9011

Diag. Cht. Nos. 1208-2 & 1107

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey HYDROGRAPHIC

Field No. PE-40-2-68

Office No. H-9011

LOCALITY

State MASSACHUSETTS

General Locality GULF OF MAINE

Locality SOUTHEAST OF STELLWAGEN BANK

1968

CHIEF OF PARTY
J. A. YEAGER

LIBRARY & ARCHIVES

DATE 9-8-69

☆ U.S. GOV. PRINTING OFFICE: 1975—668-353

FORM C&GS-537 (8-15-59)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9011

FIELD NO. PE-40-2-68

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State Massachusetts

General locality ~~East Coast Atlantic Ocean~~ Gulf of Maine

Locality ~~Massachusetts Bay~~ Southeast of Stellwagen Bank

Scale 1:40,000 Date of survey October 6-17, 1968

Instructions dated September 3, 1968 Project No. OPR 473

Vessel USC&GSS PEIRCE

Chief of party LCDR J. Austin Yeager

Surveyed by LT Austin, LT.Sheahan, ENS Snooks, ENS Sigley, ENS Mostue

Soundings taken by echo sounder, hand lead, pole Echo Sounder

Graphic record scaled by Ship Personel

Graphic record checked by Ship Personal

Protracted by Gerber Digital Plotter, PMC

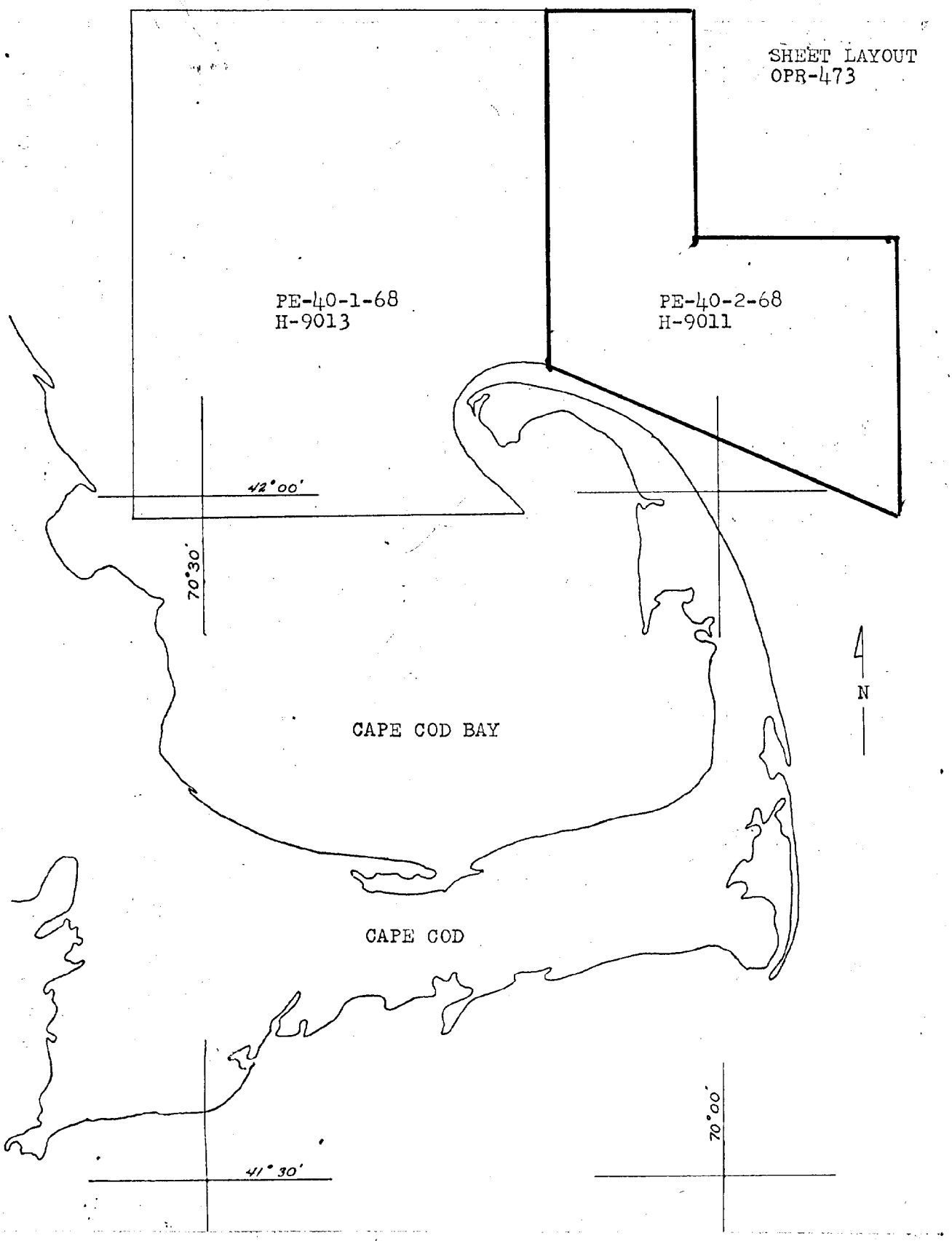
Soundings penciled by Gerber Digital Plotter, PMC

Soundings in ~~fathoms~~ feet at (MLW) [redacted]

REMARKS: ~~Amended project instructions dated 3 September 1968 supercede all previous instructions.~~

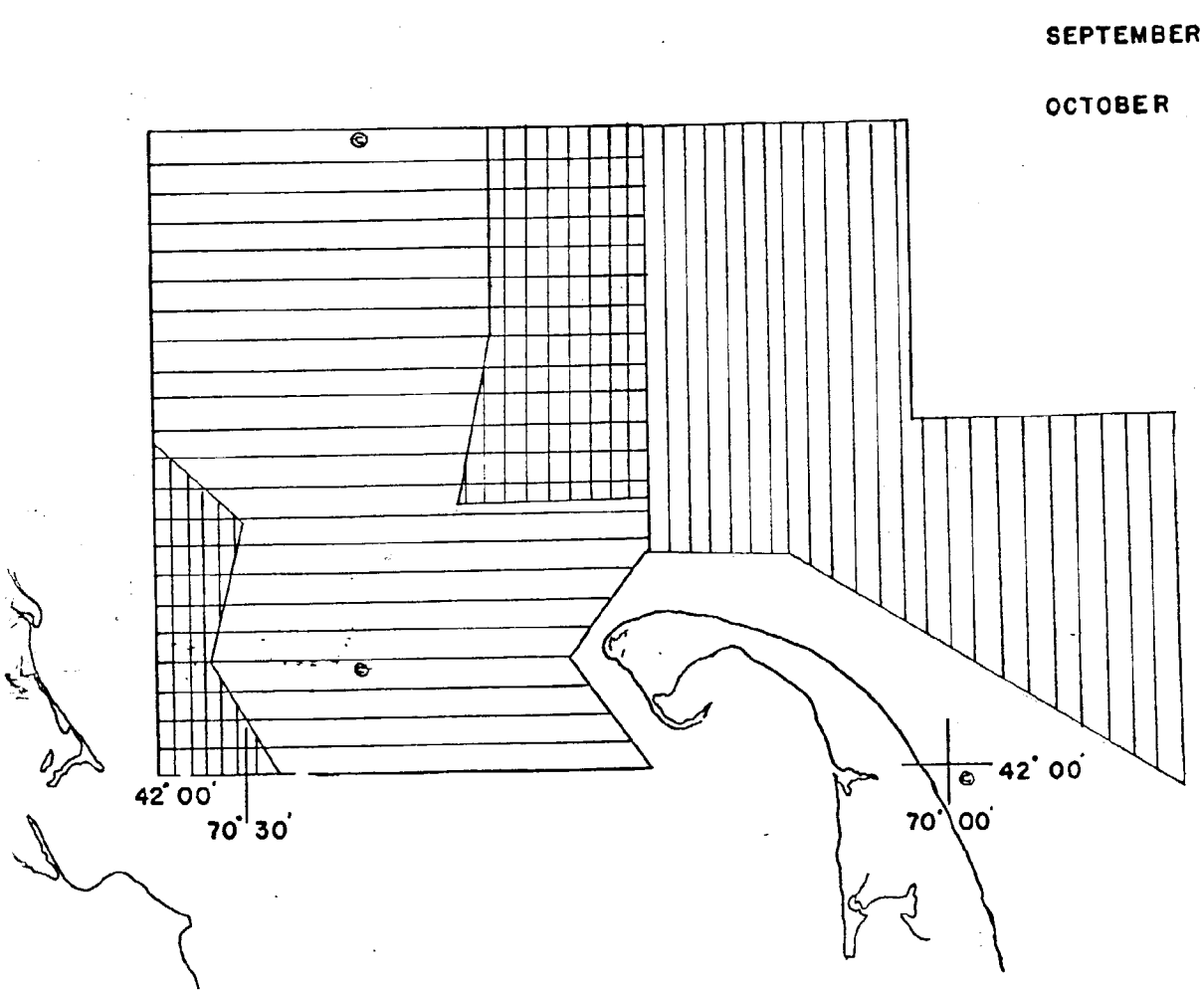
This survey ~~is~~ is complete.

Instructions dated 27 March 1967 and Amended Instructions dated 26 March 1968 remain in effect except where modified by Amended Instructions of 3 Sept. 1968.


SHEET LAYOUT
OPR-473
PE-40-1-68
H-9013
PE-40-2-68
H-9011
42°00'
70°30'
CAPE COD BAY
N
CAPE COD
41°30'
70°00'

COAST & GEODETIC SURVEY, DON A. JONES - DIRECTOR
MONTHLY PROGRESS SKETCH - OPR 473
USC&GS SHIP PEIRCE, LCDR J.A. YEAGER
1968 FIELD SEASON — CAPE COD & VICINITY

CHART 1107



DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY PE 40-2-68

1968 FIELD SEASON

USC&GS SHIP PEIRCE — SCALE 1:40,000

J. AUSTIN YEAGER, LCDR USESSA — CHIEF OF PARTY

A. PROJECT

This survey was accomplished under Project OPR 473, East Coast, Massachusetts; ~~Revised Instructions dated September 3, 1968 supercede all previous instructions.~~ Instructions dated 27 March 1967 and Amended Instructions dated 26 March 1968 remain in effect except where modified by Amended Inst. of 3 Sep. 1968.

B. AREA SURVEYED

The area covered by this survey is the southern portion of Massachusetts Bay between Race Point on Cape Cod and the Atlantic Ocean seaward to longitude 69° 49'W. The west edge of hydrography junctions with contemporary survey PE 40-1-68, (H-9013) at longitude 70° 11.0'W. The eastern limit junctions with prior survey H-5276 at longitude 69° 50'W. The northeast portion junctions with previous survey H-6564 at longitude 70° 02'W. The north edge joins with prior survey H-8938 at latitude 42° 02'N. The southern limit conforms with a line from latitude 42° 00.0'N at the eastern limit to latitude 42° 06.5'N at the western limit. Hydrography commenced in this area on October 6, 1968 and was completed on October 17, 1968.

C. SOUNDING VESSEL

All hydrography in this area was performed by the Ship PEIRCE. Position numbers were denoted by violet color.

D. SOUNDING EQUIPMENT

One Raytheon fathometer (type 723) number 246 was used in this survey. Echo soundings were obtained in depths up to 500 feeet.

The velocity correctors for the ship were obtained by taking a Nansen cast oceanographic station. Depth and temperature were recorded in the field. Salinity data was determined by measuring the specific gravity of the water samples with a hydrometer. Results of the oceanographic station were graphed and velocity corrector values were picked off in 1.0 foot increments. The initial was held at 9.0 feet for soundings

observed in feet and at 1-1/2 fathoms for soundings in fathoms. Included in the initial is a reduction of one foot from the draft of the vessel transducers as per instructions in a memorandum from the Chief, Instrument Division, dated October 1, 1962. (Although soundings were observed both in units of feet and fathoms, all depths were recorded in feet.).

A draft corrector of +0.0 feet was calculated for the ship. (See appendix "D").

There was no phase corrector necessary as the fathometer was carfully maintained as per correspondence from the Chief, Engineering Division dated December 22, 1966.

E. SMOOTH SHEET

The smooth sheet will be plotted automatically at the Pacific Marine Center, Seattle, Washington by the Gerber Plotter. Field records were encoded on punched tapes designed for computer use. This "Raw Data Tape" was made during the field operations and contained position information including time, depth, day number and the two Hi-Fix readings. Corrector tapes were also logged which provide calibration correctors to Hi-Fix readings as well as all other data (smooth tides, transducer correctors, etc.) necessary to reduce the depths to final, correct values. The tapes will be intergrated by computer to obtain data for the Gerber Plotter.

F. CONTROL

Hi-Fix was used for positioning of the ship hydrography. Stations "Eastern Point" and "Strawberry Point" were used during the period of survey.

Hi-Fix calibration was accomplished through three-point sextant fixes. Prior to operations, the ship was brought close enough to shore so as to be able to obtain a good three point fix. There a series of fixes were taken by sextants (a fix consisted of a three-point fix taken by sextant men and a check angle taken by a third sextant man). The fixes were then plotted by a three-arm protractor on the calibration sheet for Hi-Fix scaled 1:10,000 of the area. With the sextant fixes plotted on the calibration sheet, corresponding Hi-Fix values were read from the sheet. Simultaneously with the fixes, Hi-Fix values were read from the Hi-Fix console. The difference between the values corresponding to the sextant fixes and the values from the Hi-Fix console for the fixes were meaned and the mean value was recorded as the error for the Hi-Fix system

for the particular day's calibration.

Upon return to Norfolk, all calibration was run through the computer on board the USC&GSS WHITING for comparison with field results. Two separate passes with the data were made, the first using the basic right and left angles, and the second substituting the check angle for the right angle. Results for each of these passes were then compared to those derived in the field in the manner described above. Values which failed to agree within a range of 0.05 lane were rejected. Values which agreed within this range were then averaged and these correctors used for smooth processing. A discussion of these corrector compilations is also found in Appendix "C".

G. SHORELINE

There was no shoreline to consider on this boat sheet.

H. CROSSLINES

Crosslines were run at 10.5% on the boat sheet. All crosslines were in good agreement.

I. JUNCTIONS

Junctions with contemporary survey PE 40-1-68, (~~H-9013~~ H-9013 (1968)) showed a very good comparison in the eastern edge of the sheet.

J. COMPARISON WITH PRIOR SURVEYS

Comparison and junction were established with prior surveys H-8938, H-6564 and H-5276. Agreement with these prior surveys was very close. All soundings were within two to three feet and when velocity correctors are applied to the ship's soundings, these depths should agree within a foot.

A questionable sounding was investigated. The 127 foot sounding at φ 42° 08.8'N, λ 70° 07.8'W was searched for but not found. The shoalest depth found in the vicinity was 139 feet. Present depths adequate

K. COMPARISON WITH THE CHART

Comparison was made with charts C&GS 1207 and 1208, corrected through Notice to Mariners #41, October 3, 1968. The depth contours are in good agreement.

On Charts 1207 and 1208:

The five buoys (four unlighted and one lighted) shown extending 3.5 nautical miles seaward, bearing 070°T from Cape Cod Light are not in existance.

not described in Light List.

The lighted buoy at φ 42° 06.8'N, λ 70° 06.0'W is accompanied by an unlighted buoy (φ 42° 06.7'N, λ 70° 07.8'W) as described in the Atlantic Coast Light List, Volume ~~II~~ I, 1968.

L. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supercede prior surveys of the area.

M. AIDS TO NAVIGATION

A total of two aids to navigation were located within the limits of the sheet:

1. Position #1208: Lighted whistle buoy marked "2PH" — φ 42° 06.8'N, λ 70° 06.4'W

2. Position #1209: Red Nun buoy marked "2PH" — φ 42° 06.9'N, λ 70° 06.0'W

N. STATISTICS

	No. Pos.	Soundings, Naut.Mi.	Bottom Samples	Area Surveyed
Ship PEIRCE	1225	1052.5	27	186.9 sq.mi.

O. MISCELLANEOUS

The request of Dr. Robert Byrne of LASIL, dated February 1, 1969, for a bathymetric survey off Cape Cod outer beach was completed. The offshore ends of the requested bathymetry extended to the eastern limits of the sheet. Control was by Hi-Fix.

The coordinates of the end points of the three transects were:

A.	φ 42° 02.4'N λ 70° 03.7'W	φ 42° 06.3'N λ 69° 52.8'W
B.	φ 41° 58.7'N λ 70° 00.3'W	φ 42° 02.5'N λ 69° 50.0'W
C.	φ 41° 54.3'N λ 69° 58.4'W	φ 41° 56.2'N λ 69° 46.3'W

Also, a Geodyne current meter station was placed off Cape Cod Light (φ 42° 58.1'N, λ 69° 58.1'W) at a depth of 30 feet. The meter was established October 10, 1968 and removed on October 17, 1968, remaining on station and operating for the 7 full days.

Copies of the boat sheet and current meter film records were transmitted to LASIL on December 16, 1968. All other data for this special work are being processed in the normal manner.

Oceanographic station #4 was taken on October 17, 1968 at position φ 42° 09.9'N, λ 69° 52.5'W.

P. RECOMMENDATIONS

The survey is complete. Deletions from charts C&GS 1207 and 1208 as described in section "K" ~~is~~ are recommended.

Q. REFERENCES TO REPORTS

Report on Landmarks for Charts and Fixed Aids to Navigation, USC&GSS PEIRCE.

Coast Pilot Report, USC&GSS PEIRCE, 1968 Field Season.

Season's Report, USC&GSS PEIRCE, 1968 Field Season.

Respectfully submitted,

John H. Snooks

John H. Snooks
ENS USESSA

APPROVED AND FORWARDED

J. Austin Yeager

J. Austin Yeager
LCDR USESSA

APPROVAL SHEET

FIELD NUMBER PE 40-2-68

The field work and processing of data from this hydrographic survey was under my immediate, daily supervision. The boat sheet and all records have been reviewed and approved by me. It is believed this survey is complete and adequate.

J. Austin Yeager

J. Austin Yeager
LCDR USESSA

Form CD-121 (8-63) (Prev. by A.O. [illegible]-10)

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TO : Chief, Processing Division
Pacific Marine Center

DATE: February 5, 1969

In reply refer to:

FROM : Commanding Officer
USC&GSS PEIRCE

SUBJECT: Geographic Positions for HiFix Stations

Adjusted Geographic Positions have been derived for HI FIX stations Strawberry Point and Eastern Point. These stations were used for control purposes by the Ship PEIRCE during the 1968 field season on sheets PE-40-1-68 (H-9013) and PE-40-2-68 (H-9011).

The previously submitted values of Latitude and Longitude for Range One (Strawberry Point) are correct.

λ42° 15' 12.0478"
φ70° 46' 07.2209"

Adjusted values for Range Two (Eastern Point) are as follows:

λ42° 34' 49.9137"
φ70° 39' 48.1897"

These Range Two values replace the former values which were

λ 42°34' 49.909"
φ 70°39' 48.191"

J. Austin Yeager
J. Austin Yeager
LCDR, USESSA

H-9011

V

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: EASTERN HI-FIX

STATE: MASSACHUSETTS YEAR: 1968 THIRD — ORDER

LOCALITY: EASTERN HI-FIX

SOURCE: G-11332 FIELD SKETCH:

GEODETIC LATITUDE: 42 34 49.9137 GEODETIC LONGITUDE: 70 39 48.1897		ELEVATION:	METERS FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ (OR Δ α) ANGLE
MASS. MNLND.	2001	825,329.00	577,054.26	+ 0 33 43

TO STATION OR OBJECT	GEODETIC AZIMUTH (From south)	PLANE AZIMUTH (From south)	CODE
EASTERN POINT LIGHTHOUSE	72 12 22.2	71 38 39	2001

C&GS FORM 6402

APPENDIX B (2)

VELOCITY CORRECTIONS

PE 40-2-68

TO DEPTHS	CORRECTION
72.0	+ 1.0
127.0	+ 2.0
268.0	+ 3.0
488.0	+ 4.0
999.0	+ 5.0

INITIAL CORRECTION
PE 40-2-68

DAY	TIME FROM	CORRECTION
280	0000	0.0
281	0000	0.0
	0610	+ 1.0
	0755	0.0
282	0000	0.0
283	0000	0.0
	1320	+ 2.0
	1350	0.0
284	0000	0.0
	0220	+ 2.0
	0228	0.0
289	0000	0.0
290	0000	0.0
	1409	+ 2.0
	1441	+ 7.0
	1448	0.0
291	0000	0.0
	1251	+ 1.0
	1339	0.0

SETTLEMENT AND SQUAT

Settlement and squat was determined previously for the PEIRCE and found to be negligible.

FATHOMETER SPEED CORRECTION

The fathometers were maintained so that there is no speed correction necessary, especially at the depths obtained on this survey.

H-9011

A. Additions and corrections have been furnished the plotter center by the verification unit. Except those marked for correction by Review.

Date Aug. 13, 1969 Signed Chas. L. Griffin
Title Chief, Hydro Br., AMC

B. Additions and corrections have been added to the survey records and the final smooth sheet forwarded to the ~~verification~~ Review unit.

Date Aug. 13, 1969 Signed Chas. L. Griffin
Title Chief, Hydro Br., AMC

C. The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the verifier's report).

Date Aug. 13, 1969 Signed Chas. L. Griffin
Title Chief, Hydro Br., AMC

D. Smooth sheet and records forwarded to Rockville, Maryland Office.

Date Aug. 14, 1969.

NORFOLK HYDROGRAPHIC PROCESSING BRANCH

VERIFICATION REPORT

H-9011

GENERAL

This appears to be an excellent basic survey. No unusual problems were experienced during verification.

Hugh L. Proffitt
Chief, Hydro Br., AMC

Norfolk, Va.
Aug. 13, 1969

APPENDIX A

TIDAL NOTE

Tidal heights for this survey were obtained by two corrector zones based upon the Boston, Massachusetts tide station. These corrector zones and the Boston hourly heights were supplied by the Tides and Currents Branch, Rockville office. These corrector zones are described as follows:

Zone ONE includes all water west of the 70° 10' west meridian. There is no time difference and a height ratio of 0.95 on the Boston tides.

Zone TWO includes all water east of the 70° 10' west meridian. There is a time difference of +(plus) 0 hr. 10 m. and a height ratio of 0.85 on the Boston tides.

Since there was only one vessel used on this survey, only one tide zone was used at any specific time. Because of this, there was no need for separate tide tables for each zone. The differences between zones were taken care of by simply changing the tide reducers if necessary when entering the other zone.

All times used in this survey are on the 60° west time meridian. This was due to the national observance of Daylight Saving Time. Boston, Massachusetts tide station did not use Daylight Saving Time and thus remained on the 75° west time meridian. In order for all times to be in the same time zone, a +(plus) 1hr. 00m. correction was applied to all times provided for the Boston, Massachusetts tide station. Tidal heights were included on special tide tapes because of the large range in tides.

FORM C&GS-712
(10-67)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 26, 1969

~~xxxxxxxxxxxxxxx~~ Atlantic Marine Center

Plane of reference approved ~~x~~
~~xxxxxxxxxxxxxxxxxxxx~~ for

HYDROGRAPHIC SHEETS 9009-9013
H-9011

Locality: Salem Harbor, Massachusetts

Chief of Party: J. A. Yeager, 1968

Plane of reference is mean low water

Tide Station Used (Form C&GS-681):

Salem
Boston

at the working grounds

Height of Mean High Water above Plane of Reference is as follows:

Zone 1 = 9.0 feet
Zone 2 = 8.1 "
Salem = 8.8 "

Remarks

Tide reducers for Day No. 149, H.S. 9009 have been revised and verified. Tide reducers for Julian Days 199, 200, 212 and 219 have been revised as shown on the tide tape printouts.

J. M. Symons

Chief, Tides and Currents Branch

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-9011

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Peaked Hill Bar										1
Stellwagen Bank										2
Atlantic Ocean										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
					PREPARED BY					22
					Frank M. Tickell					23
					CARTOGRAPHIC TECHNICIAN					24
					APPROVED BY					25
					A. J. Wright					26
					CHIEF GEOGRAPHER					27

FIG. 14 78

FORM C&GS-946
(REV. 11-65)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-9011

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS 1- Mylar Overlay included	3

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	X		1			
CAHIERS	1 & Printouts		XX			
VOLUMES	1-CALIBER					
BOXES						

T-SHEET PRINTS (LIST) NONE

SPECIAL REPORTS (LIST) LANDMARKS, COAST PILOT AND SEASON'S REPORTS

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				1225
POSITIONS CHECKED		125	15	
POSITIONS REVISED		19	3	
DEPTH SOUNDINGS REVISED				
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS		4 hrs	6	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		47 hrs	19	
SPECIAL ADJUSTMENTS			5	
ALL OTHER WORK		105 hrs	25	
TOTALS		156 hrs	55	

		BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY W.L. JONAS AND D.C. CALLAND		28 FEBRUARY 1969	1 MAY 1969
VERIFICATION BY ALLAN K. SCHUCKERT	Inspection by J.T. Callahan-456 Jan-71	31 JULY 1969	8 AUGUST 1969
REVIEW BY George K. Myers 3/14/71		30 July 1970	8 August 1970

Reg. No. 9011

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE_____ TIME REQ'D_____ INITIALS_____

REMARKS:

H-9011

Items for Future Presurvey Reviews

A majority of present soundings are significantly deeper than prior depths. The major portion of these differences can be attributed to less accurate survey methods on the earlier surveys.

Position Index		Bottom Change	Use	Resurvey
Lat.	Long.	Index	Index	Cycle
420	0700	2	2	50 years
420	0701	0	6	50 years
421	0701	0	2	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9011 FIELD NO. PE-40-2-68

Massachusetts, Gulf of Maine, Southeast of Stellwagen Bank

SURVEYED: October 6-17, 1968

SCALE: 1:40,000 PROJECT NO.: OPR-473

SOUNDINGS: DE-723 Depth Recorder CONTROL: Hi-Fix (Range-Range)

Chief of Party ..... J. A. Yeager
Surveyed by ..... J. A. Yeager
..... N. C. Austin
..... R. T. Sheahan
..... K. W. Sigley
..... A. B. Mostue
..... J. H. Snooks
Automated Plot by ..... Gerber Digital Plotter (PMC)
Verified by ..... A. K. Schugeld
Reviewed by ..... G. K. Myers
Date: August 8, 1970
Inspected by ..... J. T. Gallahan

1. Description of the Area

This offshore survey covers an area beginning some 3 to 5 miles off the north to northeast edge of Cape Cod peninsula east of Stellwagen Bank.

The bottom in the area is rugged and irregular beginning on a natural sloping shelf to depths of 200 feet, where steeper gradients drop to depths of greater than 500 feet along the continental margin.

Predominant bottom characteristics are mud, sand, and gravel with evidences of rocky strewn slopes in 180-250 feet of water in the northwestern part of the survey.

2. Control and Shoreline

The origin of control is adequately covered in part F of the Descriptive Report.

There is no shoreline within the limits of this survey.

3. Hydrography

Depths at crossings are in good agreement. The usual depth curves were adequately delineated.

The development of bottom configuration and investigation for least depths are considered good.

4. Condition of Survey

The sounding records, smooth plotting, Descriptive Report, and printout are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual - Automated Hydrographic Surveys, except as follows:

a. Simultaneous comparisons were not made by the hydrographer. Vertical casts should have been made in supporting the instrumental correction.

b. The bottom characteristics of rks was improperly shown on the survey for rky and was revised by the reviewer.

5. Junctions

Adequate junctions were made with H-8938 (1967) on the north, H-9013 (1968) on the west, H-6564 (1940) on the northeast, H-5267 (1932) on the east, and H-9225 (1971) on the southwest.

No contemporary survey junctioning with the present survey on the south was available; however, charted and present survey depths are in agreement.

6. Comparison with Prior Surveys

a.	H-516	(1854-55)	1:80,000
	H-519	(1855-56)	1:40,000
	H-645	(1833-35)	1:10,650
	H-1305	(1854-1875)	1:400,000

These early prior surveys taken together cover the area of the present survey. A comparison of depths between these prior surveys and the present survey ranges from general agreement to differences as great as 20 feet. Differences may be attributed to scale differences, inadequate control, and the less accurate survey methods used on these earlier surveys.

The present survey is adequate to supersede these prior surveys within the common area.

b. H-8413 (1957-59) 1:100,000

This small-scale unverified survey covers almost the entire area of the present survey. A comparison of depths between the prior and present survey indicates general agreement except in isolated areas on steep slopes where present depths are deeper by as much as 10 feet.

The present survey is adequate to supersede this prior survey within the common area.

7. Comparison with Chart 13267 (1207), latest print date November 16, 1974
13246 (1208), latest print date November 1, 1975
13260 (1106), latest print date September 10, 1974

a. Hydrography

The charted hydrography originates with depths from the boat sheet and the verified smooth sheet of the present survey. Several of the charted depths originate with previously discussed prior surveys which require no further consideration.

The present survey is adequate to supersede the charted hydrography within the common area.

b. Aids to Navigation

Lighted Whistle buoy "2PH" on the present survey is in substantial agreement with the chart and adequately marks the feature intended. The unlighted nun buoy located 540 meters southwest of the Whistle buoy on the survey is neither charted nor described in the 1968 Light List. This aid is considered to be provisional and apparently used only as a marker for stationing the lighted buoy.

8. Compliance with Instructions

This survey adequately complies with the project instructions.

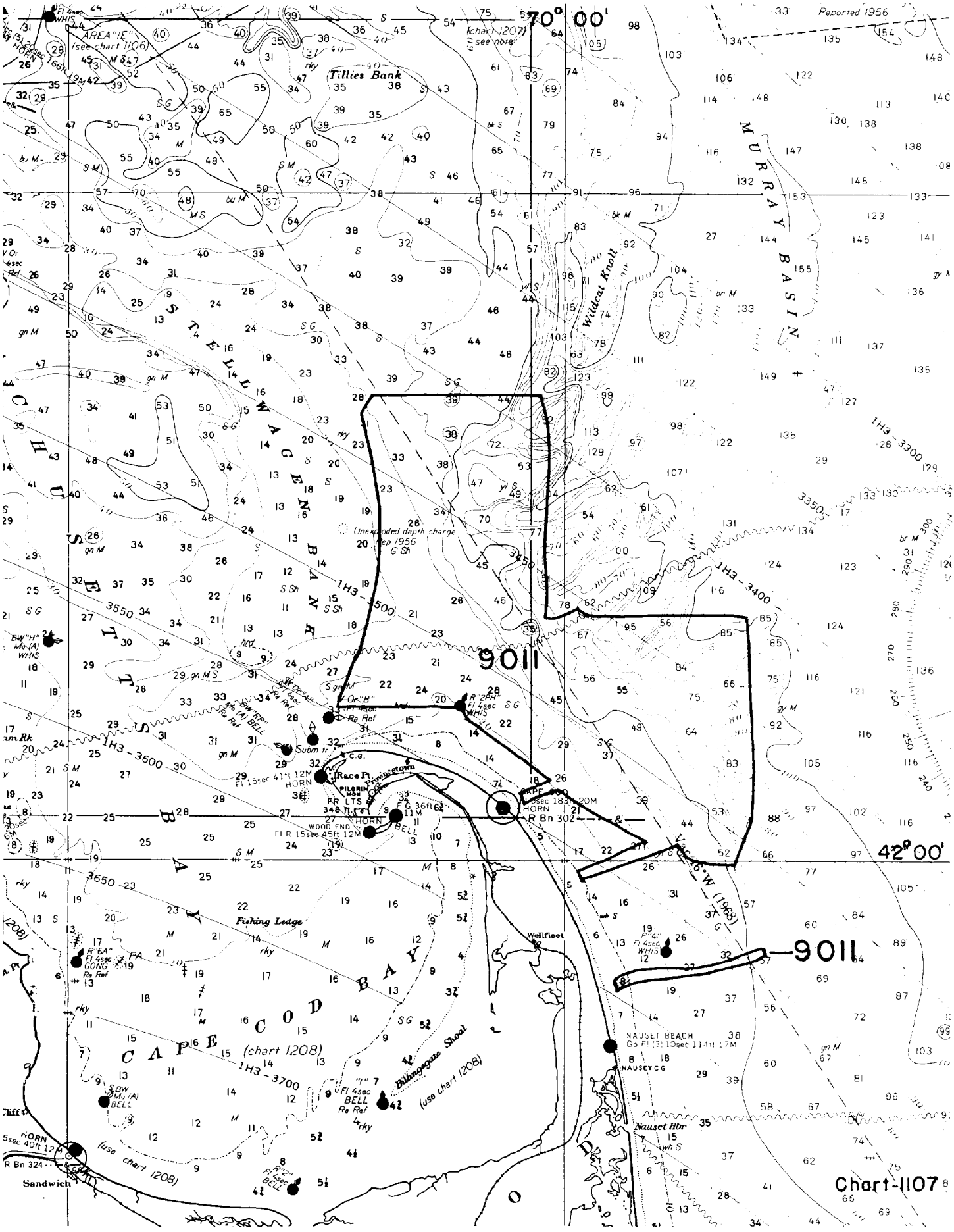
9. Additional Field Work

This is an excellent basic survey and no additional field work is recommended.

Examined and Approved:

Chief
Marine Surveys Division

Associate Director
Office of Marine Surveys
and Maps


70° 00'
42° 00'
Tillies Bank
Wildcat Knoll
MURRAY BASIN
STELLWAGEN BANK
CHUSETTS BAY
Fishing Ledge
CAPE COD BAY
Billingsgate Shoal
Race Pt
Provincetown
Wellfleet
NAUSET BEACH
Nauset Hbr
Sandwich
AREA "E" (see chart 1106)
(chart 1207) see note
Reported 1956
Unexploded depth charge Sep 1956
9011
9011
1H3 - 3300
1H3 - 3400
1H3 - 3500
1H3 - 3600
1H3 - 3700
3350
3450
3550
3650
(chart 1208)
(use chart 1208)
(use chart 1208)
Chart-1107

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9011

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
1106	3-12-70	Jeffrey Stuart	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Checked for critical sdgs
1207	4-16-70	Eric Frey	~~Full~~ Part ~~Before~~ ~~After~~ Verification Review Inspection Signed Via
			Drawing No. no corr, checked for critical sdgs only
1000	4/29/70	O. Svendsen	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 47 Exam. No critical corr thru Ch 1106 Drg #25
71	5-5-70	Eric Frey	~~Full~~ Part Before ~~After Verification~~ Review Inspection Signed Via
			Drawing No. 24 no critical corrections
1107	6/12/70	O. Svendsen	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 23 Exam. No critical corr thru Ch 1106 Drg #25
70	6/26/70	Jeffrey Stuart	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. no critical Corrections
1208	7/21/70	O. Svendsen	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 29 No critical corr.
1208	2/26/71	Joe Estereicher	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Drg #30
1207	3/2/71	Oscar Chapman	Full ~~Part~~ Before After Verification Review Inspection Signed Via
			Drawing No. 31
1106	3-4-71	Oscar Chapman	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. thru Chart 1207 Dwg 31 + Chart 1208 Dwg. #30
1107	5/3/71	S. McKellar	Applied thru 1106 Before Inspection.
71	30 Apr 71	R. Sanocki	Applied after Verification & Review, before Inspection thru dwg # 25 thru chr. 1107 dwg # 24.
70	7-30-71	Kirby Gean	PART AFTER VER & REVIEW BEFORE INSP THRU CHART 71 DWG # 25

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9011

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Revie

CHART	DATE	CARTOGRAPHER	REMARKS
1000	6-13-72	J. Bailey	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Exam. No critical corrs. Appl. thru Drwg 70 # 36
13246 (1208)	8-7-80	L. Lee	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 39
1207 (13267)	10-27-80	W. WINN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. X-DRG # 40
1107 (13200)	10.27.80	W. WINN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 34
71 (13009)	10.27.80	W. WINN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 35
10 (13200)	10.27.80	W. WINN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 45
1000 (13003)	10.27.80	W. WINN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. X-DRG #57
1106 (13260)	10.27.80	W. WINN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 36
1207 (13267)	12.18.80	W. WINN	REAPPLIED IN Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. X DRG #40
1208 (13246)	12.18.80	W WINN	REAPPLIED IN Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. X DRG # ~~40~~ 39.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8553-P57