





# Damage Control Rapid Plotting 6







### **Enabling Objectives**

- 1 Select statements which describe the purpose of DC diagrams, status boards and logs
- 2 Record casualties on isometric DC diagrams
- 3 Given a DC scenario record damage control messages
- 4 Match damage control symbols to the situation they represent

# Failure to Communicate

Crew interviews and analysis of plots and handwritten messages after casualties on USS Samuel B. Roberts, USS Stark and USS Cole revealed:

- Improper use of complex triangle symbology
- Damage control decision makers had limited knowledge of sequential actions to combat casualties
- Minimal crew training on symbology
- Improper display of information on message blanks

Challenge: Reduce the complexity of triangle symbology

 Solution: Rapid Plotting Symbology, DCAMS

# Initiatives to Improve DC Plotting

- Rapid plotting symbology
- Rapid plotting message blanks
- DC casualty checklists
- DCAMS (Damage Control Action Management Software)
- Shipboard flag training kits

# Rapid Plotting Symbology

- Replace triangle symbology
- Simplifies plotting
- Improves display of symbology on DC plates
- Will appear in revision of NSTM 079, vol. 2, Practical Damage Control

# Damage Control Rapid Plotting

- Universal symbology standard of circle and slashes combined with simplified plotting requirements.
  - The circle and slash system eliminates the requirement to have several flags on the side of the triangle.
  - Simplified plotting requirements are accomplished with check sheets.

# **Damage Control Rapid Plotting**

- Check sheets similar to the Main Space Fire Doctrine will replace the "cluttered" plotting details that obscure the big picture of the ships condition with noise.
  - Check sheets are designed to provide guidance through the casualty process, track and document details and events.
  - Check sheets eliminate the requirement to plot things such as mechanical and electrical isolation.
  - Checklist examples can be found at <u>www.dcfp.navy.mil</u> as DC Tricks of the Trade #007 in the Library

# Rapid Plotting Symbology

Three symbols represent key events in a casualty.

Example for Class Alpha fire:

Casualty Reported

# Α

Casualty Engaged



No Casualty (Fire is out.)



# Rapid Plotting Symbology

Example for ruptured piping:



### NSTM 079 & DCAMS 5.02 Casualty Icons



Fire (unspecified) Reported, Engaged, No



Fire (Class A) Reported, Engaged, No



Fire (Class B) Reported, Engaged, No



Fire (Class C) Reported, Engaged, No



Fire (Class D) Reported, Engaged, No





Smoke (unknown) Reported, Engaged, No



**Black Smoke** Reported, Engaged, No



White Smoke Reported, Engaged, No



Flooding Reported, Engaged, No



**Heat Transfer** 

Reported





Hole in Deck - Below Reported, Engaged, No



Hole in Deck - Over Reported, Engaged, No



Hole in Bulkhead Reported, Engaged, No



Fragmentation Reported, Engaged, No



Debris Reported, Engaged, No

### NSTM 079 & DCAMS 5.02 Casualty Icons





Rupture Reported, Engaged, No



Rupture - Fire Main Reported, Engaged, No



Rupture- Fuel Oil Reported, Engaged, No



Rupture- JP5 Reported, Engaged, No



Rupture-Lube Oil Reported, Engaged, No





AFFF Rupture Reported, Engaged, No

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Rupture - Chill Water Reported, Engaged, No



Rupture- Electrical Cooling Water

Reported, Engaged, No



Rupture- Hydraulic Oil Reported, Engaged, No



Rupture-Pressurized Air Reported, Engaged, No





**Rupture-Potable Water** 

Reported, Engaged, No



Rupture - Steam Reported, Engaged, No





Reported, Engaged, No

### NSTM 079 & DCAMS 5.02 Casualty Icons







Structural Damage Reported, Engaged, No



Electrical Power Lost Reported, Engaged, No



Electrical Damage Reported, Engaged, No



Casualty Power Lost Reported, Engaged, No



Communications Lost

Reported, Engaged, No



Mechanical Failure Reported, Engaged, No



Mechanical Damage Reported, Engaged, No



HAZMAT/Toxic Spill Reported, Engaged, No



Unexploded Ordnance Reported, Engaged, No



Chemical Hazard Reported, Engaged, No



Biohazard Reported, Engaged, No





# Shipboard Flag Training Kits

- Damage Control Training Teams / Afloat Training Groups use the standardized kits to nonverbally initiate and conduct damage control drills.
- Flags have Rapid Plotting Symbology printed on them to alert Investigators and other shipboard personnel to specific casualties.
- Provides crew with continuous exposure to Rapid Plotting Symbology.

# Rapid Plotting Message Blanks

 Rapid plotting message blanks and DC plates will be used as a backup if Automated Damage Control Software or wireless communications fail.

 Rapid plotting message blanks use three symbols instead of the six symbols employed with the triangle system.

### Mechanics of plotting Casualties

Three primary reports are recorded on the DC plates 2 &3 that represent the key events in the casualty:



### Mechanics of plotting (cont)

- Message blank
  - Time and sequential number
  - Who it is from and to whom it is going
  - Compartment number, frame number, remarks etc..
  - Damage must be pinpointed (Port/Stbd, Deck/ Ovhd, Fwd/Aft)
  - Fire/smoke/flooding boundary reports <u>shall</u> have primary and secondary boundaries listed

### Mechanics of plotting (cont)

- Installed system messages require the following
  - System (Halon, AFFF, APC, Bilge Spr, CMWD)
  - Time activated/released, secured
  - Group number (if required)
- Ruptured piping messages shall contain
  - Cut-out valve(s) used
  - System if known
  - Affected system(s)

#### Five Sections of the Rapid Plotting Message Blank



#### Rapid Plotting <u>Message</u> Blank



Rapid plotting message blanks must be tailored in section 1 to your specific ship

### **Reverse Side of Message Blank**

REPORT or CASUALTY	SYMBOL	REQUIRED SUPPLEMENTAL INFO		0	$\bigcirc$
FIRE BOUNDARIES	FB	PRIMARY AND SECONDARY	Ordered	Set	N/A
SMOKE BOUNDARIES	SB	PRIMARY AND SECONDARY	Ordered	Set	N/A
FLOODING BOUNDARIES	FLB	PRIMARY AND SECONDARY			
CASUALTY BOUNDARIES	СВ	PRIMARY AND SECONDARY	Ordered	Set	N/A
FIRE	A, B, C, D		Reported	Engaged	No
SMOKE	s	COLOR AND REMOVAL METHOD	Reported	Engaged	No
FIRE EXTINGUISHING SYSTEM	FES	SYSTEM TYPE	Manned	Engaged	No
FLOODING	FL	CLEAN / CONTAMINATED / DEPTH / REMOVAL METHOD	Reported	Engaged	No
FIREFIGHTING WATER	FFW	DEPTH / REMOVAL METHOD	Reported	Engaged	No
PROGRESSIVE FLOODING	PFL	RATE	Reported	Engaged	No
RUPTURED PIPING	R	TYPE SYSTEM	Reported	Engaged	No
STRUCTURAL DAMAGE	STR	SAG / PANT / TYPE SHORING	Reported	Engaged	No
JAMMED ACCESS	J	FITTING TYPE AND NUMBER	Reported	Engaged	No
HOLE	н	SIZE	Reported	Engaged	No
COMPARTMENT DEMOLISHED	CD		Reported	N/A	N/A
NO APPARENT DAMAGE	NAD		Reported	N/A	N/A
COMMS LOST	т	CIRCUIT	Reported	Engaged	No
ELECT PWR LOST	E		Reported	Engaged	No
ELECT DAMAGE	ED	EQUIPMENT	Reported	Engaged	No
CAS PWR ORDERED	СР		Reported	Engaged	No
CAS PWR LOST	CPL		Reported	Engaged	No
MECHANICAL FAILURE	М	EQUIPMENT / SYSTEM	Reported	Engaged	No
MECHANICAL DAMAGE	MD	EQUIPMENT / SYSTEM	Reported	Engaged	No
PERSONNEL CASUALTY	Р	NAME / BILLET IF KNOWN	Reported	Engaged	No
WEAPON CASUALTY	WPN	TYPE WEAPON	Reported	Engaged	No
TOXIC GAS	тох	HAZARD IF KNOWN	Reported	Engaged	No
CHEMICAL CONTAMINATION	СНМ	AGENT IF KNOWN / LOCATION	Reported	Engaged	No
BIOLOGICAL CONTAMINATION	BIO	AGENT IF KNOWN / LOCATION	Reported	Engaged	No
RADIOLOGICAL CONTAMINATION	NUC	INTENSITY IF KNOWN / LOCATION	Reported	Engaged	No



#### Addressing Others

Other Teams / Locations

- Bridge
- Medical / Triage
- CCA
- Decon stations
- Air staging area
- Hangar
- Weather deck
- Secondary DCC
- Secondary Conn



#### Casualty Space / Frame / Remarks



#### **Casualty Symbology**





#### Note Area

Write amplifying information in the Note Area. Acceptable information includes, but is not limited to:

- Smoke : List color of smoke
- Fire extinguishing system: List system type, time manned, time activated / secured
- Flooding: List depth (in feet and inches), dewatering equipment used, if water is clean or contaminated
- Firefighting water: List depth (in feet and inches) and dewatering equipment used or recommended
- Progressive flooding: List depth of water (in feet and inches) and dewatering equipment used or recommended, approximate rate of water entering
- Ruptured piping system: List system type, cut out valve numbers, sys effected

• Structural damage: List type of damage and recommended shoring used

• Jammed fitting: List fitting number and type

#### Note Area (cont)

Hole: List size of hole (in feet and inches)

• Communications lost: List circuit(s)

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- Electrical damage: List equipment or system
- Mechanical failure: List equipment or system
- Personnel casualty: List person's name and billet (if known)
- Weapon casualty: List weapon type
- Toxic gas: List hazard (if known)
- Chemical contamination: List agent (if known) and location
- Biological contamination: List agent (if known) and location
- Radiological contamination: List intensity (if known) and location



### Mechanics of plotting Boundaries

Three primary reports are recorded on the DC plates 2&3 that represent the two key events in setting Boundaries:

Boundaries Ordered **FB** 

**Boundaries Set** 



### Mechanics of plotting Boundaries

FB - Fire Boundary: Primary and secondary around fire.

SB - Smoke Boundary: Smoke Primary and secondary around smoke.

FLB - Flooding Boundary: Flooding Boundary: Primary and secondary around Flooding.

CB - Casualty Boundary: Casualty Boundary: Primary and secondary around multi casualty area. Example: A missile strikes the ship aft, casualty boundaries are set around the area.

### Boundaries





Boundaries <u>Set</u> indicated by circle

### **Boundaries**



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# Manual Plotting Methods

1. Box Method



### 2. Line Method



3. Column Method



# **Box Method**







# Line Method





TIME 1610

COMPT. #/NAME

FROM

B

NUMBER \_

DCRS 2 DCRS 3 DCRS 5 DCC то

2-60-0-E

+ FWD

S



FWD EMERGENCY DIESEL 2-60-0-E

# Column Method







# The following seven slides display message writing examples for:

- Fire
- Flooding (2)
- Ruptured Piping
- Structural Damage (2)
- Chemical Attack

### Fire



# Flooding



# Flooding



# **Ruptured Piping**



### **Structural Damage**



### **Structural Damage**



### **Chemical Attack**



# Summary

- Simple in concept
- User Friendly
- Supported by shipboard flag training kit.
- Provides a clear "Big Picture"
- Support transition from paper to standard e-Damage Control, DCAMS software, Laptops in DCRS, PDA's at the scene and wireless data.