

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)10. High Pressure Steam and Exhaust Steam Piping (Cont'd)

The contractor shall make all necessary removals to piping, gratings, structure, insulation, wiring equipment, etc., in way of and as required to accomplish work specified. All such piping, gratings, wiring, structure, insulation, equipment, etc., shall be restored to original condition making such modifications as required in way of new piping.

11. Insulation of Steam Piping

Five inch steam lines from Superheater Outlet to Main Steam stop shall be reinsulated and recovered with same types and thicknesses of insulation and coverings as presently installed using new material

Three (3) and four (4) inch high pressure steam lines, valves, and fittings from main steam line to turbine inlet shall be insulated as follows:

Inner Layer - 1 9/16" thickness high temperature insulation  
Outer Layer - 2" thickness of 85% magnesia

Exhaust steam lines valves and fittings shall be insulated with 1-1/2" thickness - 85% magnesia.

All other steam and control lines carrying hot fluids shall be insulated in accordance with Item No. 6 of these specifications.

The first layer shall be securely wired to the pipe with not less than three (3) loops of #18 BWG black annealed wire. Second layer shall be applied over the first layer so that both circumferential and horizontal joints are broken and shall be held in place as specified above for the first layer. The ends of the wire shall be tightly twisted, bent over and hammered into the insulation so as to leave no projections. All joints shall be tightly butted.

In cases where pipe insulation abuts flanges, fittings or hangers, the ends of the insulation shall be tapered to permit free removal of bolts and to allow for movement of pipe at hangers.

A  $\frac{1}{2}$ " thick hard finished magnesia or asbestos cement shall be applied over all steam piping insulation.

95% asbestos cloth pads shall be applied over all flanges of steam piping.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM ( CONT'D )

12. Electrical Connections

A 4-circuit dead-front circuit-breaker distribution panelboard consisting of the following frame sizes shall be mounted and connected up in the new air conditioning refrigeration machinery space. Hold, frs. 102-110 port, to provide power for equipment indicated. All circuit-breakers shall be of DE-ION type or equal.

<u>Frame Size</u>	<u>Circuit</u>
No. 1 - 600 Ampere	- Ref. Condenser Pump - 80 H.P.
No. 2 - 600 "	- Chilled Water Pump - 60 H.P.
No. 3 - 50 "	- Ref. Purge Compressor - 0.5 H.P.
No. 4 - 50 "	- Spare

The above distribution panelboard shall be connected up to the main 240 V.D.C. distribution switchboard located in the electrical distribution room, Second Deck, fr. 120 centerline, by means of a spare 2-pole 600 ampere frame circuit-breaker.

Four (4) dead-front circuit-breaker distribution panelboards shall be mounted and connected up in the following locations to provide power for circuits indicated. All circuit-breakers shall be of 50 ampere frames and shall be of DE-ION type or equal.

PANEL NO. 1 - THIRD DECK, 62 starboard - Fwd. side of bulkhead

<u>Circuit No.</u>	<u>Air Conditioning Unit</u>	<u>No.</u>	<u>12</u>	<u>-</u>	<u>3 H.P.</u>
" " 2 "	"	"	"	13	- 3 H.P.
" " 3 "	"	"	"	14	- 2 H.P.
" " 4 "	"	"	"	15	- 2 H.P.
" " 5 "	"	"	"	20	- 1 H.P.
" " 6 "	"	"	"	21	- 1 H.P.
" " 7 "	"	"	"	22	- 1.5 H.P.
" " 8 "	"	"	"	23	- 1.5 H.P.
" " 9 "	"	"	"	27	- 1.5 H.P.
" " 10 "	"	"	"	28	- 1.5 H.P.
" " 11 "	"	"	"	29	- 1.5 H.P.
" " 12 "	"	"	"	30	- 2.0 H.P.
" " 13 "	"	"	"	31	- 2.0 H.P.
" " 14 - Spare		"	"		

PANEL NO. 2 - MAIN DECK, fr. 104 starboard

<u>Circuit No.</u>	<u>Air Conditioning Unit</u>	<u>No.</u>	<u>1</u>	<u>-</u>	<u>.33 H.P.</u>
" " 2 - "	"	"	"	2	- 2.0 H.P.
" " 3 - "	"	"	"	3	- 1.5 H.P.
" " 4 - "	"	"	"	7	- 1.5 H.P.
" " 5 - "	"	"	"	8	- 1.5 H.P.
" " 6 - "	"	"	"	9	- 1.5 H.P.
" " 7 - "	"	"	"	10	- 1.5 H.P.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)12. Electrical Connections (Cont'd)PANEL NO. 2 - MAIN DECK, fr. 104 starboard

Circuit No. 8 -	Air Conditioning Unit No. 16	=	7.5 H.P.
" 9 -	" 17	=	7.5 H.P.
" 10 -	" 32	=	3.0 H.P.
" 11 -	" 33	=	3.0 H.P.
" 12 -	Spare		

PANEL NO. 3 - THIRD DECK, fr. 148 centerline

Circuit No. 1 -	Air Conditioning Unit No. 4	=	.33 H.P.
" 2 -	" 5	=	1.5 H.P.
" 3 -	" 6	=	1.5 H.P.
" 4 -	" 11	=	1.0 H.P.
" 5 -	" 24	=	.33 H.P.
" 6 -	" 34	=	3.0 H.P.
" 7 -	" 35	=	1.5 H.P.
" 8 -	" 36	=	2.0 H.P.
" 9 -	Spare		
" 10 -	Spare		

PANEL NO. 4 - THIRD DECK, fr. 186 port aft side of bulkhead

Circuit No. 1 -	Air Conditioning Unit No. 18	=	3.0 H.P.
" 2 -	" 19	=	3.0 H.P.
" 3 -	" 25	=	1.5 H.P.
" 4 -	" 26	=	1.5 H.P.
" 5 -	" 37	=	3.0 H.P.
" 6 -	" 38	=	3.0 H.P.
" 7 -	" 39	=	1.5 H.P.
" 8 -	" 40	=	1.5 H.P.
" 9 -	Spare		
" 10 -	Spare		

The above panels shall be fed from a new 4-circuit, dead-front circuit-breaker distribution panelboard consisting of three (3) 100 ampere and one (1) 225 ampere frame circuit-breakers to be mounted and connected up in the electrical distribution room, Third Deck, frs. 118-127 centerline. This 4-circuit panel shall in turn be connected to the main, 240 volt, D.C. distribution switchboard by means of a spare 2-pole 600 ampere circuit-breaker. This circuit-breaker shall be equipped with an undervoltage trip which shall be connected up to a new remote ventilation shut-down switch in the wheelhouse as required by the U.S. Coast Guard.

All work and material shall comply with the requirements of the A.I.E.E. Standards #45, 1948, and the requirements of the U.S. Coast Guard, M.M.I.S.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)12. Electrical Connections (Cont'd)

Upon completion of all work, the equipment and circuits shall be subjected by the Contractor to the dielectric and operating tests acceptable to and witnessed by the Naval Inspector, and in conformity with the A.I.E.E. Standards #45, 1948, and the requirements of the US Coast Guard M.M.I.S.

13. Spare Parts and TestingA. Testing and Balancing

After completion, the entire system shall be thoroughly tested and balanced as required by the Contracting Officer. Refrigeration plant shall be started up and tested by a factory representative, the cost of which shall be borne by the Contractor. Air volumes shall be adjusted to the CFM figures as shown on the drawings, and automatic damper linkage shall be adjusted to deliver design volumes of air by the control manufacturer's representative. The entire system should be balanced for satisfactory operation during the summer air conditioning cycle. Automatic dampers shall be adjusted to delivery both summer and winter air volumes.

Engraved phenolic or embossed aluminum nameplates indicating "summer" and "winter" operating positions of field rheostats shall be securely mounted on the face of the rheostats.

B. Instruction and Diagrams

The Contractor shall furnish the following to the Contracting Officer and the ship:

Arrangement of Air Conditioning and Refrigeration Equipment.  
Diagrams of "Summer-Winter" changeover dampers in duct systems.  
Diagrams of all automatic control systems.  
Piping diagrams of chilled water, condenser water, H.P. steam and condensate systems.  
Parts list and description of all equipment furnished.  
Instruction book for operation of the air conditioning system, including refrigeration plant.  
Instruction book for operation of steam turbine.  
Steam heating piping diagram for zones, 4, 5, 7, and 10.

The instruction book for operation of the air conditioning plant shall include manufacturer's drawings and parts lists of all equipment, piping diagrams, control diagrams, a description of the complete installed system, a description of the function of the system's component parts, operating instructions, preventive maintenance and specific instructions on trouble-shooting for the entire system. The basic principles of air conditioning, as applied to this installation, shall also be included.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)13. Spare Parts & Testing (Cont'd)C. Submission of Drawings for Approval

All working drawings and equipment lists shall be submitted to the Contracting Officer for approval before ordering of equipment or beginning work on any particular item.

D. Spare Parts

The Contractor shall furnish spare parts in quantities as specified herein. All spare parts specified throughout this item shall be properly boxed and marked, and turned over to the Chief Engineer.

E. Electrical Spares (for pump motors and air conditioning  
fan motors)

One (1) Spare armature for each size and type motor  
" " Set field coils for each size and type motor  
" " Set bearings for each size and type motor  
" " Set bushes for each size and type motor  
" " Complete set of springs, contacts, overload coils, contractor coils and resistors for each size and type of motor controller installed

Spare breakers or fuse blocks to suit panel installed, one (1) each for each pump motor.

F. Air Conditioning Unit Spares

100% Spare fan bearings  
100% Spare Filters (Built-up units only)  
100% Spare V-belts for fans  
One (1) Damper motor of each size and type  
" " Low limit cooling thermostat (duct type)  
" " Cooling thermostat  
" " Summer-winter switch  
" " Submaster duct thermostat

G. Set of Pump Spares Consisting Of:

One (1) Stainless steel shaft with impeller for each type pump  
One (1) Complete set of packing and bearings for each type pump  
Two (2) Complete sets of gaskets for each type pump

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & InstallationsRemoval of Exhaust System 02-141

On Superstructure Deck, fr. 142, port, at the deckhead remove existing exhaust blower 02-141. Remove existing exhaust ducts located on Superstructure Deck at frames 142-144, port. Remove existing ductwork and gooseneck vent located on Navigating Bridge Deck, fr. 142, port.

New Exhaust System 02-141-2

On Superstructure Deck, fr. 142 port, install one centrifugal blower complete with motor and controls, capable of exhausting 1300 CFM @ 0.75" static pressure. Install a system of exhaust ducts leading from inlet side of fan and terminating on Superstructure Deck, frs. 142-146 port and starboard. Install an exhaust trunk leading from discharge side of blower up to new gooseneck located on Navigating Bridge Deck, frs. 141-142 port.

New Supply System 02-142-1

On Superstructure Deck, at fr. 142 centerline, install one (1) centrifugal blower complete with motor and controls, capable of supplying 1500 CFM @ 1.00" static pressure. Install new heating unit, transition piece and bypass door on inlet side of blower. Install a system of supply ducts leading from discharge side of fan to new diffusers to be located on Superstructure Deck between frs. 141-148 port and starboard.

Removal of Exhaust System 02-134-2

On Superstructure Deck at fr. 136 port, remove existing exhaust blower, and ductwork located on Upper Deck between frs. 135-140. Completely remove existing trunk leading from discharge side of blower up to aft stack level.

Modification of Supply System 02-137-1

Remove from Supply System No. 02-137-1 sections of ductwork located on Superstructure Deck, between frs. 134-147, port and starboard and on Upper Deck between frs. 112-152, port and starboard. Install new duct work leading from point of removal on Superstructure Deck between frs. 138-142 starboard and on Upper Deck, frs. 131-154 port and starboard, as indicated on the drawings.

Modification of Supply Systems 02-106-4 and 02-108-1

Remove from Supply System 02-106-4 sections of duct work and heating unit located on Superstructure Deck, frs. 107-110 port of centerline. Remove sections of duct work located on Upper Deck between frs. 107-122, port.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modifications of Supply Systems 02-106-4 and 02-108-1 (Cont'd)

Remove from Supply System 02-108-1 sections of ductwork and heating unit located on Superstructure Deck between frs. 106-108 starboard, and on Upper Deck between frs. 91-130, port and starboard.

On System No. S-02-106-4, install new section of duct work on discharge side of blower down to new duct work on Upper Deck between frs. 106-125, port and starboard, as indicated on the drawings. On Supply System 02-108-1, install sections of ductwork leading from point of removal on discharge side of blower to connect with existing branch ducts of modified Supply System 02-106-4, Superstructure Deck, frs. 106-109 starboard.

Removal of Exhaust System 02-106-2

On Superstructure Deck, frs. 106-107 port, remove existing exhaust blower 02-106-2. Remove exhaust trunk leading from inlet side of blower down to Upper Deck, frs. 106-113 $\frac{1}{2}$  port. Completely remove exhaust riser leading from discharge side of blower and running into the stack, frs. 106-107, port.

New Exhaust System 02-106-2

On Superstructure Deck, frs. 106-108 port of centerline, install a centrifugal blower complete with motor and controls, capable of exhausting 4000 CFM @ 2.00" static pressure. Install an exhaust trunk leading from inlet side of blower down to system of exhaust ducts and outlets to be located on Upper Deck, frames 106-125 port and starboard, as shown on the drawings.

Modification of Exhaust System 02-135 (New Sys. No. 02-135-2)

On Upper Deck, frs. 108-149 port and starboard, remove existing exhaust duct work pertaining to Exhaust System 02-135.

Install a system of exhaust ducts leading from point of removal to various terminals to be located on Upper Deck, frs. 127-147 port and starboard, as shown on the drawings.

Modification to Exhaust System 02-106-1 (New Exhaust System  
No. E-02-106-1)

On Superstructure Deck, frs. 106-107 stbd., remove existing blower E-02-106-1 and sections of ductwork located as follows, Superstructure Deck, frs. 95-96 and 105-110 stbd., and on Upper Deck frs. 99-106 and 109-114 stbd. Install new exhaust blower capable of exhausting 2500 CFM @ 1.75" static pressure on Superstructure Deck, frs. 106-107 stbd., in way of removed blower. Install new sections of ductwork leading from points of removal on Superstructure Deck, frs. 95-96 and 105-110 stbd., and on Upper Deck, frs. 99 & 106 starboard.

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification of Exhaust System 01-78-5

Remove sections of ductwork located on Second Deck, frs. 76-81 stbd., Third Deck, frs. 80-81 stbd., First Platform, frs. 78-80 stbd.

Install new ductwork leading from points of removal to new outlets located on Second Deck, frs. 79-81 port and stbd., Third Deck, frs. 79-81 stbd., and First Platform, frs. 74-79 stbd.

Modification of Exhaust System 01-78-6

Remove existing ducts located on Second Deck, frs. 76-80 port, Third Deck, frs. 78-81 port and First Platform, frs. 78-79 port.

Install new ductwork leading from points of removal to new outlets located on Second Deck, frs. 80-81 port, Third Deck, frs. 78-81 port and First Platform, frs. 78-79 port of centerline.

Modification to Supply System 02-108-2 (New AC Unit #1)

Remove sections of ductwork on Upper Deck, frs. 105-106 port, and blank openings in way of removals. At frs. 88-90 port, and frs. 95-101 port, remove sections of ductwork as indicated on drawings.

Install new ductwork leading from points of removal to new air conditioning Unit No. 1 and outlets located on Upper Deck, frs. 89-101 port of centerline.

Removal of Exhaust Systems 01-143-1 and 01-141-2

On Main Deck, frs. 141-142 port and frs. 141-143 starboard, remove existing exhaust blowers and duct work, as indicated on drawing. Blank off bulkhead penetrations in way of removals.

Removal of Exhaust System 01-120-2

On Upper Deck, frs. 110-121 port, remove existing exhaust blower and duct work and blank off bulkhead penetrations in way of removals.

New Exhaust System 01-155-1

On Upper Deck, fr. 154 starboard, remove existing natural exhaust gooseneck. Remove existing duct work on Main Deck, frs. 151-153 starboard. In way of removals install one (1) axial blower complete with motor and controls capable of exhausting 3600 CFM @ 1.25" static pressure. Install a gooseneck and transition piece on discharge side of blower. On Main Deck, from point of removal between frs. 145-152 port and starboard, install a system of exhaust ducts and grilles as indicated on drawing.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Removal of Supply System 01-168

On Upper Deck, frs. 168-171 port, remove existing supply blower, heating unit, louvers and transition pieces. Remove existing duct and grille leading from discharge side of blower to deckhead, Main Deck, frs. 169-170 port.

New Supply System 01-168-2

On Upper Deck, frs. 168-171 port, install, in existing Fan Room, one (1) centrifugal blower, complete with motor and controls, capable of supplying 2000 CFM @ 1.00" static pressure. Install new louvered door opening, fitted with air filter on forward bulkhead of Fan Room. Install new heating unit, transition piece, and by-pass door on inlet side of blower. Install a system of supply ducts leading from discharge side of blower down to new diffusers to be located on Main Deck, frs. 164-174 port and starboard.

New Exhaust System 01-172-1

On Upper Deck, fr. 172 centerline, install one (1) axial blower capable of exhausting 2,150 CFM @ 0.75" static pressure. Install a gooseneck ventilator and transition piece on discharge side of blower. Install a system of exhaust ducts leading from inlet side of blower to exhaust grilles, to be located on Main Deck, frs. 165-174 port and starboard.

Modification to Exhaust System 2-142

On Second Deck, frs. 142-143 starboard, remove existing exhaust blower. Remove exhaust trunk leading from discharge side of blower up through gooseneck located on Navigating Bridge Deck, frs. 142-143 port. Remove sections of duct work leading from discharge side of blower, located on Second Deck, and on Third Deck, frs. 140-144 port and starboard.

New Exhaust System 03-142-2

On Navigating Bridge Deck, fr. 142 centerline, install one (1) axial blower, complete with motor and controls, capable of exhausting 9300 CFM @ 2.25" static pressure. Install a gooseneck ventilator and transition piece on discharge side of fan.

Install a system of exhaust ducts leading from inlet side of fan down through Superstructure Deck, frs. 142-143 centerline, Upper Deck, frs. 142-143 centerline, Main Deck, frs. 142-143 centerline, Second Deck, frs. 130-156, port and stbd, and down to Third Deck, frs. 132-145 port and stbd.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Removal of Exhaust System 1-19-1

On Main Deck, fr. 19 stbd., remove existing exhaust blower. Remove existing exhaust duct from discharge side of blower up to gooseneck ventilator, Upper Deck, fr. 20 stbd. Remove sections of ductwork on Main Deck between frs. 7-20 starboard.

Removal of Supply System 1-42-4

On Main Deck, frs. 37-43 port and stbd., remove existing supply blower and exhaust ductwork.

New Supply System 1-18-2

On Main Deck, fr. 18 port, install one (1) centrifugal blower, complete with motor and controls, capable of supplying 1000 CFM @ 0.75" static pressure. Install new louvered door opening, fitted with air filter, on aft bulkhead of deck locker, Main Deck, fr. 19 port. Install new heating unit, transition piece and bypass door on inlet side of blower. Install a system of supply ducts leading from discharge side of fan to outlets, located on Main Deck, frs. 13-17 port and starboard.

New Exhaust System 1-19-1

On Main Deck, frs. 19-20 stbd., install one (1) centrifugal blower, complete with motor and controls, capable of exhausting 1300 CFM @ 0.50" static pressure. Install an exhaust duct leading from discharge side of fan up to new gooseneck to be located on Foc'sle Deck, frs. 19-20 stbd. Install a system of exhaust ducts leading from inlet side of blower to outlets located on Main Deck, frs. 8-19 starboard.

New Supply System 1-65-1

On Main Deck, frs. 65-66 starboard, install one (1) axial blower, complete with motor and controls, capable of delivering 4000 CFM @ 2.00" static pressure. Install new pre-heater and transition piece complete with bypass door on inlet side of fan. Install a system of supply ducts leading to new diffusers located on Main Deck, frs. 60-87 starboard.

New Supply System 1-65-2

On Main Deck, frs. 65-66 port, install one (1) axial blower, complete with motor and controls, capable of delivery 4000 CFM @ 2.00" static pressure. Install new pre-heater and transition piece complete with bypass door on inlet side of fan. Install a system of supply ducts leading to new diffusers located on Main Deck, frs. 60-87 port.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)New Exhaust System 01-78-1

On Upper Deck, fr. 77 stbd., install one (1) axial blower, complete with motor and controls, capable of exhausting 8000 CFM @ 2.00" static pressure. Install a transition piece and gooseneck ventilator on discharge side of fan. Install a system of exhaust ducts leading to outlets located on Main Deck, frs. 76-86 port and stbd.

Modification of Supply System 1-91-1

On Main Deck, frs. 91-93 stbd., remove existing supply blower. Remove sections of supply ducts, heating unit, and outlets leading from discharge side of fan on Main Deck, frs. 61-125 stbd., as indicated on drawing.

Removal of Supply System 1-91-2

On Main Deck, frs. 91-93 port, remove existing supply blower. Remove sections of supply ducts, heating unit and outlets leading from discharge side of fan on Main Deck, frs. 61-125 port, as indicated on drawing.

New Supply System 1-91-1

On Main Deck, frs. 91-93 stbd., install one (1) centrifugal blower, complete with motor and controls, capable of delivery 4500 CFM @ 2.00" static pressure. Install heating unit and transition piece, complete with bypass door, on inlet side of fan. Install new sections of duct work, and diffusers to be connected to existing branch ductwork and new air conditioning units located on Main Deck, frs. 89-124 stbd., as indicated on drawing.

New Supply System 1-91-2

On Main Deck, frs. 91-92 port, install one (1) centrifugal blower, complete with motor and controls, capable of delivery 4500 CFM @ 2.00" static pressure. Install a heating unit and transition piece, complete with bypass door, on inlet side of fan. Install new sections of duct work and diffusers to be connected to existing branch ducts and air conditioning units located on Main Deck, frs. 89-124 port, as indicated on drawing.

Removal of Exhaust System 1-78

On Main Deck, frs. 77-78 stbd., remove exhaust blower and trunk leading from discharge side of fan up to and including gooseneck ventilator on Upper Deck, frs. 77-78 stbd. Remove sections of exhaust ducts and outlets leading from inlet side of blower and located on Main Deck, frs. 77-84 port and starboard.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification of Exhaust System 1-90-3

Remove sections of exhaust duct work and outlets located on Second Deck, frs. 81-91 port and starboard.

Install a system of exhaust ducts leading down through Second Deck, 90-94 stbd., Third Deck, frs. 92-96 stbd., First Platform, frs. 92-96 stbd., and terminating at exhaust outlets as indicated on drawings.

Modification of Exhaust System 1-90-4

Remove sections of exhaust duct work, hoods and outlets located on Second Deck, frs. 83-111, port.

Install a system of exhaust ducts leading down through Second Deck, frs. 90-94 port, Third Deck, frs. 92-96 port, First Platform, frs. 92-96 port and terminating at exhaust outlets, as indicated on drawings.

Modification of Exhaust Systems 1-42-1 and 1-42-2

Remove existing ducts and outlets on Second Deck, frs. 41-42 port and stbd., Third Deck, frs. 41-45 port and stbd., and First Platform, frs. 41-43 port and stbd.

Install exhaust ducts and outlets to be located on Second Deck, frs. 41-42 port and stbd., Third Deck, frs. 41-42 port and stbd., and First Platform frs. 41-42 port and stbd.

Modification to Exhaust System 01-162-1

On Main Deck, fr. 162 stbd., remove sections of ductwork leading from inlet side of blower down through Second Deck, frs. 163-170 stbd., Third Deck, frs. 163-173 stbd., and First Platform, frs. 166-173 stbd. Install new exhaust ducts to connect up with existing blower on Main Deck, frs. 162-163 stbd. and leading down to new exhaust ducts and outlets on Second Deck, frs. 134-172 port and starboard.

Modification to Exhaust System 01-162-2

On Main Deck, fr. 162 port, remove sections of ductwork leading from inlet side of blower down through Second Deck, frs. 163-172 port, Third Deck, frs. 163-174 port and First Platform, frs. 166-174 port. Install new exhaust trunk to connect up with existing blower on Main Deck, frs. 162-163 port, and leading down to new exhaust ducts and outlets on Second Deck, frs. 163-167 port and Third Deck, frs. 166-185, port and starboard.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Removal of Supply System 1-189-2

On Main Deck, frs. 189-190 port, remove existing supply blower and section of ductwork between frs., 185-190 port. Install a new gooseneck ventilator complete with 1/2" wire mesh screen and dogged watertight door, to be connected up to existing 9" x 18" ventilation trunk, Main Deck, fr. 185 port.

New Exhaust System 1-184-1

On Main Deck, frs. 183-184 stbd., install one (1) axial blower, complete with motor and controls, capable of exhausting 4150 CFM @ 1.25" static pressure. Install a vent trunk on discharge side of blower up to new gooseneck ventilator to be located on Upper Deck, frs. 183-184 stbd. Install a system of exhaust ducts leading from inlet side of blower down to outlets located on Second Deck, frs. 173-186 port & stbd.

New Exhaust System 1-209-2

On Main Deck, frs. 209-210 port, install one (1) axial blower, complete with motor and controls, capable of exhausting 6000 CFM @ 1.75" static pressure. Install a transition piece and gooseneck on discharge side of blower. Install a system of exhaust ducts and outlets leading from inlet side of blower leading down through Second Deck, frs. 209-210 port, & Third Deck, frs. 203-210 port.

Modification of Supply System 02-137-2

On Main Deck, frs. 128-157 port and stbd., remove sections of ductwork and outlets. Install new sections of ductwork leading from points of removal to new outlets and air conditioning unit located on Main Deck frs. 142-156 port and starboard, as shown on drawing.

New Exhaust System 01-94-1

On Upper Deck, frs. 94-95, install one (1) axial blower, complete with motor and controls, capable of exhausting 3840 CFM @ 1.5" static pressure. Install transition piece and gooseneck on discharge side of blower. Install a system of exhaust ducts leading up to outlets on Main Deck, frs. 92-97 stbd., and up to Upper Deck, frs. 89-97 starboard.

Modification of Exhaust System E-1-36-2

Remove existing sections of ductwork and terminals located on Third Deck, frs. 37-40 port, and First Platform, frs. 29-40 port and stbd.

(continued)

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification of Exhaust System E-1-36-2 (Cont'd)

Install new exhaust ducts and terminals to be connected to existing exhaust ducts located on Third Deck, frs. 37-40 port and First Platform, frs. 26-40 port and stbd.

Modification to Exhaust System No. 1-127-2

Remove existing 24" x 24" grille located on Main Deck, fr. 127 port.

Install section of exhaust duct and terminal necessary to facilitate installation of automatic dampers.

Removal of Exhaust System 1-147-1 and 1-147-2

On Main Deck, frs. 147-149 port and stbd., remove existing exhaust blowers and connecting ductwork. Blank openings in way of deck penetrations.

Removal of Exhaust System 1-158-2

On Main Deck, frs. 158-160 port, remove existing blower and connecting ductwork. Blank openings in way of deck penetrations.

Modifications of Exhaust System 2-28-1 and 2-28-2

On Second Deck, frs. 29-30 port, relocate exhaust blower 2-28-2. Remove sections of ductwork and the common discharge trunk leading from discharge side of blowers 2-28-2 and 2-28-1 on Second Deck, frs. 24-30 port and stbd. Install a new common discharge duct on discharge side of blowers 2-28-2 and 2-28-1, leading up to new gooseneck to be located on Main Deck, frs. 30-32 stbd.

Install sections of ductwork on inlet side of blowers leading to existing ductwork on Second Deck, frs. 27-31 port and stbd., as indicated on drawing.

Removal of Supply System 2-27-1

On Second Deck, frs. 25-29 stbd., remove existing supply blower, heating units and ductwork. Remove sections of ductwork on 1st Platf., frs. 19-39 port and stbd., pertaining to supply system 2-27-1.

New Supply System 2-26-1

On Second Deck, frs. 25-28 stbd., install one (1) centrifugal blower, complete with motor and controls, capable of supplying 3000 CFM @ 2.25" static pressure. Install new heating unit and transition piece, with bypass door on inlet side of blower. Install sections of ductwork on discharge side of blower to be connected with existing 11" x 10"

(continued)

**140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)****14. Ventilation Alterations & Installations (Cont 'd)****New Supply System 2-26-1 (Cont'd)**

risers, Second Deck, frs. 24-26 port and s tbd. of centerline. Install a system of supply ducts leading from existing supply trunks (1st Platf.) frs. 24-25 port and s tbd. of centerline to new diffusers and air conditioning unit located on 1st Platf., frs. 19-39 port and stbd.

**Modification to Supply System 1-59-1 and 1-60-1**

Remove sections of ductwork pertaining to Supply Systems 1-59-1 and 1-60-1, stbd., on Second Deck, frs. 1-61 stbd. and on Third Deck and First Platform, frs. 42-62 stbd. Install new ductwork leading from points of removal to new air conditioning units, heating units and diffusers to be located on Second Deck, frs. 41-62 stbd., Third Deck, frs. 46-61 stbd. and First Platform frs. 43-62 stbd.

**Modification to Supply Systems 1-59-2 and 1-61-2**

Remove sections of ductwork pertaining to supply system 1-59-2 and 1-61-2, port, on Second Deck, frs. 1-61 port and on Third Deck and First Platform, frs. 42-62 port. Install new ductwork leading from points of removal to new air conditioning units, heating units and diffusers to be located on Secnd Deck, frs. 41-62 port, Third Deck frs. 46-61 port, and First Platform, frs. 43-62 port.

**Modifications to Supply Systems 1-62-1 and 1-64-1**

Remove sections of ductwork pertaining to Supply Systems 1-62-1 and 1-64-1, stbd., on Second Deck, frs. 62-80 stbd., and on Third Deck, and First Platform, frs. 62-81, port and s tbd. Install new ductwork leading from points of removal to new air conditioning units, heating units, and diffusers to be located on Second Deck, frs. 62-80 stbd., Third Deck, frs. 62-80 port and stbd., and First Platform, frs. 62-81 stbd.

**Modifications to Supply Systems 1-62-2 and 1-64-2**

Remove sections of ductwork pertaining to Supply Systems 1-62-2 and 1-64-2 port, on Second Deck, frs. 62-81 port and on Third Deck and First Platform, frs. 62-82 port and stbd. Install new ductwork leading from points of removal to new air conditioning units, heating units and diffusers to be located on Second Deck, frs. 62-80 port and stbd., Third Deck, frs. 62-82 port, and First Platform, frs. 62-81 port.

**(continued)**

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification To Exhaust System 1-90-1

Remove sections of duct work and hoods pertaining to Exhaust System 1-90-1, located on Second Deck, frs. 91-130 port and stbd., and on Third Deck, frs. 107-118 port and stbd. Install new ductwork from points of removals to hoods and outlets located on Second Deck, frs. 89-129 stbd.

Modification to Exhaust System 1-90-2

Remove sections of ductwork and hoods pertaining to Exhaust System 1-90-2, located on Second Deck, frs. 85-149 port. Install new ductwork leading from points of removals to hoods and outlets located on Second Deck, frs. 84-114 port.

Removal of Exhaust System 2-107-2

On Second Deck, frs. 107-108 port, remove existing centrifugal blower, remove exhaust duct leading from discharge side of blower and leading into engine casing. Remove ductwork leading from inlet side of blower down to Third Deck, frs. 106<sup>1/2</sup>-111, port. Blank off openings and deck penetrations in way of removals.

Modification of Supply System 2-124-2

Remove sections of ductwork and outlets pertaining to Supply System 2-124-2, located on Second Deck, frs. 85-130 port, and Third Deck, frs. 103-128 port. Install new ductwork leading from points of removals to new air conditioning units, heating units, diffusers, and "E" type terminals, located on Second Deck, frs. 83-128 port and stbd. and Third Deck, frs. 102-128 port.

Modification of Supply System 2-124-1

Remove sections of ductwork and outlets pertaining to Supply System 2-124-1, located on Second Deck, frs. 84-129 stbd, and Third Deck, frs. 104-129 stbd. Install new ductwork leading from points of removals to new air conditioning units, heating units, diffusers, and "E" type terminals, located on Second Deck, frs. 84-127 stbd, and Third Deck, frs. 104-128 port and stbd.

Removal of Supply System 2-125

On Second Deck, frs. 125-126, port, remove existing supply blower. Remove existing supply ductwork leading from discharge side of fan through ~~Second~~ Deck, frs. 126-~~127~~ port and First Platform, frs. 121-129 port and stbd.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification to Supply System 1-89-3

Remove sections of ductwork pertaining to supply system 1-89-3 on First Platform, frs. 83-102 starboard.

Install new ductwork leading from points of removal to new air conditioning units, heating unit and diffusers to be located on First Platform, frs. 83-102 stbd.

Modification to Supply System 1- 89-4

Remove sections of ductwork pertaining to supply system 1-89-4 on Second and Third Decks, frs. 88-90 port, and on First Platform, frs. 83-102 port.

Install new sections of ductwork leading from points of removal to new air conditioning units, diffusers and heating units, located on Second and Third Decks, frs. 89-93 port and First Platform, frs. 83-100 port.

Removal of Exhaust System 2-123

On Second Deck, frs. 123-124 centerline, remove existing exhaust blower. Remove existing exhaust trunk leading from discharge side of blower to existing 21" x 21" trunk, frs. 127-128 stbd. of centerline. Remove sections of ductwork leading from inlet side of blower down through Third Deck, frs. 118-127 port and stbd., First Platform, frs. 118-130 port and stbd.

New Supply System 2-125-2

On Second Deck, frs. 123-127 port, install one (1) axial blower, complete with motor and controls, capable of supplying 7100 CFM @ 3.00" static pressure. Install heating unit and transition piece complete with bypass door on inlet side of blower. Install a system of supply ducts leading from discharge side of blower down through Third Deck, frs. 120-127 port and stbd., and First Platform, frs. 119-129 port and stbd.

New Exhaust System 2-123-1

On Second Deck, frs. 123-124 centerline, install one (1) axial blower, complete with motor and controls, of exhausting 8000 CFM @ 2.50" static pressure. Install exhaust duct on discharge side of blower to connect up with existing duct on Second Deck, frs. 127-128 stbd. of centerline. Install a system of exhaust ducts leading from inlet side of Fan down through Third Deck, frs. 123-126 port and stbd., First Platform, frs. 119-130 port.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)New Exhaust System 1-120-1

On Main Deck, frs. 120-121 stbd., install one (1) axial blower, complete with motor and controls, capable of exhausting 10,000 CFM @ 3.00" static pressure. Install a transition piece and gooseneck ventilator on discharge side of fan. Install a system of exhaust ducts leading from inlet side of fan down through Second Deck, frs. 120-121 stbd., Third Deck, frs. 120-121 stbd., and First Platform, frs. 118-129 stbd.

Natural Supply for Laundries

Install two (2) natural supply ducts, 29" x 15" or equivalent, to serve laundries on First Platform, frs. 118-130 port and stbd. Ducts shall be located one (1) port and one (1) stbd., frs. 118-119, leading from the deckhead on First Platform up through Second and Third Decks, to new gooseneck ventilators to be located on Main Deck, frs. 118-119 port and stbd., as shown on drawings.

Modification of Supply System 02-108-4

Remove section of duct work located on Second Deck, frs. 114-120 port, Third Deck, frs. 119-120 port. From points of removals install new ductwork on Second Deck, frs. 114-120 port, Third Deck, frs. 119-120 port, as indicated on Drawing.

Removal of Recirculated Air Duct Serving Battery Room

Remove existing ductwork located on Second Deck, frs. 84-86 stbd. Blank off bulkhead penetrations in way of removal.

Modification of Supply System 2-143-2

On Second Deck, frs. 130-166 port, remove sections of ductwork and outlets. Install sections of ductwork and new diffusers in way of removals on Second Deck, frs. 130-172 port.

Modification of Supply System 2-143-1

On Second Deck, frs. 130-171 stbd., remove sections of ductwork and outlets. Install sections of ductwork and new diffusers in way of removals on Second Deck, frs. 131-172 starboard.

Modification of Supply System 2-143

Remove sections of ductwork located on Second Deck, frs. 144-146 stbd., and on Third Deck, frs. 131-150 port and stbd. Install new duct work on Second Deck, frs. 144-146 port and stbd., and leading from points of removals to new diffusers located on Third Deck, frs. 131-151 port and stbd. Blank off duct and deck penetrations in way of removals.

(continued)

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)New Exhaust System 2-172-1

Install one (1) axial blower, complete with motor and controls, capable of exhausting 9,000 CFM @ 1.5" static pressure, on Second Deck, frs. 171-172 stbd. Install an exhaust duct leading from discharge side of fan up to new double-gooseneck, located on Third Deck, frs. 171-173 port and stbd. Install a system of exhaust ducts leading from inlet side of blower down through Third Deck, frs. 171-172 port and stbd., and First Platform, frs. 172-174 port and stbd., terminating at new exhaust grilles.

Modification to Supply Systems 1-186-1 and 1-183-3

Remove existing branch ducts pertaining to systems 1-186-1 and 1-183-3, located on Second Deck, frs. 173-186 stbd., Third Deck, frs. 166-186 stbd. and First Platform, frs. 166-186 port and stbd. Install new ductwork leading from points of removals to new air conditioning units, heating units and diffusers to be located on Second Deck, frs. 175-185 stbd., Third Deck, frs. 169-185 stbd., and First Platform, frs. 167-186 stbd.

Modifications to Supply Systems 1-184- and 1-183-4

Remove existing branch ducts pertaining to systems 1-184 and 1-183-4 located on Second Deck, frs. 167-186 port, Third Deck, frs. 167-186 port and stbd., and First Platform, frs. 167-186 port and stbd. Install new ductwork leading from points of removals to new air conditioning units, heating units and diffusers to be located on Second Deck, frs. 174-185 port, Third Deck, frs. 167-185 port and First Platform, frs. 167-186 port.

Modification to Supply Systems 1-188-1 and 1-189-1

Remove existing branch ducts pertaining to systems 1-188-1 and 1-189-1, located on Second Deck, frs. 186-203 stbd., Third Deck, frs. 186-209 stbd., and First Platform, frs. 186-207 stbd. Install new ductwork leading from points of removals to new air conditioning units, heating units and diffusers to be located on Second Deck, frs. 186-208 stbd., Third Deck, frs. 186-201 stbd., and First Platform, frs. 186-208 stbd.

Modification to Supply Systems 1-186-2 and 1-188-2

Remove existing branch ducts pertaining to systems 1-186-2 and 1-188-2, located on Second Deck, frs. 188-208 port, Third Deck, frs. 186-209 port, and First Platform, frs. 186-207 port. Install new ductwork leading from points of removals to new air conditioning units, heating units and diffusers to be located on Second Deck, frs. 187-208 port, Third Deck, frs. 186-202 port and First Platform frs. 186-208 port.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification to Existing Exhaust System 1-206-1

Remove sections of ductwork located on Second Deck, frs. 186-210 port and starboard, Third Deck, frs. 203-210 stbd., and First Platform, frs. 207-210 stbd. Install new ductwork leading from points of removals to new exhaust grilles, to be located on Second Deck, frs. 192-208 stbd., and through Third Deck and First Platforms, frs. 109-110 stbd.

Modification to Existing Exhaust System 1-206-2

Remove sections of ductwork located on Second Deck, frs. 206-209 port, Third Deck, frs. 203-207 port and First Platform, frs. 203-208 port. Install new ductwork leading from points of removals to new exhaust grilles to be located on Second Deck, frs. 186-209 port, Third Deck, frs. 203-210 port, and First Platform, frs. 203-206 port.

Modification to Exhaust System 01-162-3

Remove sections of ductwork pertaining to system 01-162-3 on Second Deck, frs. 160-163 stbd., Third Deck, frs. 157-163 stbd., and First Platform, frs. 162-166 stbd. Install new ductwork leading from points of removals on Second Deck, frs. 162-163 stbd., Third Deck, frs. 148-164 stbd., and to new exhaust grilles on First Platform, frs. 151-166 port and stbd.

Modification to Exhaust System 01-162-4

Remove sections of ductwork pertaining to system 01-162-4 on Second Deck, frs. 160-163 port, Third Deck, frs. 150-164 port and First Platform, frs. 162-166 port. Install new ductwork leading from points of removals on Second Deck, frs. 162-163 port, Third Deck, frs. 149-164 port, and to new exhaust grilles on First Platform, frs. 152-166 port.

Modification of Supply System 2-146-3

Remove sections of ductwork located on Third Deck, frs. 148-166 port and stbd., pertaining to system 2-146-3. Install new ductwork from points of removals to new air conditioning units, heating units, outlets and diffusers to be located on Third Deck, frs. 148-165 port and stbd.

Modification to Supply System 2-146-1

Remove sections of ductwork located on First Platform, frs. 146-166 stbd., pertaining to system 2-146-1. Install new sections of ductwork leading from points of removals to new air conditioning units, heating units, outlets and diffusers to be located on First Platform, frs. 146-165 stbd.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification to Supply System 2-146-2

Remove sections of ductwork located on First Platform, frs. 146-166 port, pertaining to system 2-146-2. Install new sections of ductwork leading from points of removals to new air conditioning units, heating units, outlets and diffusers to be located on First Platform, frs. 146-166 port and stbd.

Removal of Superfluous Ducts

Remove existing sections of ductwork located on Third Deck, frs. 147-148<sup>1</sup> port, frs. 124-125 stbd., and Second Deck, frs. 129-131 stbd. Blank off bulkhead penetrations in way of removals.

Removal of Natural Exhaust Duct

On Main Deck, frs. 208-209 port, remove natural 16" x 6" exhaust duct, leading down through Second and Third Decks, frs. 209-210 port.

New Exhaust System for Battery Room (01-85-1)

Remove section of exhaust ductwork pertaining to system 01-78-3, located on Second Deck, frs. 82-84 stbd., and serving Battery room.

On Upper Deck, frs. 84-85 port, install one (1) exhaust blower, complete with motor and controls, capable of exhausting 500 CFM @ 1.00" static pressure. Install a transition piece and watertight door on discharge side of blower. Install sections of ductwork down through Main Deck, frs. 84-85 stbd., and Second Deck, frs. 84-85 stbd., terminating at exhaust grille in Battery Room.

Natural Supply for Battery Room

Install an 8" x 16" natural supply duct leading through Main Deck, frs. 88-94 stbd., Second Deck, frs. 85-89 stbd. Natural supply duct shall be run to terminate 10" off deck and be fitted with  $\frac{1}{2}$ " wire mesh screen. Intake located on Main Deck shall be fitted with  $\frac{1}{2}$ " wire mesh screen and dogged watertight cover.

Modification of Supply System 01-78-2

On Main Deck, frs. 78-79 port, remove section of exhaust trunk, pertaining to system E-01-78-2, down to Second Deck, frs. 78-80 port. Install new section of ductwork from points of removal on Main Deck, and Second Deck, frs. 76-80 port, to connect with existing system 01-78-2, as shown on drawing.

(continued)

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Removal of Exhaust Trunk E-3-81 & Installation of New Natural  
Exhaust Trunk

Remove existing gooseneck and 13" x 13" exhaust trunk, located on Upper Deck, frs. 78-79 port and leading down through Main Deck, frs. 78-79 port, Second Deck, frs. 78-82 port, and Third Deck, frs. 81-82 port.

Install Natural Exhaust, gooseneck and riser leading from Upper Deck, frs. 78-79 port, and Main Deck, frs. 76-79 port, and down to Second Deck, frs. 76-80 port, as shown on drawing.

Natural Supply Opening for Deck Lockers

On Main Deck, fr. 16 Stbd., install one (1) 8" x 10" opening in bulkhead. New opening shall be fitted with  $\frac{1}{2}$ " wire mesh screen. At fr. 19 port, on Main Deck, install a new natural supply 10" x 10" opening. Opening shall be fitted with  $\frac{1}{2}$ " wire mesh screen and dogged watertight cover.

New Natural Supply for Bos'n's Locker

Install 6" diameter mushroom ventilator on Upper Deck, fr. 174 stbd., as indicated on drawing.

New Exhaust System 3-115-2

On Third Deck, frs. 114-115 port, install one (1) centrifugal blower, complete with motor and controls, capable of exhausting 3480 CFM @ 2.00" static pressure. Install an exhaust trunk on discharge side of fan leading up through Second Deck, frs. 114-115 port, to new gooseneck to be located on Main Deck, frs. 114-115 port. Install a system of exhaust ducts leading from inlet side of blower to new exhaust grilles, to be located on Third Deck, frs. 105-117 port and stbd.

Modification to Supply System 1-89-2

Remove section of exhaust duct, located on Second Deck, frs. 88-90 port. Also remove sections of supply duct work on Third Deck, frs. 87-94 port. Install new duct work leading from points of removal on Second Deck, frs. 89-93 port and Third Deck frs. 89-94 port.

Removal of Exhaust System 01-78-1

On Upper Deck, frs. 78-79 centerline, remove existing exhaust blower, remove exhaust riser leading through Main Deck, frs. 78-80 centerline, Second Deck, frs. 80-82 centerline, Third Deck, frs. 81-82 centerline, also remove existing ductwork on First Platform between frs. 81-100 port and starboard.

(continued)

140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)

14. Ventilation Alterations & Installations (Cont'd)

Removal of Natural Supply Intakes, Old Sys. S-2-26-2, S-2-27-1  
& S-2-31-2

Remove existing fresh air intakes located on Main Deck, frs. 30-32 port and stbd., and suitably blank openings in way of deck penetrations.

Modification to Supply System 2-31-2

Remove and relocate existing supply blower located on Second Deck, Deckhead, frs. 30-32 port, to frs. 30 $\frac{1}{2}$ -31 stbd., to clear new hatch, as indicated on drawing.

Natural Supply for Battery Rcom, Third Deck, frs. 124-126 Stbd.

Install a natural 10" x 6" supply duct leading from Main Deck, frs. 126-127 stbd. down through Second Deck, frs. 124-127 stbd., and down to Third Deck, frs. 124-125 stbd., and terminating at outlet 10" off deck. New outlet shall be fitted with  $\frac{1}{2}$ " wire mesh grille. Intake on Main Deck, frs. 126-127 stbd., shall be fitted with  $\frac{1}{2}$ " wire mesh grille and dogged watertight cover.

Natural Supply Openings for Electrical Distribution Rcom  
& Electrical Shop

Install natural supply openings on Third Deck, frs. 121-122 port, Third Deck, frs. 122-123 port and stbd. Natural openings shall be fitted with fusible link fire dampers and constructed as shown on the drawings.

Modification of Supply System 02-140-1 and New System 1-125-1

Remove sections of ductwork pertaining to Supply System 02-140-1 on Second Deck, frs. 130-141 stbd. Blank off duct penetrations in way of removals.

Install an axial blower complete with motor and controls capable of delivering 1000 CFM @ 1.00" static pressure to be located on Main Deck, frs. 124-125 stbd. Install a transition piece and gooseneck ventilator on inlet side of blower. Install a supply trunk leading from discharge side of fan to existing riser located on Second Deck, frs. 125-130 starboard.

Modification of Supply Sys. S-02-140-2 and New Supply Sys. 1-127-2

Remove section of ductwork pertaining to Supply System 02-140-2 on Second Deck, frs. 130-141 stbd. Blank off duct penetrations in way of removals.

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140. ALTERATION AND INSTALLATION OF VENTILATION SYSTEM AND  
INSTALLATION OF NEW AIR CONDITIONING SYSTEM (CONT'D)14. Ventilation Alterations & Installations (Cont'd)Modification of Supply Sys. S-02-140-2 and New Supply Sys.  
1-127-2 (Cont'd)

Install an axial blower complete with motor and controls capable of delivering 4000 CFM @ 1.25" static pressure on the Main Deck, frs. 126-127 port.

Install a transition piece and gooseneck ventilator on inlet side of blower.

Install a supply trunk leading from discharge side of fan to existing riser located on Second Deck, frs. 126-129, port.

Removal of Natural Exhaust Duct in Escape Trunk, Main Deck  
and Second Deck

Remove section of natural exhaust duct located on Second Deck, frs. 39-40 stbd. of centerline also, remove gooseneck located on Main Deck, frs. 40-41 stbd. of centerline.

Blank off opening and deck penetrations in way of removals.

Modification of Natural Exhaust Duct Serving Hold

Remove sections of natural exhaust trunk leading from Third Deck, at frs. 162-166 port, Second Deck, frs. 162-163 port, Main Deck, frs. 162-163 port and Mushroom ventilator on Upper Deck, frs. 162-163 port.

Install new natural exhaust trunk leading from point of removal on Third Deck, frs. 166-167 stbd. up through Second Deck, frs. 167-168 stbd. and terminating at new gooseneck on Main Deck, frs. 167-168 stbd.

Modification to Exhaust System 03-94-2 (For Radio Room)

On Upper Deck, frs. 93-97 port and stbd., remove existing terminals and duct work pertaining to exhaust system 03-94-2.

Install new exhaust ductwork leading from points of removal to new terminals to be located in the Crypto and Radio Rooms on Superst. D frs. 93-98 port and stbd., as shown on drawing.

Modification to Supply System 02-106-3 (For Radio Room)

On Super. Deck, frs. 93-94 stbd., remove existing 480 CFM outlet pertaining to Supply System 02-106-3. Suitably blank off duct opening resulting from removal.

(continued)