

CHAPTER 2

CIC DISPLAYS

LEARNING OBJECTIVES

After you finish this chapter, you should be able to do the following:

1. Identify standard CIC displays.
2. Identify the standard CIC status boards.
3. State the various NTDS functions.

INTRODUCTION

Recall that the primary mission of CIC is to gather and process information. Once information is processed, it must be presented to its users. In CIC, most tactical and strategic information is presented in an orderly manner on display boards. This enables the evaluator and other key personnel to analyze the information and to determine the relative priorities of operational threats and opportunities.

This section deals with the means available for displaying information, as well as the distribution and arrangement of summary boards, status boards, plots, etc., within a typical CIC. Detailed plotting procedures and the symbology to be used are discussed in the chapter on plotting.

CIC PLOTS

Displays in CIC may be arranged in any number of ways, depending on the mission of the ship. For example, an ASW (antisubmarine warfare) ship will have many more ASW displays than a ship that is primarily concerned with AW (aircraft warfare). Some destroyers will have fewer displays, while aircraft carriers will have more. The most common types of displays follow.

STRATEGIC PLOT

The strategic plot is a large area, true display showing the position, movement, and strength of own and enemy sea, land, and air forces within a prescribed area of operations. This display is maintained on

hydrographic charts of suitable scale. Information for the strategic plot is taken from operation plans and orders, intelligence data, and reports of reconnaissance missions. The strategic plot is used in planning present and future operations and in making decisions. These plots should contain the location of own and enemy submarines, own submarine restricted areas, enemy missile-launching sites (including all data on type and numbers), and other strategic data that may affect the tactical situation.

GEOGRAPHIC PLOT

The geographic or navigational plot is a true display of the position and tracks of friendly, enemy, and unidentified surface, subsurface, and certain air contacts. It is maintained on the dead-reckoning tracer (DRT) plotter and is also displayed on the NTDS (discussed later in this chapter) console on NTDS-equipped ships. Ships equipped with the AEGIS display system (ADS) can display the geographic plot on large-screen displays (LSD). Geographic reference points and other objects requiring display of true positions are plotted. Although specific uses of the plot vary with the tactical situation, the plot is required for station keeping, coordination of search and rescue, radar piloting, shore bombardment, weapons liaison, undersea warfare, and surface warfare. The DRT/DDRT plotting sheet is a valid log. If you become involved with it, take care in preparing and maintaining it. Some evolutions require that it be preserved for future evaluation.

AIR SUMMARY PLOT

During air warfare operations, the *air summary plot* is the main display in a conventional ship, as is the NTDS console on an NTDS-equipped ship. See figure 2-1. Air plotting is normally done on a 60-inch, edge-lighted, vertical plotting board, etched with a polar coordinate grid (bearing lines and range circles) and superimposed with a Cartesian grid. (Grid systems are discussed in chapter 12) Because of the uniqueness of the grids and the vertical plot, the range scale is unlimited. Any range scale desired can be used. Normally for air plotting, the plot should cover an area having a radius of at least 200 miles from own ship. Position information in range and bearing is transmitted through sound-powered phones from the air-search radar operator to the plotters behind the board, who write backward on the board and plot with a grease pencil. The Cartesian grid is also used to plot

position information on contacts that are being reported by other ships within the force. Any reported contacts that are within the range coverage of the plot but not held on own ship's radars are displayed on the front of the board by the radiotelephone (R/T) plotter. (These communication circuits are discussed in a later chapter.) The functions of the air summary plot are as follows:

- Provide an opportunity for the evaluator/TAO and the radar control officer (RCO) to decide the proper designation of an air contact
- Provide the air intercept controller with information on the location of a contact to be intercepted
- Provide a display of the position of other ships and of the combat air patrol (CAP) so that the

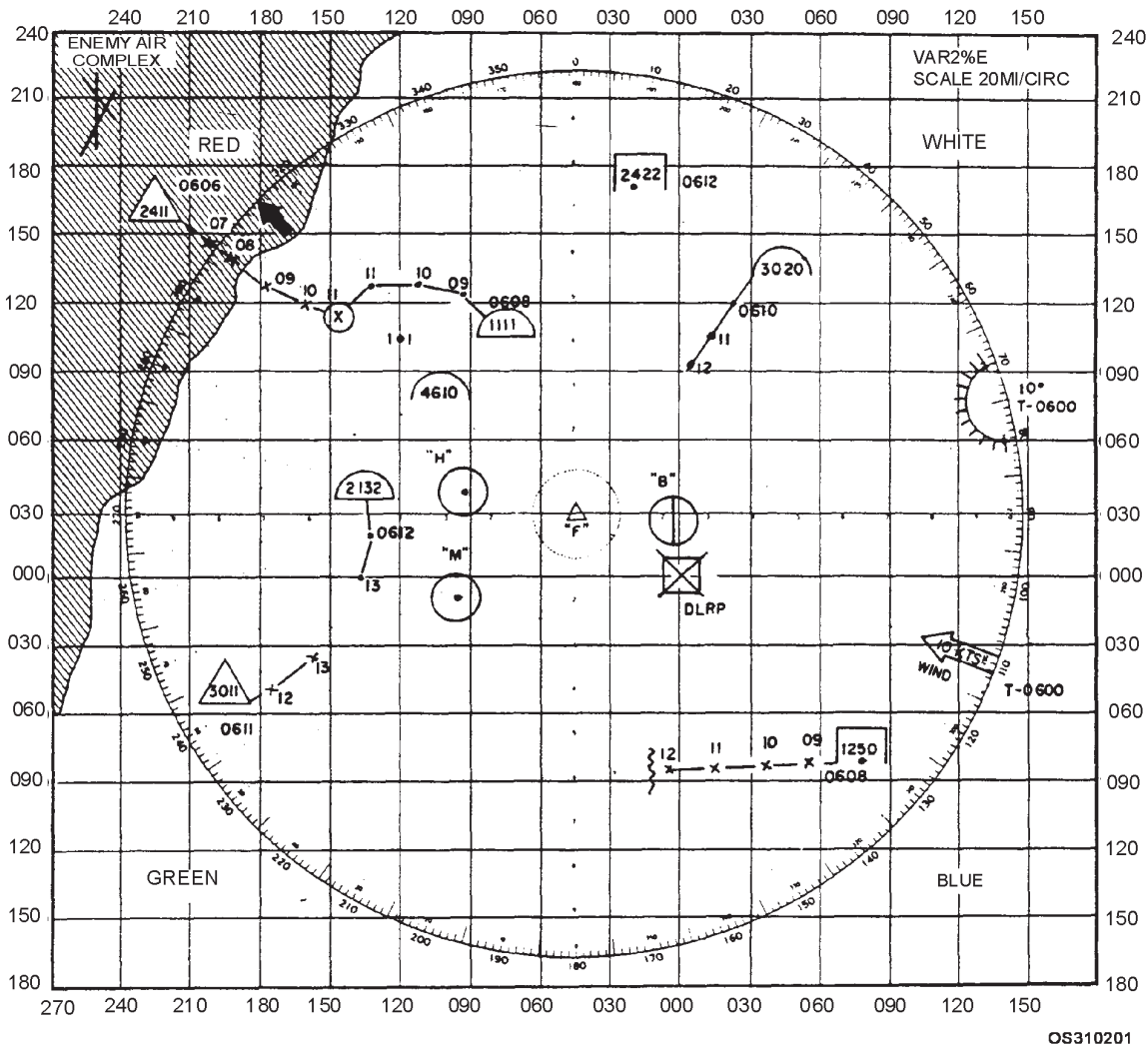


Figure 2-1.—Example of an air summary plot.

best possible coordination can be achieved between CAP and air control ships

- Provide a display from which the R/T talker can make reports to other units of the force
- Provide advance information to the weapons liaison officer concerning possible weapons targets

The air summary plot is one of the evaluator's/TAO's most valuable tools. When this plot is maintained properly, the evaluator/TAO does not need to look at a radar scope, and should never "lose the picture." Some of the information that should be plotted on the air summary plot is as follows:

- Distance scale
- Sun/Moon bearing, position angle, and time
- Magnetic variation
- Position of other units within the force
- Friendly and/or enemy land, including airfields
- CAP stations
- All friendlies held on own radar
- AEW/ASW aircraft tracks
- Search sectors
- All contacts appearing on the air-search radar and those reported on radiotelephone
- Fades
- Aircraft reported by lookouts
- Weapons warnings and conditions as appropriate
- Enemy electronic emissions
- Intelligence information, such as air lanes, enemy military complexes, unidentified and hostile submarines, air navigation danger areas, and any other tactical data of importance.

One to six plotters may be used to man the air summary plot, depending on the situation. When only one plotter is used, he or she mans the air search S/P circuit and works behind the board, plotting all contacts held by own ship's radars. If there is a second plotter, the plotting assignment should be divided into east-west areas. A third plotter may be assigned as a friendly contact plotter. Information reported by other ships is plotted on the front of the board by the R/T plotter and/or the link 14 plotter. When there is a

shortage of personnel, the R/T talker may double as a plotter.

SURFACE SUMMARY PLOT

The surface summary plot is a comprehensive relative display of positions and tracks of friendly, enemy, and unidentified surface and subsurface targets. It also shows geographic points and any other data required for a better understanding of the complete surface picture. This plot should reflect the situation as seen on the PPI scope, with the addition of identification and projected track data. Own ship is the center of the plot.

During operations, the surface summary plotter wears sound-powered telephones and is in communication with the surface search radar operator, DRT plotter, and surface status board plotter. Normally the surface summary plotter stands behind the board and maintains an accurate plot of the positions of all other ships in the formation relative to own ship, which is in the center. He or she also keeps an accurate relative track of all surface contacts within range, plotting bearings and ranges of contacts furnished by the surface search radar operator or by the remote PPI scope operator. As a contact moves, the surface summary plotter connects the successive plotted positions of each separate contact to show the relative track or relative movement line. In other words, by using standard symbols and abbreviations, the plotter displays on the summary plot the same picture indicated by the PPI scope. The plotter also records the course and speed of all contacts solved by the DRT operator, as well as bearing, range, and time of CPA as figured by the surface plotter.

FORMATION DIAGRAM

The formation diagram and the surface plots are routine displays in CIC for all tactical exercises and operations. Every member of the CIC team must become familiar with their composition and use. This knowledge is necessary because these plots, along with the geographic plot, associated status boards, navigational charts, and surface search radar, are the main tools of the CIC team in surface tactics. The formation's center is the center of the plot.

The formation diagram is a display, kept in polar coordinates, of all stations in a formation of ships. On the formation diagram, all ships in the main body are displayed relative to the formation's axis and center. Screen sectors are assigned by true bearings and

ranges. The formation diagram is a valuable aid in determining the positions of new stations in formation and screen maneuvers. Also, it assists in displaying the formation on the surface plot.

The desirable manner for displaying the formation diagram is on a vertically mounted, edge-lighted, polar coordinate plotting surface. Because of the limited space on many ships, however, this plot sometimes is kept on a maneuvering board.

- Q1. What plot provides a large area, true display showing the position, movement, and strength of own and enemy sea, land, and air forces within a prescribed area of operations?
- Q2. What plot is a comprehensive relative display of positions and tracks of friendly, enemy, and unidentified surface and subsurface targets?

STATUS BOARDS

Status boards provide a listing of current tactical information which, because of space limitations, cannot be presented on plots but must be available immediately for proper evaluations. The size, number, and purpose of status boards vary with different types of ships. Most status boards are edge-lighted and have a 36-inch-square writing area. The type of boards and the information to be plotted on them should be explained in the combat systems doctrine of each ship.

The following sections discuss some of the status boards used by ships of the fleet.

Tote Board

The tote board contains all of the amplifying information on every air contact plotted on the air

summary plot. The tote board contains three sections—bogey, CAP, and other friendlies—as shown in figure 2-2.

Ideally, the tote board is located next to the air summary plot. The two boards together form the complete air summary display.

The tote board is maintained by one to four persons, depending on the type of ship and the situation.

Air Event Board

The air event board (figure 2-3) lists all the aircraft listed in the daily flight plan from the carriers. It also lists all scheduled flights from air bases in the area in which your ship is operating. Information recorded on the air event board includes the event number, amount and type of aircraft, call, side numbers, mission, launch/land time, and target. The board can be modified to include information such as IFF/SIF assignment, controlling ship, and radio channel.

Identification Status Board

If space permits, all ships will have an identification status board. This board lists the mode II personal identification (PIF) code assignments for every ship and aircraft expected to be encountered during a particular operating period. In addition, the board should list mission codes. Mission codes indicate the type of mission the aircraft are flying. For example, all CAP aircraft will squawk the same mission code; AEW aircraft will squawk a different code. The identification status board provides a convenient and ready reference for the mission codes currently in effect.

BOGEY	TN	CSE	SPD	ALT	COMP	TIME	WEAPONS ASSIGNED			REMARKS
							CAP	BIRD	GUN	
T4F2	0315	170	350	23	1	1723	✓			BADGER
T4F-3	0320	255	325	30	1	1725	✓			RAK-4
CAP							OTHER FRIENDLIES			
CALL	TN	ANG	STATE	STATION	TIME	TN/CALL	REMARKS			
SB201/203	0275	24	160-4-0-2	270ZZ 60	1715	0251	TANKER			
GS110/107	0261	30	150-4-4-0	000ZZ-60	1715					

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Figure 2-2.—Example of a tote board.

CV/BASE	EVT	#/TYPE	CALL	SIDE #	MISSION	LAUNCH/LAND	TARGET	REMARKS
CONNIE	1A	2/F14	SB	201/203	CAP	1630/1830		
C. VINSON	1B	2/A7	HT	513/515	STK	1630/1830	4	
ENT	2A	1/KAS	BD	607	TKR	1630/2030		
CONNIE	1J	2/F14	SB	212/206	CAP	2115/2315		
ENT	2K	2/A6	TS	420/401	STK	2115/2315	2	

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Figure 2-3—Example of an air event board.

Discrete Identifier (DI) codes listed in OpOrders, messages, etc., are another means of identifying ships in the task organization and other shipping. These are not the same as the mode II codes previously mentioned. The DI codes are entered into the NTDS system for readout on link 11. Individual ships of the task organization can be identified easily. Other ships can be identified according to origin, type, etc., by the breakdown of the digits. For instance, the first digit may identify the country of origin, the second may indicate the type of ship, and so forth. Individual ship codes as well as the format for the other shipping should be displayed on the identification status board.

Voice Call Sign Board

The voice call sign board contains a listing of all voice calls of ships, commands, and task organizations. It may also include special call signs adapted for the particular exercise or tactical situation in which your ship may be engaged.

Communication Status Board

The communication status board indicates radio circuit assignments, frequencies, equipment allocation, radio remote station channelization, and use. It also may show additional remarks pertaining to the communications plan.

Equipment Status Board

All of the equipment in CIC should be listed on the equipment status board. Specifically, this list should include radars, IFF (transponder, interrogator, radar set control, coders/decoders), radar repeaters, associated NTDS equipment (computers, consoles, keysets, etc.), remote radio units, direction finders, and plotting equipment (DRT/DDRT). Two columns should be

provided after the name of each piece of equipment. One column is for equipment that is operating; the other is for equipment that is out of service. A check mark in the appropriate column indicates the equipment status. For main radars, there should be a column for ring-time checks and readings. Also, there should be a column for the time the equipment went out or was taken down and one for the estimated time for it to be back in operation. A “Remarks” column should give the reason for equipment being down and include any other information important to restoring equipment to full operation.

Surface Status Board

The surface status board displays a summary of surface data such as own ship and base course and speed, guard assignments, formation guide, screen stations, and wind direction and speed. Included also are the position, course, speed, closest point of approach (CPA), time of CPA, time of report, and any appropriate amplifying remarks on every surface contact. Figure 2-4 shows a recommended format for the surface status board. It may be modified to include other data, such as formation type and axis, zigzag plan in effect, replenishment, and amphibious data, depending on the mission of your ship.

Task Organization Status Board

The task organization status board displays the entire task organization structure in which your ship is operating. It identifies the ships assigned to task groups, units, and elements. It also identifies the commanders, the ship in which they are embarked, and the purpose of each task group, unit, and element.

On most ships, status board space is at a premium. For this reason, the task organization can be combined

OS CUS 030	PIM CUS 000	AAWCS CTG-60.2	ARRCS SAMPSON						
OS SPD 15	PIM SPD 12	EWCS RODGERS	SRRCE COOK						
STA 1 3302-0609/XIP	STA 5 1823-0508/J6J	STA 9	GUIDE KITTY HAWK						
STA 2 0207-0609/M4A	STA 6 2328-0508/T4F	STA 10	BRG RNG						
STA 3 0712-0508/M35	STA 7 2833-0609/F7D	STA 11	WIND 270 -10						
STA 4 1218-0508/X7N	STA 8	STA 12	NEXT SKUNK E						
SKUNK	BRG	RNG	TIME	CUS	SKUNK	BRG	RNG	TIME	CUS
A	053	21,300	1709	203					
	058	18,500	1712						
	064	15,900	1715		SPD				
CPA	115	9,600	1727	15	CPA				
SKUNK	BRG	RNG	TIME	CUS	SKUNK	BRG	RNG	TIME	CUS
B	320.5	27,500	1703	070					
	319.5	26,000	1709						
	318.5	24,300	1715		SPD				
CPA	245	6,500	1849	12	CPA				
SKUNK	BRG	RNG	TIME	CUS	SKUNK	BRG	RNG	TIME	CUS
C	349	21,100	1709	106					
	351	19,200	1712						
	353	16,300	1715		SPD				
CPA	062	6,300	1739	18	CPA				
SKUNK	BRG	RNG	TIME	CUS	SKUNK	BRG	RNG	TIME	CUS
D	288	39,000	1703	067					
	287	36,500	1709						
	286.5	32,400	1715		SPD				
CPA	206	5,600	1836	20	CPA				
SKUNK	BRG	RNG	TIME	CUS	SKUNK	BRG	RNG	TIME	CUS
				SPD					SPD
CPA					CPA				

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Figure 2-4.—Example of a surface status board.

with the voice call sign board or kept in a folder for easy reference by all CIC watch personnel.

ASW Flow Board

During ASW operations, you may be assigned as a recorder on the ASW air control net. Your job is to record on the ASW flow board all data passed from the aircraft to your controller. The flow board is a time base display pertaining to possible, probable, or certain submarine contacts, as well as to air, surface, and subsurface forces assigned to combat them. Information presented on the board includes contact classification codes, datum designation, method of establishing datum, the time of such designation, and detection and attack reports.

A typical ASW flow board is shown in figure 2-5. The information presented and the format of the board vary, depending on the ship's needs or type doctrine. From time to time, changes in aircraft, equipment, and weapons necessitate changes in the board. Figure 2-5,

consequently, is presented only as a guide for making your own board.

Q3. What status board contains information on every air contact plotted on the air summary plot?

Q4. What status board lists the day's flight plans?

NAVAL TACTICAL DATA SYSTEM

The Naval Tactical Data System (NTDS) was designed to provide naval forces with increased combat direction capabilities. The average "conventional" CIC operation was both complicated and slow; and visual displays generated on plotting and status boards were never totally accurate. In general, they didn't show sufficient information pertinent to a given situation. The introduction of high-speed aircraft, long-range weapons, and complicated air-control tasks required vastly improved information-handling equipment. The NTDS satisfied that requirement.

ASW Contact and Datum Information							
Contact	Time	Where	By Whom	How	Class.	Attacks	Remarks

Flow Chart				
SAU	Command	Collective	Composition	Date
				Event #
				Grid Size
				Grid Lock
				COMEX

Classification Code:

X-Certain	Y-Probable	Proceeding	S-Sonar	J-Julie
Z-Possible	Ø-Non-submarine	Cold	M-Mad	R-Radar
		Hot	SB-Sonobuoy	V-Visual
			O-EW	A-SAC
			P-Passive	SW-Swap

⊙	Grid	↓	↓	↓	↓	↓
VS						
Helo						
DD						
VP						
SS						

⊙	Grid	↓	↓	↓	↓	↓
VS						
Helo						
DD						
VP						
SS						

⊙	Grid	↓	↓	↓	↓	↓
VS						
Helo						
DD						
VP						
SS						

EXAMPLE

DATUM 4112 TIME 0315	GRID 467/507 RNG/DRG 067/18	0130 CLASSIFICATION 1	0400 6	0430 8	0500 9																		
5	10	15	20	25	30	35	40	45	50	55	5	10	15	20	25	30	35	40	45	50	55		
VS																							
HS																							
DD																							
VP																							
SS																							

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2-5.—Example of an ASW flow board.

By providing the necessary electronic instrumentation for increased data gathering, display, and dissemination capabilities of ships and units, the Naval Tactical Data System improved fleet combat

effectiveness. As a high-speed processing system, it furnishes to command vital information, already processed, to aid in more rapid and effective evaluation of each tactical situation.

An NTDS setup includes the following equipment in quantities dictated by the size and mission of the ship:

- One to four general-purpose digital computers
- Multipurpose consoles
- Data links.

Each of the general-purpose computers has a high-capacity memory, capable of storing about 1 million bits (binary digits) of tactical data and program instructions. Random and high-speed access to such data and instructions is possible.

The computer is the heart of the system. Its operational capabilities are determined by whatever program is stored in its memory. Programs are designed to cover a number of operational environments that may exist in CIC and are stored permanently on magnetic tapes. The computer (and the system) can be configured and reconfigured rapidly to meet the operational requirements as they change, with little or no loss of time.

The computer performs the following functions:

(1) accomplishes all necessary correlations, computations, updating, amplification, and other processing;

(2) displays and disseminates the tactical situation in real time;

(3) provides logical recommendations and alternatives to aid human decision makers in evaluating threats and assigning weapons; and

(4) automates the designation of targets to missile batteries and the control of interceptors.

The human operators perform their functions at consoles in CIC and in the flag commander's plotting room. With minor exceptions, these consoles are multipurpose units, in that the operators can switch them to any of several functions. A console, for example, may be used for detecting, tracking, and identifying targets; for entering electronic warfare information, and for other data-gathering functions. Likewise, it may be used for weapons coordination, intercept control, air coordination, surface operations, and other evaluating and decision-making functions on both ship and task force levels. This built-in

redundancy provides a high degree of system flexibility, versatility, reliability, and maintainability. A system may include from 10 to 30 such consoles, depending on the type of ship.

Q5. What was NTDS designed to provide?

LARGE SCREEN DISPLAYS (LSDs)

On AEGIS cruisers and destroyers, the new aircraft carriers, and the new large deck amphibious ships, the conventional vertical plots (air summary and surface summary) have been replaced with large-screen displays or LSDs. The LSD is a 42-inch by 42-inch projection of what is shown on the AN/UYK-21 TDS consoles. The presentation consists of yellow characters on a field of blue, displayed at a resolution of 525, 729, or 1075 lines per frame. On a *Ticondaroga* class cruiser there are four LSDs; an *Arleigh Burke* destroyer has two. The carriers and large deck amphibious ships will have several LSDs throughout CIC.

AUTOMATED STATUS BOARDS (ASTABS)

Since the vertical plot is gone, it only makes sense to do away with the other status boards in CIC. Automated status boards or ASTABS have replaced many of the status boards we discussed at the beginning of this chapter. An ASTAB is nothing more than a CRT that displays information provided by the AN/UYQ-21 TDS consoles. These CRTs display the information that was previously written on conventional status boards (Task Organization Status Board, Air Events Board, Voice Call Sign Board, etc.). The information displayed on the ASTABS is entered from keyboard in the bull nose of the TDS console. For more information on the operation of LSDs and ASTABS, refer to your ship's TDS operation manuals.

ANSWERS TO CHAPTER QUESTIONS

A1. Strategic plot.

A2. Surface summary plot.

A3. Tote board.

A4. Air event board.

A5. Increased combat direction capabilities to naval forces.