fleet Logistics Support. Common use Navy terminology when performing Fleet Logistics Support includes Vertical Onboard Delivery (VOD), Carrier Onboard Delivery (COD), and Vertical Replenishment (VERTREP). VOD is accomplished by vertical flight capable aircraft while COD is accomplished by fixed wing aircraft. VERTREP is accomplished by vertical flight capable aircraft by moving pallets of material from one ship to another.

When performing Logistics Support, tasks include the transfer of personnel and material from ships to shore locations in an environment where a shore site is being established and being supported from the sea. Combat Logistics Support tasks are similar but performed in a hostile or potentially hostile environment. Fleet Logistics Support tasks include the movement of personnel or material between ships in company and to and from shore locations, pickup and distribution of mail or spare parts within the ships in company, and medical evacuation of personnel to shore or ships with the necessary medical resources.

Units performing the Air Delivery mission consist of squadrons operating the MH-53, CH-46, and C-2 aircraft. These squadrons normally deploy detachments consisting of two aircraft to various theaters of operations. Therefore, a CH-46 squadron with a programmed asset allocation of 14 aircraft could have as many as 6 detachments deployed while still maintaining operations at the homeport. While Air Delivery is considered a secondary mission for SH-60 and H-3 aircraft, lack of availability of dedicated Air Delivery platforms often results in this mission becoming primary for SH-60s and available H-3's deployed within the theater of operations.

C-2 and CH-53 detachments will deploy to air stations in theater. CH-46 detachments may be deployed to air stations, on board ammunition and oiler ships or fast supply ships, onboard the carrier in a Carrier Battle Group (CVBG) or on amphibious assault ships (collectively called L-Class Ships) as part of an Amphibious Ready Group (ARG). SH-60B aircraft are deployed throughout CVBGs and ARGs on aviation capable destroyers, frigates and cruisers. SH-60F and HH-60 aircraft deploy onboard the carriers.

The following sections discuss the current mission planning process, deficiencies and limitations, and concepts for a new or modified approach for these mission elements.

G.1.1 TASKING

Operations from homeport include missions such as ammunition offloads and on-loads for ships returning or departing on deployment, support of CVBG or ARG training operations through transfer of personnel and material, Special Operations training evolutions, medical evacuations and Very Important Person (VIP) transfers. When operating from homeport, all tasking for Air Delivery missions is coordinated through the functional wing. There are monthly planning conferences to highlight upcoming events followed by 24 hour advance tasking communications from the wing. VIP transfers usually are tasked with at least a half day lead time while medical evacuations can be executed with as little as one hour notice.

When deployed, monthly forecasts for tasking are still provided. Twenty-four hour advance tasking is provided by overhead messages. The overhead messages can come from several sources. When deployed onboard AOEs or AFSs and independently steaming, tasking is received from the Task Force Commander (e.i. CTF 63 or CTF 53). When deployed shipboard and steaming as part of a CVBG or ARG, overhead message tasking is received from the Battle Group Commander or the Amphibious Squadron Commander as appropriate. Daily flight schedules are developed from the overhead messages.

G.1.2 PLANNING

Route planning is dictated by the position of the ship or ships where delivery or pick-up of material or personnel is to be accomplished. Sources for ships' positions include information contained in the overhead message, intentions described in operational plans and orders, or positions provided by own ship's Combat Information Center (CIC). Threat information for Combat Logistics Support missions is also available in CIC.

Fuel planning for vertical flight aircraft usually is calculated to determine hours of flight time available. The order of ships visited ("hits") will be based on being overhead a refueling capable ship prior to reaching a minimum level of fuel. For fixed wing aircraft, fuel planning is based on the route and distance to the delivery point.

Take-off performance, gross weight considerations, catapult and field asymmetrical wind restrictions contained in the appropriate Naval Air Training and Operating Procedures Standardization (NATOPS) manuals apply to the Air Delivery mission area. Fixed wing aircraft require preflight weight and balance calculations. In general, helicopter aircraft calculate weight and balance for representative loads every 90 days. The helicopter cargo space is not sufficiently large enough for weight and balance to be a flight to flight factor. For all aircraft trades between fuel onboard and payload available must be calculated. For vertical flight aircraft, power available versus power required calculations, based on pressure altitude and density altitude, are required to determine maximum gross weight capability.

Contingency divert planning requires the generation of route data including time, distance, heading, fuel required, best cruise and best holding information based on NATOPS performance data. Because this mission primarily serves forces forward deployed, a full set of information on foreign airfields, International Convention of Aeronautical Organizations (ICAO) air routes and the generation of ICAO flight plans is required.

Terminal procedure planning requirements include NATOPS landing gross weight considerations, landing roll-out calculations, asymmetrical cross wind limitations, maximum trap weight considerations and fuel reserve considerations. Additionally, for fixed wing aircraft, preflight mission planning and preparation must be devoted again to weight and balance for arrested landings and particular attention paid to the potential for cargo to shift, adversely affecting aircraft handling characteristics.

Weather data to support preflight mission planning is available from the Meteorologic and Oceanographic (METOC) office when onboard a CV or LHA/LHD. When deployed on AOEs and AFSs steaming as part of a CVBG or ARG, current conditions and aviation forecasts can be obtained by radio, electronic emission control (EMCON) condition permitting. When steaming independently, aviation quality weather information is not available.

Preflight planning in the above areas is currently accomplished using hard copy manuals, paper charts, pens, pencils, scratch paper and personally owned hand-held calculators.

G.2.0 JUSTIFICATION FOR AND NATURE OF CHANGES

The following list of deficiencies with the current mission planning system assumes that Navy Portable Flight Planning Software (N-PFPS) is available to aircrew performing the Air Delivery mission.

a. Lack of certified electronic NATOPS performance data allowing automated calculation of fuel consumption in all flight regimes, power available versus power required for various gross weights, take-off and landing distances, single engine performance limitations, etc.
b. Lack of automated weight and balance calculations.
c. Lack of ability to overlay validated threat data on planning screen.
d. Lack of access to aviation weather information in all deployment environments.
e. Lack of information of current target ships' positions prior to launch.
f. Lack of ability to display non-National Imagery Mapping Agency (NIMA) maps and charts when conducting operations where full range of NIMA products does not exist.
g. Lack of automated calculations for Air Drop mission.
h. Lack of ability to overlay current or forecast weather on the planning screen.

G.3.0 CONCEPT FOR NEW OR MODIFIED SYSTEM

The objective mission planning system to support Air Delivery missions should provide the capability to conduct all mission planning at a single workstation. When deployed onboard a Local Area Network (LAN) equipped ship, the workstation should be connected to the LAN allowing the electronic transfer of mission planning information from ship systems to the mission planning workstation. Information required to plan Air Delivery missions includes:

i. Mapping, Charting, Geodesy, and Imagery (MCG&I) information for world-wide operations including NIMA and National Oceanographic Survey products (e.g. digital land and nautical charts).

j. Digital Aeronautical Flight Information File (DAFIF) information for all US and overseas locations.
k. Current and forecast weather.
l. Location of all pick-up and delivery points.
m. Cargo description at each pick-up point.
n. Validated threat data.
o. The system must allow the manual input of available data when operated in a non-LAN environment.
p. The system should be able to be transported in the aircraft for mission planning to be conducted at remote locations in a stand-alone mode. It should be able to accept and retain a subset of the above information tailored to support the remote environment and allow manual entry of new information.
q. In addition to calculating fuel required to fly a route, the system should provide a tool to calculate all NATOPS required take-off, landing and hover (in and out of ground effect) calculations at any waypoint desired.
r. When conducting Fleet Logistics Support missions providing Air Delivery to ships underway, the system should provide a means of predicting the position of all pick-up and delivery points (waypoints) based on course, speed and planned time enroute. The user should also be able to assign attributes to waypoints to indicate significant capabilities such as refueling capability. The system should be able to provide a most efficient order for making the pick-ups and deliveries considering fuel and refueling capable ships. The user should also be able to assign an order of priority to the waypoints.
s. The system should provide the capability to print kneeboard cards designed by the user.
t. The system should provide the capability to print cockpit quality charts in the scale and size desired by the user.

G.4.0 PLATFORM SPECIFIC INFORMATION

G.4.1 PLATFORM (E.G. CH-46) SH-60B

G.4.1.1 Description of Current System/Situation

Lack of internal cargo space and requirement to transport mail internally makes the SH-60B a poor mail delivery platform.

G.4.1.2 Deficiencies and Limitations of Current System or New requirements

There is often no attempt to provide logistics aircraft with an accurate volume of a move request. SH-60B aircraft are often assigned to missions that require numerous return trips because of their lack of cabin space.

G.4.1.3 Concept for New or Modified System

Mission Planners would be provided with the volume of a proposed movement that requires an internal carry, generally mail or passenger delivery, and be able to compare that volume with the internal lift capability of a specific platform. This capability would allow mission planners to assign the correct aircraft type to particular missions, or allow them to estimate the number of return trips that will be required for a platform to finish an assigned task. Sometimes it makes more sense to assign a SH-60B to a VERTREP evolution and send the CH-46 to the periphery with pax and mail, as the SH-60B rivals the CH-46 in VERTREP capability but doesn't come close in the pax/mail delivery capability.