

COXSWAIN JOB AID



BOAT FORCES CENTER

CONVERSION TABLE

01" = .02'	16" = .27'	31" = .52'	46" = .77'
02" = .03'	17" = .28'	32" = .53'	47" = .78'
03" = .05'	18" = .30'	33" = .55'	48" = .80'
04" = .07'	19" = .32'	34" = .57'	49" = .82'
05" = .08'	20" = .33'	35" = .58'	50" = .83'
06" = .1'	21" = .35'	36" = .6'	51" = .85'
07" = .12'	22" = .37'	37" = .62'	52" = .87'
08" = .13'	23" = .38'	38" = .63'	53" = .88'
09" = .15'	24" = .4'	39" = .65'	54" = .9'
10" = .17'	25" = .42'	40" = .67'	55" = .92'
11" = .18'	26" = .43'	41" = .68'	56" = .93'
12" = .2'	27" = .45'	42" = .7'	57" = .95'
13" = .22'	28" = .47'	43" = .72'	58" = .97'
14" = .23'	29" = .48'	44" = .73'	59" = .98'
15" = .25'	30" = .5'	45" = .75'	60" = 1.0'

EXAMPLE: 15 SEC = .25 MIN
OR .25 MIN = 15 SECONDS

CONVERTING:

HUNDRETHS TO SECONDS: MULTIPLY THE HUNDRETHS BY 60

SECONDS TO HUNDRETHS: DIVIDE SECONDS BY 60

SPEED, DISTANCE & TIME

AID

60 D-STREET

USE MINUTES FOR TIME, NAUTICAL MILES FOR DISTANCE AND KNOTS FOR SPEED.

$$D = \text{SPEED} \times \text{TIME} \div \text{BY } 60$$

$$S = 60 \times \text{DISTANCE} \div \text{TIME}$$

$$T = 60 \times \text{DISTANCE} \div \text{SPEED}$$

$$\begin{array}{ccc} \mathbf{60} & \mathbf{X} & \mathbf{D} \\ \hline \div & | & \div \\ \mathbf{S} & \mathbf{X} & \mathbf{T} \\ & | & \end{array}$$

3-MINUTE RULE:

THE DISTANCE TRAVELED IN YARDS, IN 3 MINUTES DIVIDED BY 100 EQUALS YOUR SPEED

EXAMPLE: 300 YARDS IN 3 MIN = 3KTS

6-MINUTE RULE:

THE DISTANCE TRAVELED IN NAUTICAL MILES IN 6 MINUTES MULTIPLIED BY 10 EQUALS YOUR SPEED

EXAMPLE: 1.5 NM IN 6 MIN = 15KTS (1.5 X 10 = 15)

CORRECTING AND UNCORRECTING

CORRECTING – CHANGING A COMPASS OR MAGNETIC COURSE TO A TRUE COURSE.

UNCORRECTING – CHANGING A TRUE COURSE TO A MAGNETIC OR COMPASS COURSE.

IMPORTANT NOTES: Deviation **MUST** be taken from the **SPECIFIC VESSELS** deviation table. (Each vessels deviation table must be calibrated annually and be calibrated every 15 degrees.)

Variation **MUST** be taken from the nearest compass rose on the chart in the area you are transiting.

True Virtue Makes Dull Company After Weddings

$$\begin{array}{c}
 -W \qquad \qquad \qquad +W \\
 \xrightarrow{\hspace{10em}} \text{UNCORRECTING} \xrightarrow{\hspace{10em}} \\
 100^\circ T + 12^\circ w = 112^\circ M - 3^\circ e = 109^\circ C
 \end{array}$$

T V M D C

$$\begin{array}{c}
 \xleftarrow{\hspace{10em}} \text{CORRECTING} \xleftarrow{\hspace{10em}} \\
 200^\circ T = 12^\circ w - 212^\circ M = 2^\circ e + 210^\circ C \\
 +E \qquad \qquad \qquad -E
 \end{array}$$

Can Dead Men Vote Twice At Elections

CONVERTING RELATIVE BEARING TO COMPASS BEARING

SIMPLY ADD THE RELATIVE BEARING TO THE *MAGNETIC OR TRUE HEADING* (IF THE SUM IS GREATER THAN 360° YOU SUBTRACT 360 TO GET YOUR ANSWER)

(NOTE: *You must convert to compass after you calculate because the deviation may be different!*)

EXAMPLES:

1. MAGNETIC COURSE IS 010°m.

OBJECT IS 180°r. $010^{\circ}\text{m} + 180^{\circ}\text{r} = 190^{\circ}\text{m}$ (+/- deviation = °C)

2. MAGNETIC COURSE IS 290°m.

OBJECT IS 345°r. $290^{\circ}\text{m} + 345^{\circ}\text{r} = 635^{\circ} - 360^{\circ} = 275^{\circ}\text{m}$ (+/- deviation = °C)

RECIPRICAL COURSES

THE STANDARD WAY FOR DOING THIS IS TO ADD 180 TO YOUR *MAGNETIC OR TRUE COURSE* IF COURSE IS LESS THAN 180° OR SUBTRACT 180 IF YOUR COURSE IS MORE THAN 180°

(NOTE: *You must convert to compass after you calculate because the deviation may be different!*)

EXAMPLES:

1. CURRENT COURSE IS 020°m + 180 = 200°m (+/- deviation = °C)

2. CURRENT COURSE IS 215°m - 180 = 035°m (+/- deviation = °C)

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THE FOLLOWING IS AN UNOFFICIAL WAY OF GETTING A RECIPRICAL. IT DOES NOT WORK FOR ALL COURSES BUT IT IS A PRACTICAL TOOL TO KEEP IN MIND.
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PLUS 2 MINUS 2 OR MINUS 2 PLUS 2

IF THE FIRST DIGIT IN YOUR 3 DIGIT COURSE IS A ZERO OR ONE YOU WILL ADD TWO TO THAT DIGIT AND SUBTRACT TWO FROM THE SECOND DIGIT. THE THIRD DIGIT ALWAYS STAYS THE SAME. EXAMPLE: C = 1 3 7 (137°m)

$$\text{RECIPRICAL} = \overset{+2}{3} \overset{-2}{1} 7 \text{ (317}^{\circ}\text{m)}$$

IF THE FIRST DIGIT IN YOUR 3 DIGIT COURSE IS A TWO OR THREE YOU WILL SUBTRACT TWO FROM THAT DIGIT AND ADD TWO TO YOUR SECOND DIGIT. THE THIRD DIGIT ALWAYS STAYS THE SAME. EXAMPLE: C = 2 4 3 (243°m)

$$\text{RECIPRICAL} = \overset{-2}{0} \overset{+2}{6} 3 \text{ (063}^{\circ}\text{m)}$$

NOTE: THIS DOES NOT WORK FOR 000 THROUGH 019, 100 - 119, 180 - 199 and 280 - 299. HOWEVER, THOSE YOU CAN DO EASILY BY ADDING/ SUBTRACTING 180.

BFC RECOMMENDATIONS FOR USE OF THE FURUNO RADAR

Step one: read the OPERATOR'S MANUAL, and then watch the RADAR video.

Ensure your GPS is on first or you will get a "No Data" Alarm
Ensure you are in Radar control (lowest soft key)

HUE: Depress POWER/BRILL key. Depress HUE soft key. Set HUE to MANUAL. Return. Select MENU key then RADAR DISPLAY SETUP key. Select ECHO COLOR. Set ECHO COLOR to MULTI-COLOR.

(This will allow the user to view contacts in three colors, in order of descending strength.) While in the RADAR DISPLAY SETUP, select TUNING. Choose AUTO.

(The unit's ability to tune itself is far superior to that of manual adjustment.)

If the auto setting does not provide adequate tuning, have the unit re-adjusted.)

Select Return, then Menu

PRESENTATION MODE: Select the RADAR DISPLAY soft key. Select the MODE soft key. Choose HD UP.

(Selecting HEAD-UP mode will allow information on the radar display to correspond directly to that of the chart plotter.)

RADAR SETTING:

Press Gain key:

Adjust Gain to about **35**

Adjust Sea Clutter to **60**, as needed, or auto

Adjust Rain Clutter to 0, as needed, or auto

The A/C AT should be off

Return

Select SIGNAL PROC. soft key to adjust I rejection to low or med

E Ave. should be off

Adjust E STR as desired

NOTE: Read carefully pg. 2-31 of the OPERATOR'S MANUAL explaining the WATCHMAN function. Pressing the NAV Function soft key will enable you to turn on/off Watchman function.

(Inadvertently selecting the WATCHMAN function will place the radar in STAND-BY mode for periods of 5, 10, or 20 minutes.)

RECOMMENDATIONS FOR THE FURUNO VIDEO PLOTTER

**Again: Read the OPERATOR'S MANUAL, and then watch
the PLOTTER video.**

PRESENTATION MODE: Select the MODE soft key. Choose either CSE UP or AT CU. This will need to be done EVERY time the unit is turned on. (Selecting COURSE-UP or AUTO COURSE-UP will allow information on the plotter display to correspond directly to that of the radar once underway.) The unit automatically goes to NORTH UP when it is initially turned so it is not always trying to update its position on the chart plotter.

PLOTTER:

Select DISPLAY, then plotter screen (second from top left) hit enter, then select second from the top left again (split screen with plotter on left) Enter. Plotter is on left side for MOB function. If you hold MOB function long enough or hit ENTER, the whole screen goes to plotter.

NOTE: Operating this unit in the OVERLAY mode in INLAND waters within close proximity to land, bridges, large piers, Aids to Navigation, and concentrated vessel traffic leads to confusion between Plotter information and that of the Radar

DEPTH INFO : Select MENU, CHART SET UP, CHART DETAIL and then Soft Key DEPTH INFO.

CONTOUR SHADING: As desired – we at UTB use 10 Ft.

SPOT SOUNDING RANGE: As desired, again we use 10 Ft.

Return, Menu

NAVIGATING TO WAYPOINTS: To access the PLOTTER SETUP Select MENU, PLOTTER SET UP, SET GOTO METHOD. WAY POINT SWITCHING should be on PERPENDICLAR then Choose 35 POINTS,.

(This step will allow the unit to navigate to more than one waypoint.

Otherwise, it will cease to follow ROUTES past a single waypoint.)

Waypoints should be entered into alpha list instead of local.

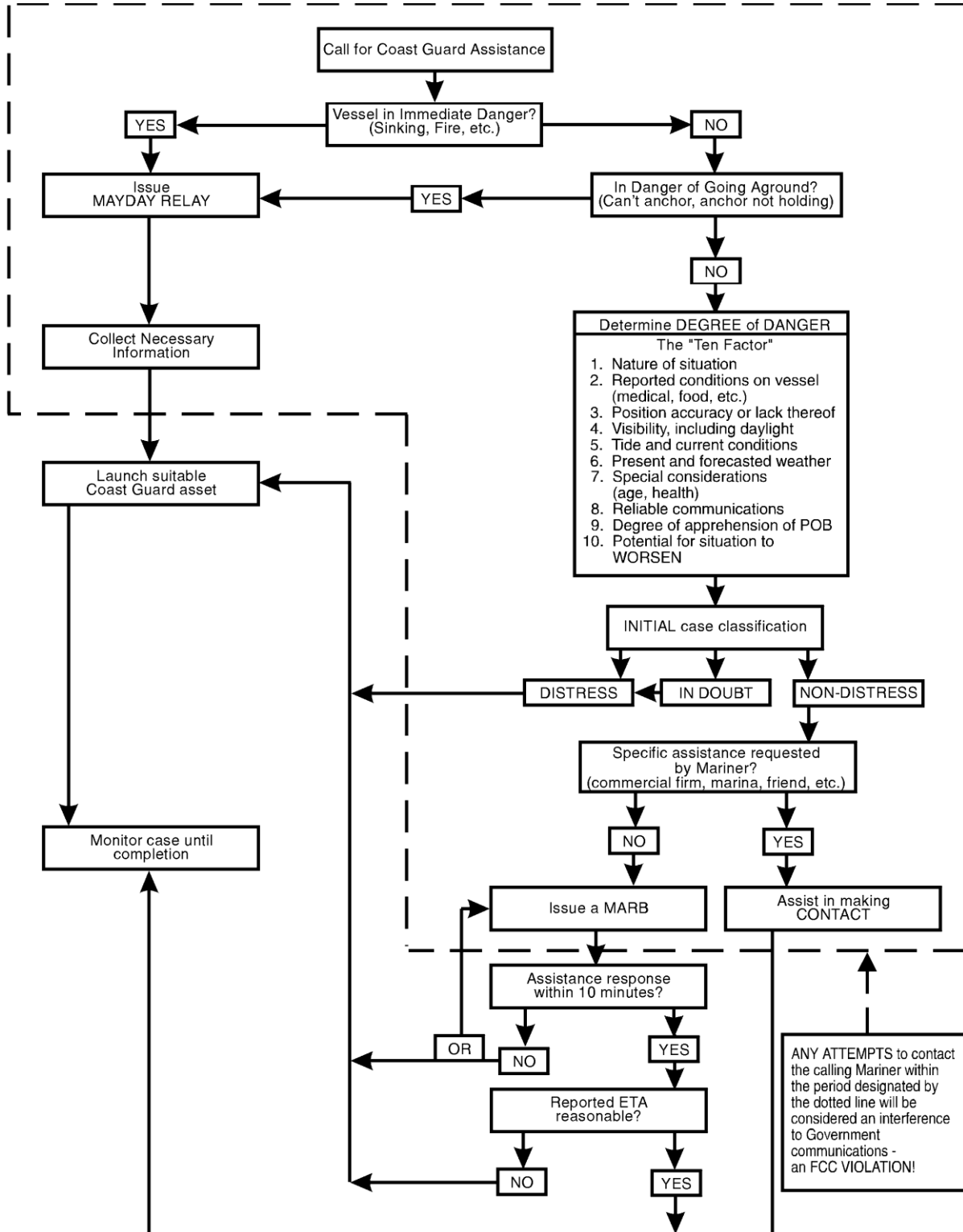
NAV Soft key needs to be on WPT

SEARCH PATTERNS

Press MENU, PLOTTER SET UP, WAYPOINT SWITCHING, ARRIVAL ALARM CIRCLE. Return, Menu.

Press ALARM key and adjust the ARRIVAL ALARM to ON and adjust to 50 yards. (.025) and XTE ALARM to ON and 50 yards (.025)

SAR ASSISTANCE FLOW CHART



TOWING AID

Safe Towing speed:

The square root of the vessels waterline X 1.34 = Max Towing speed (S)

Subtract 10% of S to get Max Safe Towing Speed (Ss)

(This formula applies to displacement vessels only)

SAFE TOWING SPEED TABLE

Vessel Length at Waterline	Square Root	Maximum Towing Speed	Safe Towing Speed
20'	4.5	6.0kts	5.4kts
25'	5.0	6.7kts	6.0kts
30'	5.5	7.4kts	6.7kts
35'	6.0	8.0kts	7.2kts
40'	6.3	8.4kts	7.6kts
50'	7.1	9.5kts	8.6kts
60'	7.8	10.5kts	9.5kts
70'	8.4	11.3kts	10.2kts
80'	9.0	12.0kts	10.8kts
90'	9.5	13.0kts	11.7kts
100'	10	13.4kts	12.1kts

NOTES:

1. ALL SUMS ROUNDED TO NEAREST TENTH
2. HIGH SPEED TOWING IS NOT RECOMMENDED OR AUTHORIZED
3. TRY TO AVOID CONNECTING THE EYE OF YOUR TOWLINE DIRECTLY TO SUBJECT VESSEL. ALWAYS USE A PENNANT OR BRIDLE. *(A WORKING LINE IS EASIER TO REPLACE THAN A TOWLINE)*

BASIC DEFINITIONS

DANGER ZONE: An area around the distressed vessel, that you want to stay out of. When establishing a DANGER ZONE consider:

1. Prevailing weather
2. Aspect of the D/A vessel to the prevailing weather
3. YOUR abilities and experience
4. Your CREWS abilities and experience

OPTIMUM POSITION: THIS IS YOUR GOAL! You have obtained the optimum position when the UTB has its bow into the prevailing conditions, and is outside of the danger zone, and the towline is tending 90° off the UTB to the D/A vessel.

SAFE DISTANCE: A distance within the optimum position and outside of the danger zone that allows you to be close enough to pass the towing rig. When selecting a SAFE DISTANCE, consider the same items as you would with the danger zone.

MANEUVERING ZONE: An area outside the danger zone, inside the safe distance which you may safely maneuver the UTB while station keeping to maintain the optimum position. You are in the maneuvering zone when your towline is no less than 45° or aft of your welldeck.

NOTE: No two cases will ever be the same. Very seldom will they be ideal. Remember to have a plan based on these guidelines before you make your final approach and try to account for everything.

SEARCH PLANNING

PATTERN	NAME	RECOMMENDED USAGE
TSR 	TRACKLINE SINGLE UNIT RETURN	FOR SEARCH OF A TRACKLINE OR LINE OF POSITION WHEN UNIT MUST BREAK OFF SEARCH AT SAME END OF TRACK AS SEARCH ORIGINATED.
TSN 	TRACKLINE SINGLE UNIT NON-RETURN	SAME AS TSR EXCEPT THAT SEARCH TERMINATES AT OPPOSITE END OF TRACK FROM COMMENCE SEARCH POINT.
VS 	SECTOR SEARCH	DISTRESS POSITION KNOWN WITHIN CLOSE LIMITS AND SEARCH AREA NOT EXTENSIVE, (.1 NM FOR PIW, ALL TURNS 120* TO RIGHT).
SS 	EXPANDING SQUARE	DISTRESS POSITION KNOWN WITHIN CLOSE LIMITS AND SEARCH AREA NOT EXTENSIVE, (ALL TURNS 90* TO RIGHT).
PS 	PARALLEL SEARCH	SEARCH OF A LARGE AREA WHEN POSITION OF DISTRESS IS UNKNOWN
CS 	CREEPING LINE	DISTRESS GENERALLY KNOWN TO BE BETWEEN TWO POINTS. WIDER THAN TRACKLINE PATTERNS.

	INITIAL TRACK SPACING (NM)	
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	GOOD CONDITIONS	POOR CONDITIONS
SEARCH OBJECT	WIND < 15 KTS SEAS < 3 FEET	WIND > 15 KTS SEAS > 3 FEET
PIW	0.1 NM TS	0.1 NM TS
< 15 FEET	0.5 NM TS	0.2 NM TS
> 15 FEET	1.0 NM TS	0.5 NM TS

VICTOR SIERRA SEARCH QUICK SHEET

SPEED: _____ KTS

CSP: _____

_____ N / S

_____ W / E

SET: _____ ° M / C

DRIFT: _____ KTS

LEG 1: _____ °

LEG 2: _____ °

LEG 3: _____ ° (ON DATUM)

LEG 4: _____ °

LEG 5: _____ °

LEG 6: _____ ° (ON DATUM)

LEG 7: _____ °

LEG 8: _____ °

LEG 9: _____ ° (ON DATUM)

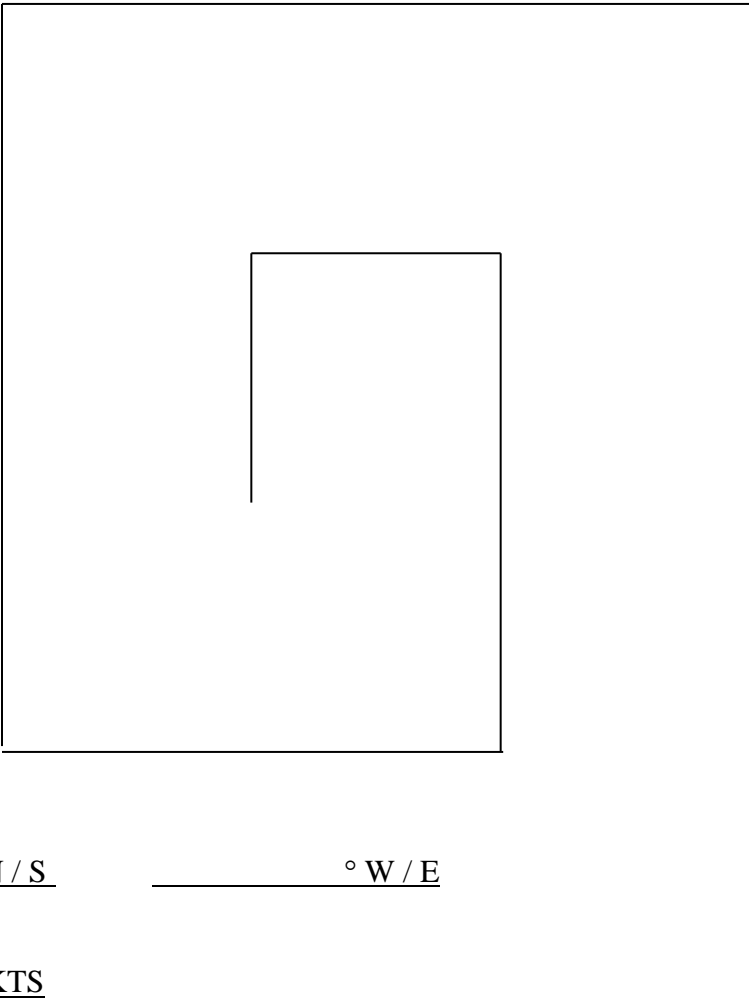
DATUM: _____

WPT NO. _____

WPT NO. _____

WPT NO. _____

SIERRA SIERRA SEARCH QUICK SHEET



CSP: _____ ° N / S _____ ° W / E

SPEED: _____ KTS

COURSE	TIME
LEG 1: _____ °	_____
LEG 2: _____ °	_____
LEG 3: _____ °	_____
LEG 4: _____ °	_____
LEG 5: _____ °	_____
LEG 6: _____ °	_____
LEG 7: _____ °	_____

ENGINEERING CASUALTY CONTROL

LOSS OF MAIN ENGINE LUBE OIL PRESSURE

STEP	PROCEDURE
1	Reduce RPM's to clutch ahead on both engines.
2	Identify affected engine.
3	Notify crew of casualty.
4	Secure affected engine.
5	Check engine room through lower cabin view port to assess the situation.
6	Rig the anchor, if necessary.
7	<u>Engineer:</u> Enter engine room. <u>Crewmember:</u> Act as safety observer for Engineer.
8	Ensure fire extinguishers are on scene.
9	Check bilge areas for lube oil.
10	Check lube oil for quantity and quality.
11	Notify station of situation.
12	Return to station if cause cannot be determined or repaired.

SHAFT STUFFING BOX/PACKING GLAND OVERHEATING

STEP	PROCEDURE
1	Bring both main engine throttle control handles to the clutch position. <u>Do not</u> disengage the shafts or secure the main engines.
2	Cool down the shaft and packing gland with raw water.
3	Loosen the packing gland nut.

MAIN ENGINE HIGH WATER TEMPERATURE

STEP	PROCEDURE
1	Reduce RPM's to clutch ahead on both engines.
2	Identify affected engine.
3	Notify crew of casualty.
4	If temperature continues to rise, secure engine.

CAUTION: *While the engine is secured and the fuel stop is in the up position, to prevent seizure until the engine cools, periodically rotate the engine with the starter.*

5	Check overboard discharge.
6	<u>Engineer:</u> Check engine room through lower cabin view port to assess the situation.
7	<u>Crewmember:</u> If necessary, rig the anchor.
8	<u>Engineer:</u> Enter the engine room. <u>Crewmember:</u> Act as safety observer for engineer.
9	Ensure sea suction valves are open.
10	Check sea strainers. If necessary, shift strainers.
11	Check bilges
12	Check cooling lines.
13	Check raw water pump with the back of the hand.
14	Check expansion tank after engine has cooled.
15	Notify station of situation.

REDUCTION GEAR FAILURE

STEP	PROCEDURE
1	Bring both main engine throttle controls to the neutral position.
2	Check the marine gear drive oil pressure gauge for the affected side. If the marine gear drive oil pressure gauge reads <u>ZERO</u> when the marine gear is in the neutral position, <u>SECURE</u> the respective main engine <u>IMMEDIATELY</u> .
3	The MG-509 marine gear is equipped with a “come home” feature that allows manual engagement of the forward clutch pack for emergency use only. The “come home” feature for the port main engine/marine gear cannot be utilized due to the method of hookup.
4	To engage the “come home” feature, remove the two “come home” access plugs from the manifold over the forward clutch location (aft side of marine gear). Use a screwdriver and alternately tighten the “come home” set screws in a clockwise direction until clutch lock-up is attained.

WARNING: *The use of the “come home” feature on the MG-509 marine gear requires that the starboard main engine be secured BEFORE the “come home” feature can be engaged or disengaged.*

COLLISION WITH A SUBMERGED OBJECT/RUNNING AGROUND

STEP	PROCEDURE
1	Reduce RPM’s to neutral on both engines.
2	Notify crew of casualty.
3	<u>Coxswain:</u> Verify position.
4	<u>Engineer:</u> Proceed to the engine room to check for compartment flooding.
5	<u>Crewman:</u> Check all other compartments for flooding.
6	Engage engines at various speeds to check for vibration.
7	Notify station of situation.

CAUTION: *Excessive shaft or propeller vibration may cause further damage the strut or stern tube bearings.*

FIREFIGHTING POLICY

CG personnel *shall not* engage in independent firefighting operations except to save a life or in the early stages of a fire, where they may avert a significant threat w/o undue risk. REF: SAR ADDENDUM (CH - 3.D.)

INITIAL ACTION

- Approach vessel from upwind.
- Check surrounding vicinity for PIWs.
- Recover and evacuate all survivors to the CG vessel.
- Evaluate their condition and administer first aid if necessary.
- If any injuries require more than minor first aid evacuate survivors to another rescue vessel for transport to EMS.
- If there are no survivors or the survivors are in good condition and have been evacuated to a safe place, stop and evaluate the fire.

SITUATION EVALUATION

Coxswain and crew must evaluate the following elements of the situation:

- Location and extent of a fire
- Class of fire
- Class and extent of all cargo
- Possibility of explosion
- Possibility of vessel involved sinking/capsizing within a navigable channel
- Hazard to your crew
- Maneuverability of your vessel
- Wx forecast
- Risk of a serious pollution incident

If a fire can be put out with no danger to your crew or your vessel, proceed. If not, back off and maintain a safety zone around the vessel.

OVERHAULING

The process of overhauling the fire is done to avoid reflash. When a fire is out, check for hot spots and set a reflash watch. When danger of reflash is no longer a concern, dewater the distressed vessel.

INCIDENT PROCESSING FORM

(REF: SAR MANUAL)

1. NATURE OF DISTRESS: _____
2. POSITION: _____
3. PERSONS NAME: _____
4. VESSEL NAME: _____
5. HOW MANY PERSONS ON BOARD? _____
6. SIGHTING OF SURVIVORS (IF SITUATION WARRANTS) YES (HOW MANY?) _____ NO
7. VESSEL DESCRIPTION: _____
8. SECONDARY TARGETS: _____
9. RADIO FREQUENCIES AND/OR PHONE # : _____
10. EMERGENCY RADIO EQUIP AND FREQS (EPIRB, SART): _____
11. O/S WEATHER AND SEA CONDITIONS: _____
12. ASSISTANCE DESIRED OR RECEIVED? _____
13. FUEL ONBOARD/ ENDURANCE? _____
14. NAVIGATION EQUIPMENT? _____
15. SURVIVAL EQUIPMENT? _____
16. FOOD/ WATER DURATION? _____
17. DATE/ TIME OF INITIAL REPORT: _____
18. OTHER PERTINENT INFO: _____

