CANCELLED

## NOTES

THE DETAILS ON THIS DRAWING ARE FOR GUIDANCE AND MAY BE MODIFIED AS NECESSARY TO MEET SPECIFIC CONDITIONS, HOWEVER, MATERIAL COMPOSITION (UNLESS OTHERWISE NOTED) AND ITEMS MARKED WITH AN ASTERISK (*) ARE MANDATORY.

* 1. STANDARD SPACING FOR TREADS SHALL BE AS FOLLOWS:

| LADDER INCLINE FROM VERTICAL | TREAD RISE, IN. |
|---|---|
| 20° - 25° | 10½ - 4½ |
| 25° - 30° | 10 - 9 |
| 30° - 35° | 9½ - 8½ |
| 35° - 40° | 9 - 8 |

* 2. TOP TREAD OF INCLINED LADDERS SHALL BE 9" WIDE. THE DISTANCE FROM THE [illegible] OF THE TOP TREAD TO THE BULKHEAD OR HATCH COAMING [illegible] NOT EXCEED 2". ALL OTHER TREADS SHALL BE AS FOLL[illegible]

| LADDER INCLINE FROM VERTICAL | TREAD [illegible], IN | STRINGER DEPTH, IN. |
|---|---|---|
| LESS THAN 30° | 4 | 4 |
| GREATER THAN 30° | 6 | 5 |

3. LADDER SHIELDS SHALL BE FURNISHED WHEN SPECIFIED.

* 4. WHERE VERTICAL HEADROOM IS LESS THAN 6'-3 BETWEEN LADDER TREADS AND OVERHEAD OBSTRUCTIONS A HEAD GUARD SHALL BE PROVIDED PER DET 14-D.

* 5. FOR NEW CONSTRUCTION, ALL LADDER TREADS SHALL BE 24 INCHES WIDE WITH HOLE SPACINGS OF 2" FOR 4" TREADS, 3½" FOR 6" TREADS AND 6½" FOR 9" TREADS UNLESS OTHERWISE SPECIFIED.

* 6. TREADS SHALL BE IN ACCORDANCE WITH REF 1.

* 7. MINIMUM CLEARANCE BETWEEN BULKHEAD OR HOUSE AND HANDRAILS SHALL BE 2".

* 8. WHEN CONNECTING LUGS PC 6, 7 OR 45 ARE MOUNTED ON ALUMINUM COAMING THEY SHALL BE AL 5086-H117 PER ASTM B209.

WHERE LADDERS ARE INSTALLED IN THE WEATHER OR IN AREAS SUBJECT TO EXCESSIVE CORROSION DUE TO WET DECKS OR SPRAY, THE MOUNTING LUGS AND LUG PLATES, PC 6, 7, 32, 33, 34 AND 45 SHALL CRES 304.

* 9. WHERE ALUMINUM PARTS ARE REQUIRED TO BE PAINTED THEY SHALL BE PAINTED THE SAME AS OTHER SIMILAR SHIP FITTINGS. IN NO CASE SHALL TREADS BE PAINTED.

* 10. HANDRAIL TYPES W, X, Y AND Z SHALL BE USED AS FOLLOWS:
TYPE X (PIPE) HANDRAILS FOR LANDING PLATFORMS, WEATHER DECK AREAS AND OPEN HATCHWAYS.
TYPE Y (PIPE & CHAIN) HANDRAILS FOR HATCHES TO WEATHER DECKS OR TO LIVING AND WORKING SPACES WHERE TRAFFIC IS HEAVY.
TYPE Z (CHAIN) FOR HATCHES BELOW DECKS WHERE TRAFFIC IS LIGHT.
TYPE W (WIREROPE) MANROPES LEADING TO AND IN OFFICER'S COUNTRY ONLY.

FOR HANDRAIL TYPES Y, Z AND W: WHEN PASSING THRU HATCHES WITH COVERS HINGED ON A SHORT SIDE RUN CHAIN, PC 19, OR WIRE ROPE, PC 50, TO STAPLES WELDED TO THE HATCH COVER BRACES. WHEN PASSING THRU HATCHES HINGED ON A LONG SIDE LEAD CHAIN OR WIRE ROPE ON SIDE OF LADDER NEAREST TO THE OPENED HATCH COVER TO A STAPLE ON THE UNDERSIDE OF THE COVER AND ON THE OTHER SIDE OF THE LADDER TO A STAPLE AT THE TOP OF THE LADDER STRINGER. SEE DET 10-D AND 15-A.

* 11. CLEVIS AND SOCKET TURNBUCKLE, PC 58, SHALL HAVE A MINIMUM BREAKING STRENGTH OF 1200 LB.

12. HANDRAIL STANCHIONS MAY BE ATTACHED TO LADDER STRINGER BY EITHER THE SOCKET ARRANGEMENT, DET 21-C, OR THE WEB AND CLIP ARRANGEMENT, DET 21-B.

* 13. SNAP HOOK, PC 9, SHALL BE EQUIVALENT TO U.S. FORGECRAFT PART NO. 3027, PROOF-LOAD 5000 LB, HOT DIPPED GALVANIZED.

14. WHEN REQUIRED ALL STEEL PARTS SHALL BE CHANGED TO NON-MAGNETIC MATERIALS.

15. APPROXIMATE WEIGHTS OF INCLINED LADDERS COMPLETE WITH HANDRAILS AND TYPE F TREADS IS AS FOLLOWS: (WEIGHT WILL VARY WITH TYPE OF TREAD AND HANDRAIL SELECTED)

| | 18" WIDE | 24" WIDE |
|---|---|---|
| WITH 5" STRINGER | 12.8 LB/FT | 14.6 LB/FT |
| WITH 4" STRINGER | 10.6 LB/FT | 12.4 LB/FT |

*16. INCLINED LADDERS FITTED TO DECKS OR PLATFORMS WITH CAMBER SHALL BE SHIMMED LEVEL.

17. LADDER TYPES 1, 2, 3 AND 4 INDICATE VARIATIONS OF THE TOP CONNECTION.

* 18. ALL THREADED FASTENERS SHALL BE GIVEN A LIBERAL COATING OF ANTI-SEIZE COMPOUND MIL-T-22361 BEFORE ASSEMBLY. REMOVE ALL SQUEEZE-OUT.

* 19. LADDER SHIELDS, DET 15-A, SHALL HAVE A MINIMUM MATERIAL THICKNESS OF .032" AND SHALL BE CREASED OR STIFFENED IN A MANNER TO PRECLUDE DRUMMING.

* 20. CEMENT FOAM, PC 24, TO STRUCTURE AND COVER, PC 23, WITH A SUITABLE COMMERCIAL ADHESIVE.

* 21. MANROPE CHAIN, PC 19, SHALL BE SIZE 4/0 STRAIGHT LINK MACHINE CHAIN, HOT-DIP GALVANIZED, WITH A MINIMUM WORKING LOAD OF 650 LB.

| REVISIONS | | | | |
|---|---|---|---|---|
| ZONE | REV | DESCRIPTION | DATE | APPROVED |
| ALL | D | THIS DRAWING AND DWG. 804-1749114 COMBINED INTO ONE PLAN AND F-DRAWN IN THEIR ENTIRETY TO REFLECT CURRENT DESIGNS, FABRICATION METHODS, AND MATERIAL SPECIFICATIONS AS FOLLOWS:<br>1. COML SPEC DESIGNATIONS ADDED IN LIST OF MATL.<br>2. LOCKWASHERS DELETED AND REPLACED WITH SELF-LOCKING NUTS.<br>3. CHANGED CHAIN AND SNAP HOOK TYPES AND ADDED CONNECTING LINK.<br>4. ADDED 3RD SHEET<br>5. CHANGED SIZE OF PC11 FROM ¾ x ¾ x ⅛.<br>6. ADDED MANDATORY REQT NOTE<br>7. CORRECTED MANROPE COLLAR NOTE<br>8. ADDED ANTI-SEIZE COMPOUND NOTE<br>9. CHANGE MATL OF MNT LUGS | | |

| QTY REQD | PC NO | DESCRIPTION | MATERIAL | MATL SPEC | REMARKS | REF DWG NO |
|---|---|---|---|---|---|---|
| | | | | | .148 DIA WIRE FOR ⅝ DIA PIN | |
| 2 | 59 | HAIR PIN COTTER | CRES | AISI 302 | DET 23-D | |
| 2 | 58 | PIN | CRES | AISI 304 | DET 13-D | |
| 2 | 57 | CONNECTION CLIP | AL 5086-H117 | ASTM B209 | .375 PL (FOR 4 C) | |
| 2 | 56 | CONNECTION CLIP | AL 5086-H117 | ASTM B209 | .375 PL (FOR 4 C) | |
| 2 | 55 | CONNECTION CLIP | AL 5086-H117 | ASTM B209 | .5 PL (FOR 5 C) | |
| 2 | 54 | CLEVIS & SOCKET TURNBUCKLE ASSY | CRES | AISI 304 | TO SUIT PC 50 NOTE 11 | |
| 4 | 53 | FIL HD SCREW | CRES | AISI 304 | 10-24UNC-2A x ⅝ | |
| 2 | 52 | COLLAR | AL 5086 H111 | ASTM B211 | DET 22-D | |
| AR | 51 | CLEVIS SOCKET ASSY | CRES | AISI 304 | FOR ⅛ DIA WR | |
| AR | 50 | WIREROPE, MANROPE | CRES/VINYL | [illegible] | [illegible] DIA PLASTIC COATED WIRE ROPE | |
| 2 | 49 | CONNECTION CLIP | AL 5086-H117 | ASTM B209 | .375 PL (FOR 4 C) | |
| 2 | 48 | CONNECTION CLIP | AL 5086-H117 | ASTM B209 | .5 PL (FOR 5 C) | |
| AR | 47 | CONNECTING LINK | STEEL, GALV | RR-C-271 | TY II SIZE 5/16 | |
| 2 | 46 | CONNECTION CLIP | AL 5086-H117 | ASTM B209 | .5 PL (FOR 5 C) | |
| 2 | 45 | CONNECTION LUG | STEEL | ASTM A36 | 2 x ½ FB SEE NOTE 8 & 14 | |
| 1 | 44 | TREAD 9 WIDE | REF 1 | REF 1 | NOTE 6 | 1 |
| AR | 43 | TREAD 6 WIDE | REF 1 | REF 1 | NOTE 6 | 1 |
| AR | 42 | TREAD 4 WIDE | REF 1 | REF 1 | NOTE 6 | 1 |
| AR | 41 | STANCHION CLIP | AL 5086-H117 | ASTM B209 | .25 PL (FOR 4 C) | |
| AR | 40 | STRINGER CLIP | AL 5086-H117 | ASTM B209 | .25 PL (FOR 4 C) | |
| 2 | 39 | TREAD CLIP | AL 5086-H117 | ASTM B209 | .5 PL (FOR 5 C) | |
| AR | 38 | STAPLE | AL 5086-H111 | ASTM B211 | .31 DIA ROD | |
| 2 | 37 | TREAD CLIP | AL 5086-H117 | ASTM B209 | .375 PL (FOR 4 C) | |
| AR | 36 | STRINGER CLIP | AL 5086-H117 | ASTM B209 | .25 PL (FOR 5 C) | |
| AR | 35 | STANCHION CLIP | AL 5086-H117 | ASTM B209 | .25 PL (FOR 5 C) | |
| AR | 34 | LOWER LUG PLATE | STEEL | ASTM A36 | 2⅝ x ½ FB NOTE 8 & 14 | |
| 2 | 33 | LOWER LUG | AL 5086-H117 | ASTM B209 | 2 x .31 RECT NOTE 8 | |
| 2 | 32 | LOWER LUG | STEEL | ASTM A36 | 2 x ½ FB NOTE 8 & 14 | |
| 2 | 31 | LADDER FOOT | AL 5086-H117 | ASTM B209 | .5 PL (FOR 4 C) | |

LIST OF MATERIAL *

| QTY REQD | PC NO | DESCRIPTION | MATERIAL | MATL SPEC | REMARKS | REF DWG NO |
|---|---|---|---|---|---|---|
| AR | 30 | NUT, SELF LOCKING | CRES/NYLON | AISI 303 | ⅜-16UNC-2B | |
| 1 | 29 | STRINGER LH | AL 5086-H111 | ASTM B308 | 4 x 1.58 x 1.35# C NOTE 2 | |
| 1 | 28 | STRINGER RH | AL 5086-H111 | ASTM B308 | 4 x 1.58 x 1.85# C NOTE 2 | |
| AR | 27 | CLAMP BASE | STEEL | ASTM A36 | ¾ x ⅜ FB x 18L | |
| AR | 26 | CLAMP COVER | STEEL | ASTM A36 | ¾ x ⅛ FB x 18L | |
| AR | 25 | RDH MACH SCREW | CRES | AISI 304 | ¼-20UNC-2A x ⅜ | |
| AR | 24 | HEADGUARD PAD | NPRN FOAM | MIL-R-20092 | TY II - CL 5 | |
| AR | 23 | HEADGUARD COVER | ARTIFICIAL LEATHER | CCC-A-680 | | |
| 2 | 22 | GRAB ROD BRACKET | CRES | AISI 304 | 1/16 PL | |
| 1 | 21 | GRAB ROD | CRES | AISI 304 | 1 PIPE SCHED 40 x [illegible] | |
| AR | 20 | STAPLE | STEEL | ASTM A36 | 5/16 DIA ROD | |
| AR | 19 | CHAIN, MANROPE | STEEL, GALV | COML | SEE NOTE 21 | |
| AR | 18 | HEX HD MACH SCR | CRES | AISI 304 | ⅜-16UNC-2A x 1 | |
| AR | 17 | NUT, SELF LOCKING | CRES/NYLON | AISI 303 | ¼-20UNC-2B | |
| AR | 16 | HANDRAIL EYE | AL 356-T6 | ASTM B26 | CASTING | |
| AR | 15 | HEX HD MACH SCR | CRES | AISI 304 | ⅜-16UNC-2A x 2¼ | |
| AR | 14 | HANDRAIL SOCKET | AL 5086-H32 | ASTM B210 | 1½ PIPE SCHED 40 | |
| AR | 13 | HANDRAIL | AL 5086-H32 | ASTM B210 | 1 PIPE SCHED 80 | |
| AR | 12 | RDH MACH SCREW | CRES | AISI 304 | ¼-20UNC-2A x ½ | |
| AR | 11 | SHIELD STIF | AL 5086-H111 | ASTM B308 | 1 x 1 x ⅛ L | |
| AR | 10 | SHIELD | AL 5052 H32 | ASTM B209 | .032 THK | |
| 2 | 9 | SNAP HOOK | STEEL, GALV | COML | SEE NOTE 13 | |
| 2 | 8 | TOGGLE PIN/RET WIRE | CRES | AISI 304 | ⅜ DIA x 1½ EFF LG | 2 |
| 2 | 7 | CONNECTION LUG | STEEL | ASTM A36 | 2 x ½ FB NOTE 8 & 14 | |
| 2 | 6 | CONNECTION LUG | STEEL | ASTM A36 | 2 x ½ FB NOTE 8 & 14 | |
| AR | 5 | RIVET, BLIND | AL ALY | COML | 3/16 DIA LG TO SUIT | |
| AR | 4 | TOGGLE PIN/RET WIRE | CRES | AISI 304 | ⅜ DIA x 1½ EFF LG | 2 |
| 2 | 3 | LADDER FOOT | AL 5086 H117 | ASTM B209 | .5 PL (FOR 5 C) | |
| 1 | 2 | STRINGER LH | AL 5086 H111 | ASTM B308 | 5 x 1.75 x 2.32# C NOTE 2 | |
| 1 | 1 | STRINGER RH | AL 5086 H111 | ASTM B308 | 5 x 1.75 x 2.32# C NOTE 2 | |

LIST OF MATERIAL *

| REFERENCE DRAWINGS | | |
|---|---|---|
| REF NO | DRAWING TITLE | DRAWING NO |
| 1 | INCLINED LADDERS, TREAD DETAILS | S1604-860041 |
| 2 | TOGGLE PINS | 804-2258314 |

CANCELLED

| REV | D | D | D |
|---|---|---|---|
| SHEET | 3 | 2 | 1 |

REVISION STATUS OF SHEETS

THIS DRAWING COMBINES AND SUPERSEDES NAVSEA DWG 804-1749113 REV C AND 804-1749114 REV G

TYPE DRAWING

DEPARTMENT OF THE NAVY
NAVAL SHIPS SYSTEMS COMMAND
WASHINGTON, D.C. 20362

# INCLINED LADDERS, ALUMINUM ASSEMBLIES & DETAILS

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES.

TOLERANCES SHALL BE IN ACCORD WITH COMMERCIAL PRACTICE UNLESS OTHERWISE SPECIFIED ON DRAWING

SIZE F | FSCM NO 80064 | 804 | DRAWING NO 1749113 | REV D

SCALE NONE | WEIGHT SEE NOTE 15 | SHEET 1 OF 3

804-1749113

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