

Water Rescue Navigation Information Sheets

#	Title of Information / Guideline	Page
1	BASIC COMPASS USE	2
2	NOS CHART FORMATTING	3
3	AIDS TO NAVIGATION – BUOYS AND DAYBEACONS	4
4	DESCRIPTION OF TYPES OF NAVIGATION LIGHTS	5
5	SHIP LIGHTS AND SYMBOL DISPLAY REQUIREMENTS	6
6	TOWING SHIP LIGHTS AND SYMBOL DISPLAY REQUIREMENTS	7
7	SPECIAL SHIP LIGHTS AND SYMBOL DISPLAY REQUIREMENTS	8
8	GENERAL PILOTING STANDARDS	9
9	DETERMINING AND MARKING POSITION	10
10	GENERAL INFORMATION ON GLOBALMAP 100 GPS	11
11	OPERATION OF GLOBALMAP 100 GPS UNITS	12
12	SETTING / EDITING WAYPOINTS IN GLOBALMAP 100 GPS UNITS	15
13	NAVIGATION IN GLOBALMAP 100 GPS UNITS	16
14	NAVIGATION SCREEN DISPLAY GLOBALMAP 100 GPS UNITS	17
15	MOST USED MENU CHOICES OF GLOBALMAP 100 GPS UNITS	18

References:

“Chapman Piloting Seamanship and Boat Handling 63rd Edition”, Elbert S Maloney, Hearst Marine Books, New York, New York, 1995

“The American Practical Navigator, Bowditch, Pub. No. 9, Defense Mapping Agency Hydrographic / Topographic Center, Bethesda, Maryland, 1995

“GlobalMap 100, Installation and Operational Instructions”, Lowrance Electronics, Inc., 1998

“Advance Coastal Navigation AN-1 USCG Aux, 2nd Edition”, US Coast Guard Auxiliary, Coast-Guard Auxiliary National Board Inc., Washington, D.C., 1990

Information Sheet #1

TOPIC: BASIC COMPASS USE

INTRODUCTION: Basic use of map and compass essential to safe navigation.

Terms:

Magnetic North	Reference to Magnetic North Pole
True North	Reference to Geographic North Pole
Variation	Difference from Magnetic North to True North
Deviation	Difference in Compass Reading from Magnetic North
Local Attraction	Localized Variance in Compass Reading
Compass Course	Course Set Based on Compass
Magnetic Course	Course Set Based on Magnetic North
True Course	Course Set Based on True North
Track	Current Direction of Travel (Degrees)
Bearing	Current Direction to Destination (Degrees)
Course	Direction From Starting Position to Destination (Degrees)
Cross Track Error	Distance From Present Position to Nearest Point on Projected Course

Variation and Local Attraction Caused by Geographic Location.

Deviation caused by Local Environment (Metal, Electricity, Magnets, ...)

Typically Compass Course and Magnetic Course Difference Is Small. Try to Eliminate External Interference to Compass.

Local Variation Is About 16 Degrees East Variation.

For East Variation – Add Variation to Magnetic Course to Convert to True Course.

Add East → Magnetic Course + East Variation = True Course

Information Sheet #2

TOPIC: NOS CHART FORMATTING

INTRODUCTION: Basic format and symbology on NOS (National Ocean Service) charts. NOS is a division of NOAA (National Oceanic and Atmospheric Administration)

Color

<u>No Color</u>	Deeper Water Areas	<u>Light Blue</u>	Shallow Water
<u>Light Green</u>	Uncovered at Low Tide	<u>Gold or Tan</u>	Land Feature
<u>Magenta</u>	Bouys, Dayboards, Danger Symbols, Caution, Safety Notes, Lights		
<u>Black</u>	Symbols, Contour Lines, Manmade Features, Text Information		

Lettering UPRIGHT LETTERS Features Dry at High Water and Unaffected by Water Movement (Dry Lettering)

LEANING LETTERS Water, Underwater, or Floating Features (Wet Lettering); Not Used to Show Depth

Height / Depth – Based on Average of Overall Tidal Cycle (Usually 19 Years)

Depth – Based on MLLW (Mean Lower Low Water)

Widely Spaced Numbers – Slow Change in Bottom

Closely Spaced Numbers – Irregular and Abrupt Changes in Bottom

Depth Curve – Points at Equal Depth (Usually at 6, 12, 18, 30, 60 ft)

Dotted Depth Curve – Incomplete Information to Create Good Curve

2 Dashed Lines – Side Limits of Dredged Channel

Heights – Based on MHW (Mean High Water)

Useful Navigation Features Above Water Level

Shoreline Height

Bridge Clearance

Shoreline – Land at Mean High Water (Area From Solid Line to Dotted – Light Green)

Heavy Line – Natural Shoreline

Light Line – Manmade Shoreline

Dashed Line – Unsurveyed

Dotted Line – Low Water Line

Bouys – Diamond With Small Open Circle (Except Mooring Bouys)

“C” – Can Buoy (Unlighted; Flat Top)

“N” – Nun Buoy (Unlighted; Conical Top)

Magenta Disc – Lighted Buoy (Color and Rhythm of Light Noted)

Daybeacons

“G”; Green Square – Green Square Daymark

“R”; Red Triangle – Red Triangular Daymark

“RG”; Uncolored Triangle – Red Over Green Triangular Daymark

“GR”, Uncolored Square – Green Over Red Squared Daymark

Lights – Black Position Dot With Magenta Flare (Like an Exclamation Point) Symbol

Information Sheet #3

TOPIC: AIDS TO NAVIGATION – BUOYS AND DAYBEACONS

INTRODUCTION: Summary of channel marking marine navigation aids (lateral system)

As Seen Entering From Seaward (Red, Right, Return)

	Port	Starboard	Safe Water	Preferred Channel	Isolated Danger
Buoys*					
Color	Green	Red	Red / White	Red / Green	Red / Black
Light Color	Green	Red	White	Red or Green	White
Light Rhythm	Varies	Varies	“A” (dot-dash)	2+1 (dot-dot dot)	dot-dot
Shape	Can	Nun	Spherical	Can or Nun	Varies**
Numbering	Odd	Even	Letters	Letters	Letters
Daybeacon					
Color	Green	Red	Red / White	Red / Green	Red / White
Light Color	Green	Red	White	Red or Green	White
Light Rhythm	Varies	Varies	“A” (dot-dash)	2+1 (dot-dot dot)	dot-dot
Shape	Square	Triangle	Octagon	Square or Triangle	Diamond
Numbering	Odd	Even	Letters	Letters	Letters if any

*Lighted Buoys May Not Have Same Identifying Shape As Unlighted Ones

** Isolated Danger Buoys Have 2 Spheres in Vertical Alignment On Top of Buoy

Light Rhythm (Period – Standard 2.5 sec, 4 sec, 6 sec)

Flashing < 30 per minute

Quick Lights > 60 per minute

Composite Group Flashing (2+1) – Two Brief, One Brief, Long Pause (dot-dot dot)

Morse Code “A” – Short Flash, Long Flash, Long Pause (dot-dash)

Daybeacon Notes

Reflective Border, Reflective Number

Daybeacon Anchored by Pilings Into Ground

Buoys Typically Attached to Anchor by Chain – They will Move Around Some

Preferred Channel – Top Color, Light, or Shape Gives Which Side of Marker Preferred

Sound Buoys – Bells, Gongs, Whistle, Horn (All Except Horn Rely on Wave Action)

Buoy Shape Description

Can Buoy – Flat Top (Like Can)

Nun Buoy – Top of Buoy Looks Like a Cone Pointed Upwards

Information Sheet #4

TOPIC: DESCRIPTION OF TYPES OF NAVIGATION LIGHTS

INTRODUCTION: Listing of types of navigation lights and area covered / displayed.

Masthead Light – 225 Degree Arc Centered Forward Along Centerline
2nd Masthead Light (If Required) Will Be High Than First and Behind First
Color Depends on Use (Red, Green White)

Sidelight – Red and Green Colored Lights;
Red – 112.5 Degree Arc; Port Side From Forward Vessel Centerline
Green – 112.5 Degree Arc; Starboard Side From Forward Vessel Centerline
< 20 Meters May Combine Sidelights Into One Fixture

Sternlight – White Light With 135 Degree Arc Along Centerline Facing Aft of Vessel

Towing Light – Yellow Light With 135 Degree Arc Along Centerline Facing Aft of Vessel

All Around Light – Light with 360 Degree Arc
Lights Appear in Vertical Line
Color Depends on Function (White, Red, Green, Yellow)

Flashing Light – Flashes Regularly > 120 Time / Minute

Special Flashing Light – 50 to 70 Times / Minute
180 to 225 Degrees on Forward Centerline of Tow Being Pushed Ahead

Information Sheet #5

TOPIC: SHIP LIGHTS AND SYMBOL DISPLAY REQUIREMENTS

INTRODUCTION: General requirements of ship light and shape information (1980 US Inland Navigation Rules).

Lights Displayed Sunset to Sunrise

Day Shapes Displayed During Day

Power Driven Vessel General Requirements (When Underway)

- < 12 Meters – Masthead and Sternlight (or All Around Light), Sidelights
- < 50 Meters – Masthead, Sidelights, Sternlight
- > 50 Meters – 2 Masthead, Sidelights, Sternlight

Sailboat (When Underway) (Under Power Same as Power Driven Requirements)

- < 7 Meters – White Light Exhibited in Time to Prevent Collision
- > 7 Meters - Sidelights, Sternlight
- > 12 Meters – Daytime Motor Sailing Conical Shape – Apex Down

Anchored Vessels

- < 7 Meters – If Not in Channel, Fairway or Normal Anchorage – No Requirement
- < 20 Meters – If In Special Anchorage Area – No Requirement
- < 50 Meters – All Around Light (Ball Shape During Day)
- > 50 Meters – 2 All Around Light (1st Higher, 2nd Aft and Lower)
- > 100 Meters – 2 All Around Light (1st Higher, 2nd Aft and Lower), Illuminate Deck

Information Sheet #6

TOPIC: TOWING SHIP LIGHTS AND SYMBOL DISPLAY REQUIREMENTS

INTRODUCTION: Used in Addition to General Lighting and Shape Requirements (1980 US Inland Navigation Rules).

Astern – Towed Vessel Pulled by Other Vessel - Normal Masthead Lights With Towing Vessel Displays
Normal Masthead Light(s) With
Tow < 200 Meters – 1 Additional Masthead Light (No Day Symbol)
Tow > 200 Meters – 2 Additional Masthead Light (Diamond Shape)
Normal Sidelights
Yellow Towing Light Over Stern Light
Towed Vessel(s) – Sidelight and Sternlight

Alongside – Towed Vessel Next to Towing Vessel
Towing Vessel
Normal Masthead Light(s) With 1 Additional Masthead Light
Normal Sidelights
2 Yellow Towing Lights in Vertical Line (No Sternlight)
Towed Vessel – Sidelight and Sternlight

Pushing – Towed Vessel Pushed By Towing Vessel
Towing Vessel Displays
Normal Masthead Light(s) With 1 Additional Masthead Light
Normal Sidelights
2 Yellow Towing Lights in Vertical Line (No Sternlight)
Towed Vessel – Sidelights, Special Flashing Yellow Light on Bow

Partially Submerged Object – 2 or More All Around Lights (Diamond Shape)
Towing Vessel May Direct Searchlight Toward Towed Vessel
Inconspicuous Object – All Around White Light at Each End

Towing Distressed Vessel by Vessel Not Regularly Engaged in Towing
May Tow Distressed Vessel Without Displaying Required Light
Take All Possible Measures to Indicate Relation of Towed Vessel
(Searchlight on Towed Vessel)

Information Sheet #7

TOPIC: SPECIAL SHIP LIGHTS AND SYMBOL DISPLAY REQUIREMENTS

INTRODUCTION: Used in Addition to General Lighting and Shape Requirements (1980 US Inland Navigation Rules).

Not Under Command

2 All Around Red Lights in Place of Masthead Lights (Day Shape – 2 Black Balls)

Aground

< 12 Meters – Not Required to Show Lights or Symbols

If Possible – White Light Over 2 Red All Around Lights (3 Balls in Vertical Line)

Fishing (Day Shape – Two Cones Point to Point or Basket if Vessel Under 20 Meters)

Non Trawling Fishing – 2 All Around Lights, Upper One Red, Lower White

2nd Masthead Not Displayed With Lights

If Gear Out > 150 Meters – Light (Or Cone) Marks Side of Vessel Gear On

Trawling Vessel – 2 All Around Light; Upper One Green, Lower White

May Use White and Red Lights to Signal Takeout and Retrieval of Nets

Restricted Ability to Maneuver

3 All Around Lights; Top Red, Middle White, Bottom Red

Day Shape; Top Ball, Middle Diamond, Bottom Ball)

Not Safe to Pass on Side – 2 All Around Red Lights (2 Balls)

Safe to Pass on Side – 2 All Around Green Lights (2 Diamonds)

Special Types of Vessels

Dive Boat – 3 All Around Light; Top Red, Middle White, Bottom Red

Daytime – Rigid Replica of International Code Flag "A"

Unofficial Dive Flag May Be Used To Show Divers in Water

Minimum Distance Dive Flag 100-150 Feet (Reduce Speed if Near)

Mine Clearing – 3 All Around Green Light (3 Balls) > 1000 Meter Clearance

Submarine – Yellow Light Flashing Morse Code "S" : 1 flash/sec, 3 Seconds Out

Pilot Vessel – 2 All Around Lights; Top White, Bottom Red (No Masthead Light)

At Anchor - Continues to Have Same Lights with Anchor Light Added

Law Enforcement – Flashing Blue Light

Public Safety – Alternately Flashing Red and Yellow

Floating / Trestle Supported Dredge Pipeline – 2 Red Lights At Each End

Flashing Yellow Lights 50 – 70 Times / min Along Span of Pipe

Information Sheet #8

TOPIC: GENERAL PILOTING STANDARDS

INTRODUCTION: Use of standard terms, units, and significant figures is essential to good navigation practice.

Precision – Fineness of Measurement Accuracy – Amount of Error in Answer

Direction – 3 Digit Compass Direction to Nearest 1 Degree (360 = 000)
North Reference - True (000T), Magnetic (000M), or Compass (000C)
Relative Bearing Reference to Centerline of Vessel (000R)

Distance – Measured in Nautical Miles (nm) to Nearest 0.1 nm
Nautical Mile ~ 1.15 Statue Miles (7 nm ~ 8 mi)

Time – 4 Digit Measured by 24 hour Clock to Nearest Minute
Government Sources Usually on Standard Time
(Add 1 hr for Daylight Savings)

Speed – Measured in Knots (kt) to Nearest 0.1 kt
SOA – Speed of Advance SOG – Speed Over Ground
Knot ~ 1.15 Mile / Hr (7 kt ~ 8 mph)

Height – Measured in feet (ft), meters (m)
Usually Referenced to Mean High Water (Refer to Chart Info Table)

Depth – Measured in feet (ft), meters (m) or fathoms (6 ft)
Usually Referenced to Mean Lower Low Water (Refer to Chart Info Table)

Relative Position – Direction and Distance From Known Location
Geographic Position – Latitude (Lat, L) and Longitude (Long, Lo)
Written in Degrees, Minutes, and Seconds (or Decimal)
60 seconds = 1 minute ; 60 minutes = 1 degree

Meridian – Line of Constant Longitude (Vertical Line)
Parallel – Line of Constant Latitude (Horizontal Line)
1 nm = 1 sec of latitude

Information Sheet #9

TOPIC: DETERMINING AND MARKING POSITION

INTRODUCTION: Safe navigation depends on accurate determination of where you are, where you want to go and how to get there.

Determining Location With Lines of Position (LOP)

Range – 2 Objects in Line, Label With Time Above Line

Bearing – Direction to Object (Time Above Line, Direction Below Line)

Fix – Known Location (From Fixed Landmarks, GPS, Loran)

Label Chart With Circle and Dot (Δ for Electronic), Time Horizontal

Estimated Position (EP) – Approx Location (One Landmark + DR Position)

Label Chart With Square and Dot, Time Horizontal

Running Fix – Line of Position Advanced or Retarded in Time Used for Fix

Label Chart With Circle and Dot, Time and RFIX Horizontal

Course Line – Intended Path of Travel (No Currents, Wind, ...)

Starts from Known Location (Fix) - Line Drawn to Next Location (DR)

Label with Direction Above Line (Cxxx)

Label with Speed or Distance Below Line (Sxx.x or Dxx.x)

Dead Reckoning (DR) Position – Calculated With Time, Speed, Course

Label with Semicircle and Dot, Time Slanted

DR Position - Change of Course or Speed, Time Intervals (30 min)

Distance = Rate * Time

Difference Between Course (DR) and Actual Track = Current

Set – Direction of Current

Drift – Speed of Current

Danger Bearing – Maximum or Minimum Bearing to Unsafe Area

NMT – (Not More Than): Vessel in Safe Water When Relative Bearing to Charted Object Less the Danger Bearing

NLT – (Not Less Than): Vessel in Safe Water When Relative Bearing to Charted Object Greater Than The Danger Bearing

Information Sheet #10

TOPIC: GENERAL INFORMATION ON GLOBALMAP 100 GPS

INTRODUCTION: Summary of functions / restrictions of water rescue GPS units.

Power - 4 AA Batteries or Cigarette Light Adapter

Internal Maps

Built Into Unit or Downloadable From CD
Navigation Aids, Major Roads

Route and Waypoint

Trail – Where You've Been
Navigate to Waypoint
Navigate Along Route (Collection of Waypoints)

Display

Map
Navigation Information
GPS Status
Zoom Features
Reprogramable Display
Display Flashes When Position Lost
"Smart Options" Appear – Menu Choice Limits Options Available

Sound

Lock / Loss of Lock on Satellites
Arrival Alarms
Button Push

Symbols

ALT	Altitude	Height Above Sea Level
BRG	Bearing	Direction from Present Position to Waypoint
CRS	Course	Direction from Starting / Last Point to Waypoint
TRK	Track	Direction of Travel
DIS	Distance	Distance to Next Waypoint
ETA	Estimated Time of Arrival	
ETE	Estimated Time En Route	
CDI	Course Deviation Indicator	Graphic Display of Cross Track Error (XTK)
GS	Ground Speed	Actual Speed Relative to Ground
XTK	Cross Track Error	Distance to Side of Desired Course

Information Sheet #11

TOPIC: OPERATION OF GLOBALMAP 100 GPS UNITS

INTRODUCTION: Summary of operation of water rescue GPS functions.

PWR / LIGHT Key

Turn On – Press PWR / LIGHT Key Once

Turn Off – Press and Hold PWR / LIGHT Key for 3 Seconds

Light - Press PWR / LIGHT Key While Unit Is On

PAGES Key – Switch Between Displays

STATUS		current lock on satellites; battery power; back light
NAVIGATION	1	BRG, TRK, CRS, DIS, GS, XTK, ETE, CDI, arrow
	2	Compass Rose, BRG, TRK, CRS, DIS, GS, ETE
MAP	1	map
	2	map, BRG, TRK, DIS
	3	map, GS, TRK, CDI
GROUP	A	upper map, lower map
	B	upper map, BRG, DIS, TRK, CDI
	C	upper map, CDI, arrow, TRK, DIS
	D	upper map, CDI, arrow, TRK, GS
	E	CDI, arrow, BRG, DIS, TRK, GS, ALT
	F	position (latitude / longitude), BRG, DIS, TRK, GS
	G	differential status (not installed currently)
	H	time, (clock, alarm)
	I	ETE, trip timer, ETA, clock
	J	trip timer, trip meter, up timer, down timer

MENU Key – Internal Settings

MAP SETUP (menu choice appears only on map screens)

MAP OPTIONS

ROTATE (NORTH UP, TRACK UP, CRS UP) {rotate display}

AUTO ZOOM (OFF / ON) {zoom closer as near destination}

RNG RINGS (OFF / ON) {rings ¼ of current map range}

GRID (OFF / ON) {grid for latitude and longitude}

EARTH MAP OPTIONS

EARTH MAP (OFF / ON) {background map}

GRAY FILL (WATER, LAND) {color in background}

MAP TEXT (OFF / ON) {text of features}

SYMBOLS (OFF / ON) {display of map symbols}

LOCATIONS (OFF / ON) {replace text with dot as zoom out}

CONTOURS (OFF / ON) {map contours}

MAP DETAIL (HIGH, NORMAL) {amount of text, details}

WAYPOINT OPTIONS... {display - symbols, names, number}
 ICON OPTIONS... {display, erasing icons}
 TRAIL OPTIONS
 CLEAR TRAIL {erase current plot trail}
 FLASH TRL (OFF / ON) {flash plot trail once per second}
 UPDATE BY (TIME, DIS) {method plot trail updated by}
 UPDATE RATE (1 SEC – 3 SEC – 30 MIN) {time plot trail updated}
 TRAILS SHOWN
 CUR TRAIL (OFF / ON) {current trail}
 TRAIL 1 (OFF / ON) {from trail 1 storage}
 TRAIL 2 (OFF / ON) {from trail 2 storage}
 UPDATE DIS (0.01 – 0.10 – 10) {distance plot trail updated}
 SAVE TRAIL
 SAVE AS TRAIL 1 {storage of plot trail}
 SAVE AS TRAIL 2 {storage of plot trail}
 CHANGE (THIS MAP, ALL MAPS) {local or global change}

SYSTEM SETUP

AUDIO / SCREEN

 SOUND (OFF / ON) {turn unit sound on or off}
 CONTRAST (0%-50%-100%) {adjust contrast of screen}
 BACKLIGHT (0%-100%) {adjust backlighting of screen}
 LIGHT DISPLAY (5-30 SEC-CONTINUOUS) {time screen light lit}

SET LOCAL TIME {sets local– daylight savings, time zone}

CHANGE UNITS

 UNITS (NAUTICAL, METRIC, STATUTE) {distance units}
 BEARING (MAG, TRUE) {north reference used}
 CLOCK (12 HR, 24 HR) {time display}

RESET GROUPS (NO, YES) {reset window groups and boxes}
 RESET OPTIONS (NO, YES) {return unit to original factory settings}
 DELETE ALL WPTS (NO, YES) {erase all waypoints}
 SYSTEM INFO {(Manufacturer, Copyright)}
 NMEA / DGPS CONFIG {setup of differential port}
 COM PORT SETUP {setup of communications port}

GPS SETUP

 INITIALIZE GPS {manually sets current position of GPS}
 POWER SAVE (OFF / ON) {lowers receiver's performance for battery life}
 POSITION FORMAT {position display of current location}
 ALTERNATE FORMAT {alternate format of position display}
 SELECT DATUM {manual selection of reference datum plane}

MAP FIX SETUP

 SET PCF OFFSET {match offset on chart – don't use}
 PINNING (OFF / ON) {freeze position when no motion}
 GPS AUTO SEARCH {unit automatically searches for current position}

SIMULATOR SETUP

 SIMULATOR (OFF / ON) {start or stop simulator}
 TRACK {starting track of simulation}

SPEED {speed of simulation}
 ALTITUDE {altitude of simulation}
 SET START WPT {user choice of waypoint as starting location}
 STEER WITH ARROWS (left / right for direction, up / down for speed)
 SUN / MOON CALC
 SUNRISE SUNSET {time of sunrise / sunset}
 MOON RISE MOONSET {(time of moonrise / moonset + fullness)}
 CANCEL NAV {cancel current navigation – route, waypoint}
 ALARMS / CDI
 ARRIVAL (OFF / ON) {message and / or tone at arrival distance}
 ARRVL DIS (0.05-0.10-9.75) {set arrival distance to waypoint}
 CDI ALARM (OFF / ON) {alarm sounds when off course}
 CDI DIS (0.08-0.20-8.00) {off course distance limits for alarm}
 ANCHOR (OFF / ON) {alarm sounds when drift distance}
 ANCHOR DIS (0.01-0.10-9.75) {distance of drift for alarm to sound}
 DGPS MSG (OFF / ON) {differential GPS message – not applicable}
 ROUTE PLANNING* {route selection, editing and creation of route}

* Unit Must Be Within Arrival Distance of Current Waypoint in Route Before Proceeding to Next Waypoint in Route

ZOUT / ZIN Keys

Pressed Singularly – Zooms map In / Out (Width of Map Screen) (0.1 to 2000)
 Pressed Together – List of Nearest Waypoints

ENT Key

Select Current Location (Waypoint or Symbol)
 Select Choice of List

WPT / GOTO Key – Push Twice to Store Current Position as Waypoint

WPT# - Number of Current Waypoint
 GO TO WPT – Navigate to Displayed Waypoint
 NAME – WPT xxx – Name of Current Waypoint
 WPT LIST – List of Stored Waypoints
 CREATE WPT – Create New Waypoint
 EDIT POSITION – Change Position of Current Waypoint
 EDIT NAME – Change Name of Current Waypoint
 EDIT SYMBOL – Change Symbol of Current Waypoint
 DELETE WPT – Remove Waypoint from List of Stored Waypoints
 MOVE WPT – Move Position of Current Waypoint

Arrow Keys

Change Cursor Position on Map
 Guide Simulator
 Select Menu Choice
 Change Selection, Go Down Level (To Go Up Level Press EXIT Key)

Information Sheet #12

TOPIC: SETTING / EDITING WAYPOINTS IN GLOBALMAP 100 GPS UNITS

INTRODUCTION: Summary waypoint setting and editing with water rescue GPS units.

Saving Position As Waypoint

Current Location – Press WPT Key Twice

Cursor Position – Move Cursor to Desired Position and Press WPT Key Twice

CREATE WPT – User Designates Waypoint Location

ENTER POS – Enter Coordinates of Waypoint

CURRENT POS – Use Current Location for Waypoint

AVERAGE POS – Average Current Location Over Time (Reduce SA)

PROJECT POS – Calculate New Waypoint Based On:

Reference Waypoint – Point to Project From

Distance – Distance From Reference Waypoint

Bearing – Direction From Reference Waypoint

Changing Waypoint Characteristics

Number – Waypoints Stored as Next Available Number by Default

Can Specify Waypoint Number By Using CREATE WAYPOINT Option

EDIT POS – Change Position (Coordinates) of Waypoint

EDIT NAME – Change / Assign Name of Waypoint (8 Digits Allowed)

EDIT SYMBOL – Change / Assign Icon to Waypoint

DELETE WPT – Remove Waypoint Information from Storage

Delete All Waypoints – MENU Key, SYSTEM SETUP; DEL ALL WPTS

MOVE WPT – Move Waypoint Information to Different Number Waypoint

Selecting Waypoint

Press WPT Key; Change WPT # xxx Displayed Using Arrow Keys

Press WPT Key; Select WPT List – Choose Waypoint Desired From List

Hold Down Both ZOOM IN and ZOOM OUT Keys – List of Closest Waypoints

Information Sheet #13

TOPIC: NAVIGATION IN GLOBALMAP 100 GPS UNITS

INTRODUCTION: Navigate to Single Point or Follow a Collection of Points.

Navigate to Cursor Location – Does Not Appear a Waypoint

Move Cursor to Desired Location

Press MENU Key; Select GOTO CURSOR

Navigate to Waypoint

Press WPT Key Once

Select Waypoint Desired By Number or From WPT LIST

Select GO TO WPT

Create / Select / Activate / Modify Route – MENU Key; ROUTE PLANNING

Route # - Number of Current Route Displayed / Selected

AUTO START – Start Route Along Nearest Leg in Route to Current Position

RUN (FORWARD, REVERSE) – Direction Route Followed

DELETE ROUTE – Remove Route From Memory (Does Not Affect Waypoints)

EDIT NAME – Change Name of Route Stored in Memory

SHOW (ETE, ETA, NAMES, DIS/BRG) – Change Display of Info During Route

Cancel Navigation – MENU Key; CANCEL NAV

Within List of Waypoints at Bottom of ROUTE PLANNING Screen

DIRECT TO – Selects Starting Waypoint in Route

ADD FROM MAP – Add / Create Waypoint Using Map and Cursor

ADD WPT – Select and Add Waypoint (ADD TO ROUTE Once Selected)

DELETE – Remove Waypoint From Route (Waypoint Not Deleted)

WPT INFO – Edit Waypoint Data Storage Information

GPS unit considers “arrival” at a position based on the arrival distance. This value is set using the MENU Key; ALARMS/CDI; ARRIVAL DIST. The unit navigates a course by going from waypoint to waypoint. The unit displays information to a current waypoint in the course until it comes within the arrival distance of that point. When the unit enters this radius around the point it will then display information to the next waypoint.

Example 1: The arrival distance set to 0.5 nm. Assuming exactly following the programmed course, navigation will switch to the next point in the route at 0.5 nm before the current waypoint is reached. This may cause turning too soon.

Example 2: The arrival distance set to 0.1 nm. Assuming the course is being followed approximately, navigation will not switch to the next point in the route if the GPS does not come within 0.1 nm of the current waypoint. The unit will continue to display information to this waypoint until the navigation is canceled.

Information Sheet #14

TOPIC: NAVIGATION SCREEN DISPLAY GLOBALMAP 100 GPS UNITS

INTRODUCTION: Simplified Guidelines to Understanding GPS Navigation Displays.

Display Information Flashes If Not Enough Satellite Acquisition For Accurate Positioning

NAV 1 Screen

Compass Rose – Compass Relation to Current Direction of Travel
Top Triangle Pointing Downward – Current Track (Same as TRK)
Top Triangle Pointing Upwards – Current Bearing – (Same as BRG)
Dotted Line Inside Compass Rose – Current Course – (Same as CRS)
White Area – Cross Track Error Range
Solid Line Behind Arrow (Usually Flashing by Default) – Trail History
Arrow in Center of Compass Rose – Current Position, Points in Travel Direction
DIS – Distance to Next Waypoint
GS – Current Ground Speed
Circle with Black / White Pattern – Next Waypoint in Route

Navigation Notes

CDI – Course Deviation Indicator; Graphic Display of Amount Off Course
If Drift Off Course to the Right, Needle Goes to the Left. (Chase needle)
Error Bounds Set By – MENU Key; ALARMS/CDI; CDI DIST
Centered Needle Indicates on Course
Arrow Points to Next Waypoint – Follow Arrow for Next Point in Route
XTK – Cross Track Error; Distance of Present Position from Intended Course

Map Screen

Solid Line Behind Arrow (Usually Flashing by Default) – Trail History
Arrow in Center of Compass Rose – Current Position, Points in Travel Direction
Range of Map (Horizontal Dist) Displayed is Lower Left Corner of Screen
Dotted Line – Current Course – (Same as CRS)
Letter N – Indicator of North Direction
Gray / White Color – One Color Shows Land, Other Color Shows Water

Information Sheet #15

TOPIC: MOST USED MENU CHOICES OF GLOBALMAP 100 GPS UNITS

INTRODUCTION: Simplified use of water rescue GPS units.

PWR / LIGHT Key

Turn On – Press PWR / LIGHT Key Once

Turn Off – Press and Hold PWR / LIGHT Key for 3 Seconds

Light - Press PWR / LIGHT Key While Unit Is On

PAGES Key – Switch Between Displays

STATUS		current lock on satellites; battery power; back light
NAVIGATION	1	BRG, TRK, CRS, DIS, GS, XTK, ETE, CDI, arrow
	2	Compass Rose, BRG, TRK, CRS, DIS, GS, ETE
MAP	1	map
	2	map, BRG, TRK, DIS
	3	map, GS, TRK, CDI
GROUP	C	upper map, CDI, arrow, TRK, DIS
	D	upper map, CDI, arrow, TRK, GS

MENU Key – Internal Settings

MAP SETUP (menu choice appears only on map screens)

MAP OPTIONS

ROTATE (NORTH UP, TRACK UP, CRS UP) {rotate display}

CHANGE (THIS MAP, ALL MAPS) {local or global change}

SYSTEM SETUP

AUDIO / SCREEN

LIGHT DISPLAY (5-30 SEC-CONTINUOUS) {time screen light lit}

CHANGE UNITS

UNITS (NAUTICAL, METRIC, STATUTE) {distance units}

BEARING (MAG, TRUE) {north reference used}

CANCEL NAV {cancel current navigation – route, waypoint}

ALARMS / CDI

ARRVL DIS (0.05-0.10-9.75) {set arrival distance to waypoint}

ROUTE PLANNING {route selection, editing and creation of route}

ZOUT / ZIN Keys

Pressed Singularly – Zooms map In / Out (Width of Map Screen) (0.1 to 2000)

Arrow Keys

Change Cursor Position on Map

Select Menu Choice

Change Selection, Go Down Level (To Go Up Level Press EXIT Key)