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STEERING GEAR TEST
(Rudder angle 35°)

Date	
Starting time	21 H 46 Min
Initial course	30 degree
Initial speed	16 knots
Engine out-put	kw
Engine revolution	110 min-1
Max. inclination	2.0 degree
Wind (relative)	P 30° 17 m/s

No. 1 Pump Unit						
Item	Time (sec.)	Hyd. Pressure (MPa)		Motor		
		(P)	(S)	Elect. Current (A)		Volt (V)
		No. 1 cyl.	No. 2 cyl.	No. 2	No. 1	
0° — P35°	14.3		8		13	
P35° — S30°	24.9		12		17	
S35° — P30	24.4		8		15	
P35° — 0°	13.6		12		17	

No. 2 Pump Unit						
Item	Time (sec.)	Hyd. Pressure (MPa)		Motor		
		(P)	(S)	Elect. Current (A)		Volt (V)
		No. 1 cyl.	No. 2 cyl.	No. 2	No. 1	
0° — P35°	13.5	7		12		
P35° — S30°	24.6	12		19		
S35° — P30	23.9	8		14		
P35° — 0°	13.3	12		16		

Rule Requirement:

Capable of moving the rudder from 35 degrees on one side through 30 degrees on the other side within 28 seconds.

EMERGENCY STEERING GEAR TEST

(Rudder angle 15°)

Date	
Starting time	23 H 40 Min
Initial course	255 degree
Initial speed	9 knots
Engine out-put	kw
Engine revolution	55 min-1
Max. inclination	2.0 degree
Wind (relative)	S 50° 13 m/s

Test by emergency electric power :

Emergency source of electric power supplying time = 22 sec.

(Rule requirement : within 45 sec.)

No. 1 Pump Unit (Manual Lever)						
Item	Time (sec.)	Hyd. Pressure (MPa)		Motor		
		(P)	(S)	Elect. Current (A)		
		No. 1 cyl.	No. 2 cyl.	No. 2	No. 1	
0° — P15°	5.4	2		/	10	
P15° — S15°	10.0	4		/	10	
S15° — P15	10.2	2		/	10	
P15° — 0°	5.0	2		/	10	

Rule Requirement:

Capable of moving the rudder from 15 degrees on one side through 15 degrees on the other side within 60 seconds.

ANCHORING TEST

Date	
Place	
Weather	CLOUDY
Depth of water	56 m
Kind of sea bed	
Anchor	STOCKLESS ANCHOR
	4.48 t x 2
Chain	62 mm x 605 m
	84.18 Kg/m
Windlass	ELECTRIC-HYDRAULIC OPEN GEAR TYPE
	18.6 t x 9 m/min x 2

	Length (m)	Time taken (min-sec)	Speed (m/min)	Power Unit	
				Max. Oil Pressure (MPa)	Ampere (A)
P-side	27.5	2' - 2"	13.52	11	75
S-side	27.5	1' - 57"	14.10	11	85
P & S	27.5	2' - 9"	12.79	11	75

Rule Requirement:

The heaving speed should be more than 9.0 m/min.

In case of 2-length of chain instead of 3-length, speed to be not less than 11.1 m/min.

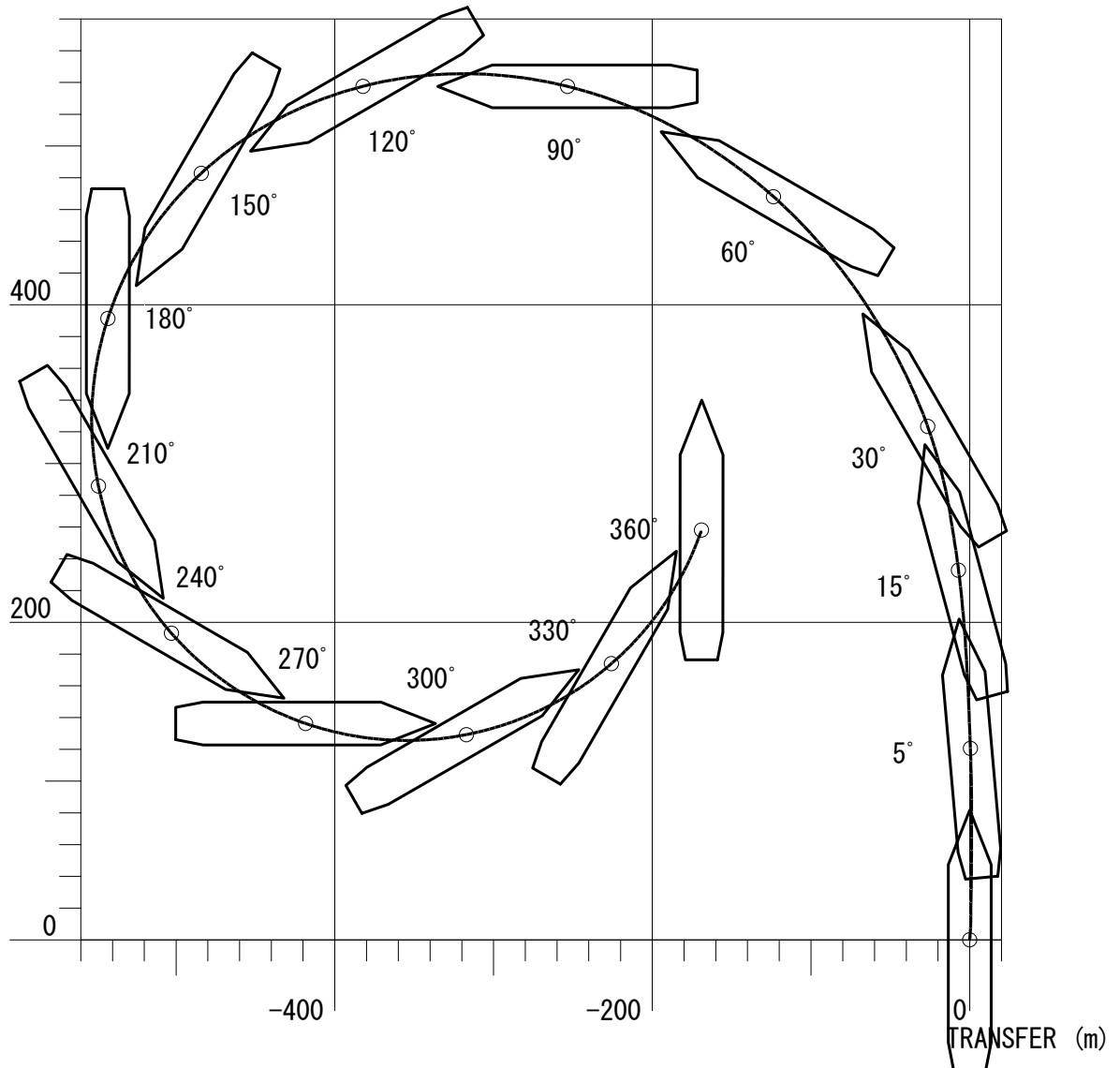
Test of both anchors and chains of one length are heaved at once the same time, only for reference.

RESULT OF PORT TURNING TEST

STARTING TIME	22:04		
RELATIVE WIND	P 30° 7.0 m/s		
RUDDER ANGLE (deg.)	35.0		
SHIP SPEED (knots)	15.90		
MAX. INCLINATION (deg.)	2.0		
ENGINE REVOLUTION (rpm)			
TIME OF COMPLETE CIRCLE (360.0 deg.)	5' -47.3"		
	RUDDER ANGLE (deg.)	TIME TAKEN FROM ORDER (sec)	
AT WHEEL	35.0	0.0	
AT HELM	35.0	0.0	
TURNING ANGLE (deg.)	TIME TAKEN FROM ORDER (min-sec)	ADVANCE (m)	TRANSFER (m)
0	0 - 0.0	0.0	0.0
5	0 - 14.9	120.7	-0.4
15	0 - 29.2	232.8	7.1
30	0 - 41.8	323.4	26.5
60	1 - 9.4	468.1	123.6
90	1 - 37.2	537.5	253.4
120	2 - 5.0	537.6	382.2
150	2 - 32.8	482.8	484.2
180	3 - 0.6	391.3	543.0
210	3 - 28.4	285.9	548.9
240	3 - 56.2	193.1	502.9
270	4 - 24.0	136.3	418.4
300	4 - 51.7	129.3	317.1
330	5 - 19.6	174.0	225.7
360	5 - 47.3	258.2	169.0
ADVANCE (m)	537.5 (3.3 × LPP)		
TACTICAL DIA. (m)	543.0 (3.3 × LPP)		
RULE REQUIRED ADVANCE	736.2 (4.5 × LPP)		
TACTICAL DIA.	818.0 (5.0 × LPP)		

PORT TURNING TEST

ADVANCE (m)

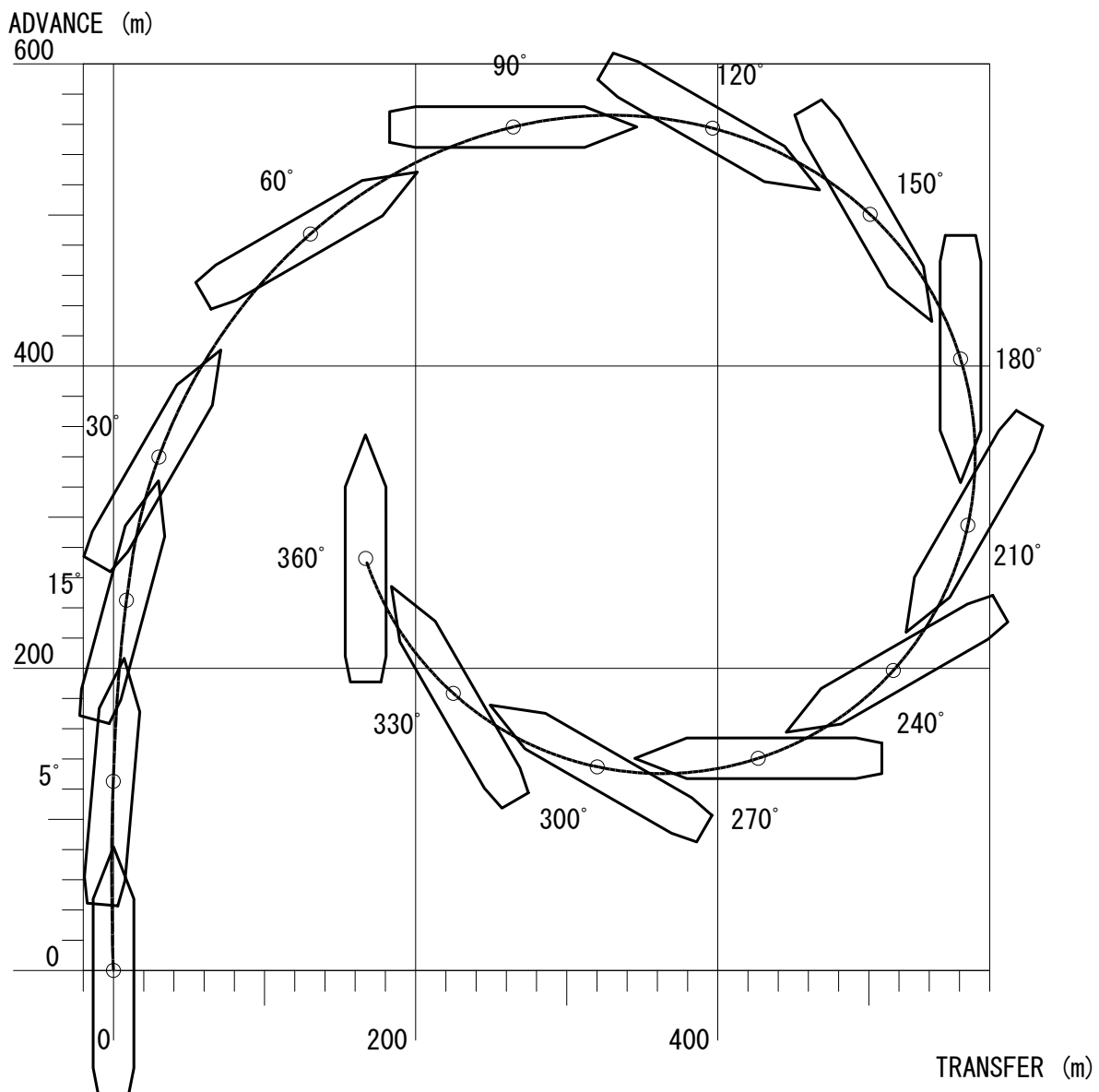


TRANSFER : 253.4 m
 ADVANCE : 537.5 m (3.3 × LPP)
 TACTICAL DIA. : 543.0 m (3.3 × LPP)
 RELATIVE WIND : P 30° 7 m/s

RESULT OF STARBOARD TURNING TEST

STARTING TIME	22:22		
RELATIVE WIND	S 0° 18.0 m/s		
RUDDER ANGLE (deg.)	35.0		
SHIP SPEED (knots)	15.90		
MAX. INCLINATION (deg.)	2.0		
ENGINE REVOLUTION (rpm)			
TIME OF COMPLETE CIRCLE (360.0 deg.)	6' - 6.8"		
	RUDDER ANGLE (deg.)	TIME TAKEN FROM ORDER (sec)	
AT WHEEL	35.0	0.0	
AT HELM	35.0	0.0	
TURNING ANGLE (deg.)	TIME TAKEN FROM ORDER (min-sec)	ADVANCE (m)	TRANSFER (m)
0	0 - 0.0	0.0	0.0
5	0 - 15.4	125.1	-0.1
15	0 - 30.9	245.1	8.6
30	0 - 44.2	339.8	30.1
60	1 - 13.3	487.5	130.4
90	1 - 42.7	558.2	264.6
120	2 - 12.0	557.4	396.5
150	2 - 41.3	500.4	500.8
180	3 - 10.7	404.7	560.7
210	3 - 40.0	294.7	565.5
240	4 - 9.4	198.5	516.1
270	4 - 38.7	140.4	426.8
300	5 - 8.1	134.8	320.2
330	5 - 37.5	183.4	225.0
360	6 - 6.8	272.7	166.9
ADVANCE (m)	558.2 (3.4 × LPP)		
TACTICAL DIA. (m)	560.7 (3.4 × LPP)		
RULE REQUIRED ADVANCE	736.2 (4.5 × LPP)		
TACTICAL DIA.	818.0 (5.0 × LPP)		

STARBOARD TURNING TEST



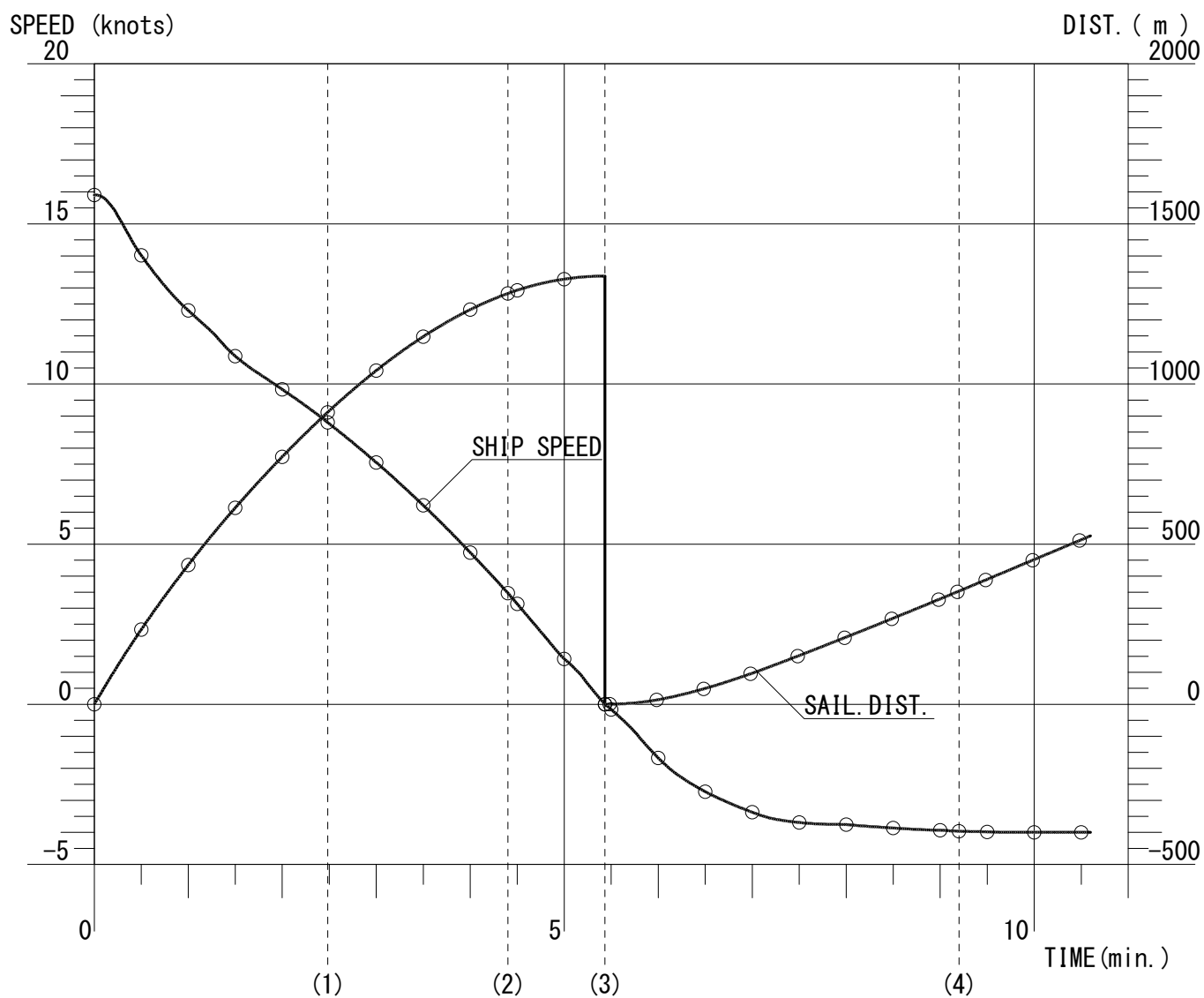
TRANSFER : 264.6 m
 ADVANCE : 558.2 m (3.4 × LPP)
 TACTICAL DIA. : 560.7 m (3.4 × LPP)

EMERGENCY STOP AND ASTERN TEST

STARTING TIME	(m)	23:05		
LENGTH P. P.	(m)		ENGINE REVOLUTION (rpm)	
DISPLACEMENT	(t)		TIME AT SHAFT STOP	2' -29"
TRIM	(m)	3.12	TIME AT STEADY REVOLUTION	4' -24"
MTC	(t-m)	347.60	TIME AT SHIP STOP	5' -26"
MID. B	(m)	-5.34	TIME AT STEADY SPEED	9' -12"

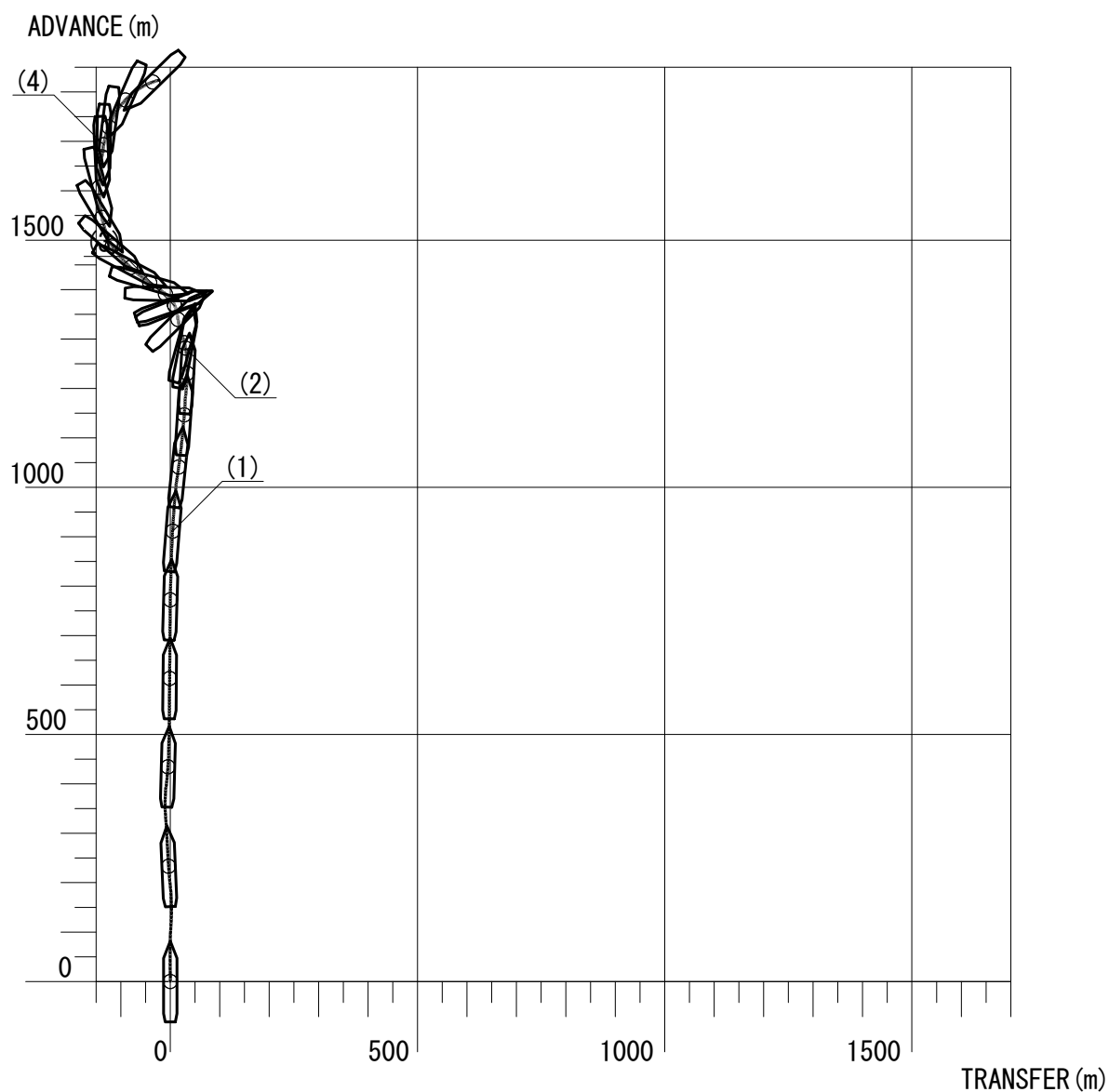
TIME TAKEN FROM ORDER (min-sec)	TURNING ANGLE (deg)	SHIP SPEED (knots)	ADVANCE (m)	TRANSFER (m)
0 - 0.0	0.0	15.90	0.00	0.00
0 - 30.0	-2.5	14.02	233.26	-3.42
1 - 0.0	1.6	12.30	434.69	-4.64
1 - 30.0	0.5	10.87	613.33	-1.26
2 - 0.0	1.8	9.83	772.51	0.12
* 2 - 29.0	4.7	8.80	911.34	4.71
3 - 0.0	6.0	7.55	1040.94	16.96
3 - 30.0	4.0	6.21	1146.39	28.11
4 - 0.0	3.4	4.74	1230.47	34.08
* 4 - 24.0	11.1	3.47	1281.69	30.76
4 - 30.0	15.3	3.13	1292.61	28.46
5 - 0.0	45.4	1.42	1339.65	15.62
* 5 - 26.0	67.9	0.00	1366.71	9.21
5 - 30.0	71.0	-0.16	1369.97	7.77
6 - 0.0	91.2	-1.68	1391.27	-9.78
6 - 30.0	106.1	-2.73	1414.12	-41.77
7 - 0.0	118.0	-3.37	1444.74	-80.53
7 - 30.0	131.0	-3.69	1488.30	-117.41
8 - 0.0	149.3	-3.76	1545.76	-138.16
8 - 30.0	165.1	-3.86	1607.07	-143.77
9 - 0.0	177.5	-3.93	1668.75	-138.41
* 9 - 12.0	180.9	-3.96	1693.19	-134.72
9 - 30.0	187.4	-3.98	1729.33	-124.70
10 - 0.0	203.7	-4.00	1783.63	-90.52
10 - 30.0	225.6	-4.00	1820.03	-35.30

EMERGENCY STOP AND ASTERN TEST



	TIME	SPEED(knots)	DIST. (m)
(1) SHAFT STOP	2' -29"	8.80	911.76
(2) STEADY ASTERN (-80 RPM)	4' -24"	3.47	1282.71
(3) SHIP STOP	5' -26"	0.00	1336.94
(4) STEADY ASTERN SPEED	9' -12"	-3.96	353.36

EMERGENCY STOP AND ASTERN TEST

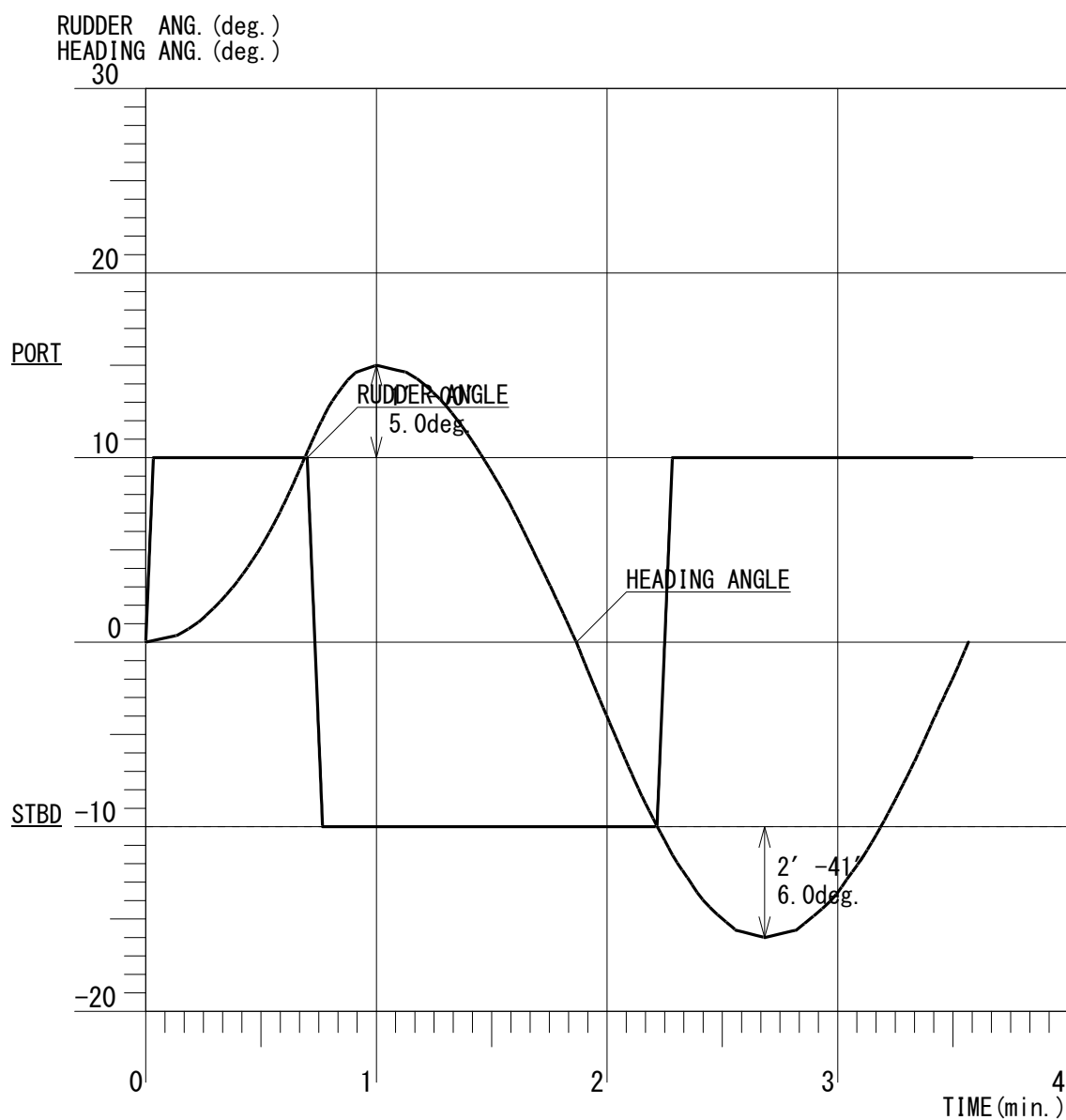


HEAD REACH : 1366.7 m (8.35 × LPP)

TRACK DIST. : 1336.9 m (8.17 × LPP)

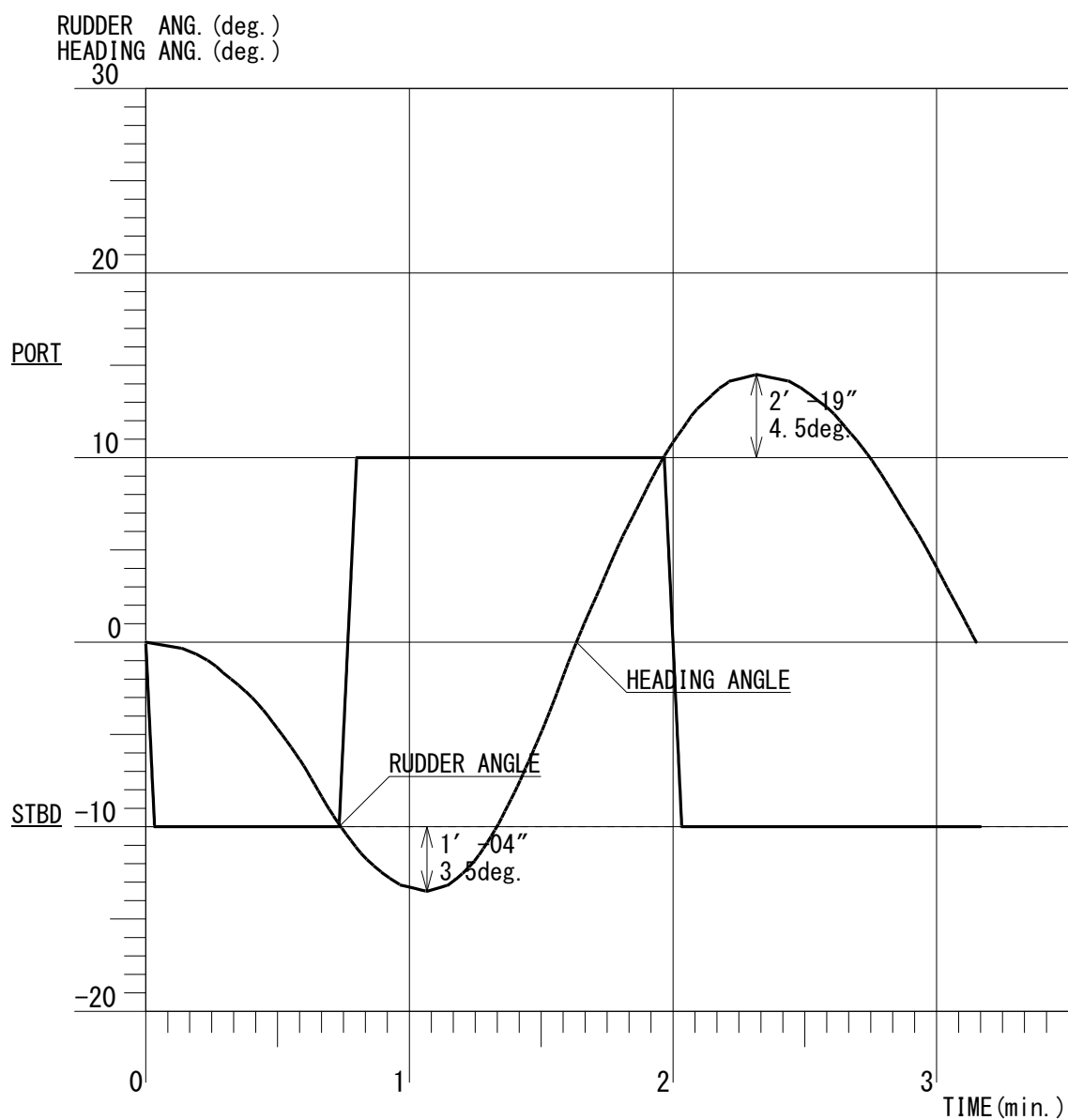
	TIME	SPEED(knots)	DIST. (m)
(1) SHAFT STOP	2' -29"	8.80	911.76
(2) STEADY ASTERN (-80 RPM)	4' -24"	3.47	1282.71
(3) SHIP STOP	5' -26"	0.00	1336.94
(4) STEADY ASTERN SPEED	9' -12"	-3.96	353.36

Z MANEUVERING TEST (PORT)



STARTING TIME	22:55
INITIAL SHIP SPEED	15.9 knots
INITIAL COURSE	300.0 deg.
RELATIVE WIND DIRECTION	P 25 deg.
RELATIVE WIND SPEED	20.0 m/sec
RULE REQUIRED	First over shoot 10 deg.
	Second over shoot 10 deg.

Z-MANEUVERING TEST (STARBOARD)



STARTING TIME	22:35
INITIAL SHIP SPEED	15.9 knots
INITIAL COURSE	210.0 deg.
RELATIVE WIND DIRECTION	S 60 deg.
RELATIVE WIND SPEED	12.0 m/sec
RULE REQUIRED	First over shoot 10 deg.
	Second over shoot 10 deg.

RESCUE BOAT LANCH TEST

THE RESCUE BOAT OF STABOARD SIDE LAUNCH TEST IS
SUCCESSFULLY CARRIED OUT.