

[INCH-POUND]  
A-A-50575  
February 7, 1997  
SUPERSEDING  
MIL-P-17574D  
21 June 1991  
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08 October 1991

## COMMERCIAL ITEM DESCRIPTION

### PUMP-ENGINE SYSTEM, CENTRIFUGAL, WATER-GASOLINE-FUEL OIL, SKID-BASE-MOUNTED

The General Services Administration has authorized the use of this commercial item description for all Federal agencies.

1. SCOPE. This Commercial Item Description (CID) covers skid-base mounted, engine-driven, centrifugal pump systems. A pump system consists of the pump and engine mounted on a rigid steel skid base that forms a compact, self-contained, movable unit. The pump system will be adequate to handle fresh or saltwater, gasoline, fuel oil, or diesel oil.

2. CLASSIFICATION. The pump systems are of the following styles, sizes, and types as specified (see 7.2):

#### Styles

- Style A - Axially split, side suction.
- Style B - Radially split, end suction.

#### Sizes

- Size 3 - 3-inch (75 mm) discharge, 3- or 4-inch (75 or 100 millimetre (mm)) suction.
- Size 4 - 4-inch (100 mm) discharge, 4-inch (100 mm) suction.
- Size 6 - 6-inch (150 mm) discharge, 6-inch (150 mm) suction.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commanding Officer (Code 1581), Naval Construction Battalion Center, 1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4320

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

## Type

- Type I - Diesel-engine driven.  
 Type II - Gasoline-engine driven.

## 3. SALIENT CHARACTERISTICS.

3.1 Description. The pump system shall consist essentially of a single- or multi-stage, centrifugal pump, with the pump casing split axially (style A) or radially (style B) (see 2.). The pump is driven by a gasoline (type I) or diesel (type II) engine (see 2.). The pump and engine will be mounted on a steel skid base along with all the engine controls.

3.2 Design and construction. The pump system shall be designed and constructed to withstand the strains, jars, vibrations, and other conditions associated with shipping, storage, and installation; and shall be complete so that when installed, it can be used for any operation for its intended purpose. The pump system and accessories shall be designed and constructed to prevent conditions hazardous to personnel or deleterious to equipment, shall withstand the hard usage encountered in military service or shore establishments, and shall permit easy and ready accessibility for replacement of accessories, maintenance, service, and adjustments in the field. All threaded parts shall conform to ASME B 1.1, ASME B 1.20.1, and ASME B 1.20.3, as applicable.

3.3 Pump casing. The pump casing shall be of good commercial bronze, 316 stainless steel, or cast-iron, bronze-fitted, as specified (see 7.2). The casing shall be capable of withstanding a hydrostatic test pressure equal to 1.5 times the shutoff head at the maximum brake horsepower (hp) of the engine at the applicable pump speed. For style A pump systems, the casing shall be axially split along the centerline of the pump shaft and shall have inlet and outlet flanged connections cast integral with the lower casing. Style B pump systems shall be furnished with radially split casing and end suction connection. The casing shall have necessary tapped openings for air venting, priming, draining, and for suction and discharge gages. A brass, stainless steel, or bronze petcock shall be furnished for air venting purposes. Drain openings in the volute, intake, elbows, reducers, or other passages capable of retaining trapped water shall be located in the low point of such passages when the pump system is in a level position. A threaded plug or petcock of brass, stainless steel, or bronze shall be installed in each drain. When pump system designs are such as to make drains inaccessible, short drain pipes of brass, stainless steel, or copper shall be installed. Petcocks, plugs, and drain pipes will normally be of the same material as the pump casing. Use of other materials cited herein may be acceptable only if no deterioration of parts will occur due to galvanic corrosion.

3.3.1 Pump performance. Unless otherwise specified (see 7.2), the pump shall provide a flow rate of 350 gallons per minute (gpm) (22 litre per second (L/s)) against a total dynamic head of 250 feet (ft) (76.2 metre (m)), and a liquid suction head of 15 ft (4.6 m). The pump-engine system shall meet the performance requirements specified when tested in accordance with section 4 of this specification. The pump performance shall be met with the engine speed controls set at an adjustment not exceeding that producing the net continuous brake horsepower (bhp).

To preclude the use of an overpowered pump-engine system, the test shall be met but not exceeded by more than 20 percent while the engine speed controls are set at an adjustment not less than that producing 60 percent of the net continuous bhp. The pump efficiency shall be not less than 60 percent in meeting the specified performance requirements. The design shall be such that the pump shall not cavitate or tend to cavitate while pumping fresh water at 100 degrees Fahrenheit (°F) (38 degrees Celsius (°C)) at sea-level conditions.

3.4 Suction and discharge connection. Suction and discharge connection shall be of the nominal sizes specified in 2., and shall be flanged. Threaded companion flanges shall be furnished on both connections of each pump system. Unless otherwise specified (see 7.2), style B pump systems shall also be furnished with suitable elbows to place the suction and discharge connections on opposite sides of the pump to facilitate installations in a horizontal run of piping. The elbows shall be located so that the centerline through the pump and engine is perpendicular to the horizontal run. Discharge and suction connections shall be suitably identified by appropriate words or arrows which shall be cast integrally with the casing, traced by welding bead, cut into the casing, or inscribed on a firmly attached nonferrous plate. A suitable flanged reducer shall be incorporated with double intake pumps, as required to eliminate hydraulic imbalance caused by unequal flow to the intakes of the impeller. All bronze pumps shall have bronze flanges conforming to ASME B 16.24, class 150. Cast iron pumps and threaded iron companion flanges bolted to pump suction and discharge connections shall conform to ASME B 16.1, less 25. Stainless steel pumps and threaded companion flanges bolted to pump suction and discharge connections shall conform to ASME B 16.5, class 150.

### 3.5 Engine.

3.5.1 Diesel engine (type I). The diesel engine shall be a standard 2- or 4-cycle engine. The continuous horsepower (hp) (watt (W)) output-shaft rating shall be sufficient to meet the input requirements of the pump without exceeding the engine manufacturer's published continuous bhp rating for the speed at which the engine will normally operate. The engine shall be furnished complete with all accessories normally supplied as standard equipment including a governor, oil filter, air cleaner, muffler, and fuel tank.

3.5.2 Gasoline engine (type II). The gasoline engine shall be liquid-cooled and have a continuous hp (W) rating sufficient to operate the pump systems to meet the performance requirements of 3.4.1 and shall comply with Title 40, Code of Federal Regulations in effect at the time of manufacture pertaining to the control of air pollution. Gasoline engines shall produce the required performance equally as well on unleaded or leaded gasoline. All engine accessories supplied commercially as standard equipment including instruments and gages shall be furnished. The engine shall be furnished complete with, but not limited to, the following accessories:

- a. Governor.
- b. Air cleaner with precleaner and restriction indicator gage.

3.6 Starting systems. For type I engines, a 12- or 24- volt (V) starting system shall be furnished. A suitable, readily visible instruction plate of copper or brass shall be securely fastened to the

engine housing. The plate shall outline the step-by-step procedure that ensures safety and ease of starting. The equipment shall include an ether starting system or glow plug. When an ether priming system is required, it shall be of the measured shot type with reservoir capacity of not less than 12 fluid ounces (355 millilitre (mL)). The ether system shall be key operated or manually operated from the instrument panel and shall be inoperative with the engine warm. For type II engines, the engine shall be equipped with a 12V electric starting system. The electric starting system shall include an auxiliary manually operated crank. The gasoline engine shall be equipped with a manual or automatic, ignition-spark retard device for safety, and ease of hand-cranking. A suitable, readily visible instruction plate shall be furnished and shall outline the step-by-step procedure that ensures safety and ease of starting the engine. The plate shall conform to 3.14.

### 3.7 Engine components and accessories.

3.7.1 Exhaust system. An exhaust system and muffler shall be furnished and shall be the manufacturer's standard design, except for modifications that may be necessary to supply without damage to the engine, muffler, or exhaust systems, sufficient volume and pressure of exhaust gas to operate a commercial type, ejector pump primer, when such a primer is furnished (see 3.9.3.).

3.7.2 Battery(s). Each battery shall be of 12V (or 24V for type I engines) potential. The reserve capacity for each battery shall be not less than 110 minutes and the cold cranking rating of 0 °F (-18 °C) shall be not less than 450 amperes, measured in accordance with SAE J537. Unless otherwise specified (see 7.2), battery(s) shall be maintenance-free having the maintenance-free characteristics listed in SAE J537. When specified (see 7.2), battery(s) shall be dry-charged in accordance with SAE J537, without electrolyte, with sealed caps to prevent the intrusion of atmospheric moisture. Battery cables shall be the standard automotive type.

3.7.3 Charging system. The engine shall be equipped with alternator and regulator rated at 12V (or 24V for type I engines) direct current. The alternator shall deliver sufficient current to charge the batteries, and when required (see 3.9.4), supply the power requirements of the auxiliary lighting system.

3.7.4 Control panel. The control system shall be furnished, equipped with the following devices:

- a. Gage, pressure, lubricating oil.
- b. Voltmeter, battery-alternator.
- c. Gage, cooling liquid temperature, unless air-cooled.
- d. Starter switch.
- e. Suitable waterproof auxiliary power connector if auxiliary lighting is required (see 3.9.4.).
- f. Glow plugs or ether primer starting system (for type I).
- g. Suitable located incandescent bulbs for indirect lighting of instrument panel mounted gages and controls.
- h. Fuel gage.
- i. Engine hour meter that registers engine operating time in hours, capable of registering at least 9,999.9.

### 3.8 Pump component and accessories.

3.8.1 Pressure gages. A compound gage reading from 0 to 30 inches of mercury at 32 °F (0 to 762 mm of Hg at 0 °C) vacuum and 0 to 150 pound-force per square inch gage (psig) (0 to 1 034 kilopascals (kPa)) shall be furnished for the pump intake. A pressure gage in a range of 0 to 200 psig (0 to 1 379 kPa) shall be furnished for the pump discharge. Both gages shall be furnished with pulsation dampeners and gage clocks. Dials shall have a minimum nominal diameter of not less than 2.5 inches (63 mm). Gages shall be of the Bourdon-type and shall conform to the requirements of ASME B 40.1.

3.8.1.1 Gage savers. Gage savers shall be provided on the lines connecting the pressure gages and safety switches to the pump to protect them from damage caused by freezing. The device or devices used for pressure-dampening, liquid barriers, and the isolated liquid between the barriers and the gages shall ensure satisfactory operation of the instruments under all operating conditions of the pump.

3.8.2 Suction strainer. A suction strainer having the same nominal pipe size as the inlet connection shall be furnished with each pump system. The strainer shall have a net area of not less than four times that of the suction pipe, but shall not allow solids to pass larger than a solid equivalent to a 5/16-inch (8 mm) sphere.

3.8.3 Auxiliary priming system. Unless otherwise specified (see 7.2), a dual system, auxiliary priming system shall be furnished. One component of the system shall be a commercially available hand pump capable of filling the centrifugal pump and suction line with primer liquid. The other component shall be a manually-controlled exhaust ejector, or a manually-controlled suction device engine to prime the pump. Automatic means, by float or otherwise, shall be provided to prevent entrance of liquid into the intake manifold during primer operation. Means shall be provided for isolating the components from the centrifugal pump and for draining each component of the system so that drainage goes back into the volute or other areas after operation. A readily visible brass or copper plate securely fastened in the vicinity of each of the two priming devices shall outline (step-by-step) the operating procedure for each. The plate shall include a warning against running the engine to accomplish priming of a dry pump by use of the ejector or vacuum system, except for repriming purposes in which the residual liquid of the volute can act as a lubricant. When an ejector primer is furnished, the instructions shall specify that the ejector shall not be operated longer than 2 minutes at a time, and that the system shall be dismantled and cleaned after each 200 hours of engine operation. Instructions shall indicate how to completely isolate the ejector system when flammable liquids are pumped.

3.8.4 Auxiliary lighting. When specified (see 7.2), an auxiliary lighting system for night operation shall be provided. The system shall consist of two separate units consisting of bulb, lens-enclosed reflector, spring-actuated clamp or magnetic clamp for reflector, 20-foot (6.1 m) extension cord with jack plug, or terminal leads for connection on instrument panel. The cord shall be in accordance with NFPA 70, type SO, for use in damp places, and comprised of 3-wire conductors of a size sufficient to safely carry a current twice the lamp amperage. The bulb shall be of 40- to

60-watt capacity, shall have voltage compatible with a generator-battery system, and shall be of a standard bayonet-socket type.

3.8.5 Firehose connections. When specified (see 7.2), a flanged T, Y, or 45-degree lateral connection shall be made to the discharge side of the pump. The size 3 and 4 branch connections shall utilize a globe or gate valve of suitable capacity terminating in one firehose male nipple, provided with a captive-chained cap, with both nipple and cap having 2-1/2-inch (63 mm) hose thread conforming to the following:

- a. Threads per inch (per 25.4 mm) - 7-1/2
- b. Pitch - 0.13333-inch (3.39 mm)
- c. Depth of thread - 0.08660-inch (2.20 mm)
- d. Pitch diameter - Maximum - 2.9820-inch (75.74 mm)  
Minimum - 2.9660-inch (75.34 mm)  
Tolerance - 0.0160-inch (0.41 mm)

Both nipples and caps shall be capable of repeated use. The main line of the T, Y or 45-degree lateral connection shall utilize a flanged gate valve of suitable capacity connected to the discharge side. The firehose connections shall remain attached to be instantly available for emergency use.

3.8.6 Line pressure safety switch system. The pump-engine system shall be equipped with a safety switch system for immediate and positive throttling of the engine to idle speed. The system shall consist of the following components: a hermetically-sealed, pressure-actuated, electric high-pressure switch and low-pressure switch, solenoid, toggle switch with indicating light, and independent electric circuit with voltage compatible with cranking system. The safety switches shall be integrated with the engine governor system and shall control the action of the fuel injection pump. Any one or a combination of the following high- and low-pressure conditions shall cause the safety-switch system to function.

- a. A drop in pressure below the preset limits when the flow of liquid in the upstream (suction) line is cut off, leaving the pump to operate dry.
- b. A drop in pressure below the preset limits when the liquid is being wasted because of a break in the downstream (discharge) line.
- c. A rise in the pressure beyond the preset limits due to a block in the downstream (discharge) line.

3.8.6.1 Pressure-actuated switches. The high- and low-pressure safety switches shall be exterior, surface-mounted, bellows-type, pressure-actuated, normally open switches with positive, quick-make-and-break action. The operating range of the high-pressure switch shall be 90 to 900 psig (621 to 6 205 kPag) plus or minus 5 percent; the operating range of the low-pressure switch shall

be 10 to 500 psig (69 to 3 447 kpag) plus or minus 5 percent. The switches shall be connected to the pump discharge nozzle with suitable copper tubing and fittings.

3.8.6.2 Solenoid. A weather-proof, pull-type, manual-resetting solenoid shall be securely mounted on the engine with the plunger arm connected to the diesel fuel injection pump. The solenoid shall be connected by electric cables to the rest of the control system. When energized, the plunger arm shall act to have the engine operate at idling speed. Means shall be provided for adjusting the engine idling speed to the recommended speed when the solenoid is energized.

3.8.6.3 Electric circuit. The wiring shall be arranged so that operation of the toggle switch will open or close the circuit to the solenoid. When the toggle switch is in the ON position, the circuit is closed and the indicating green light shall be energized. When the light is out, this shall indicate the high-and low-pressure switches have been cut out and that the toggle switch must be reset before the pressure-actuated safety system functions again. When the pump-engine system is put into operation and the line pressure is below the preset low limit, opening of the toggle switch shall permit cutting the pressure switches and allow the engine to start.

3.9 Skid base. The pump and engine shall be securely mounted on a steel skid mounting, properly braced and reinforced by cross members to adequately support the fully assembled pump system and hold the pump and engine in proper alignment, particularly during times when they are towed along the ground or handled during shipment. Each runner of the skid mounting shall have both ends upturned in a manner to facilitate skidding. Provision shall be made for bolting the mounting to a permanent foundation by uniformly spaced holes in the skids, by non projecting lugs, or by other means.

3.10 Lifting and tiedown attachments. When specified (see 7.2), the pump system shall be equipped with lifting and tiedown attachments. Lifting and tiedown attachments shall conform to type II or type III of MIL-STD-209. A nonferrous transportation plate shall be provided and mechanically attached to the pump system. Transportation plates shall be inscribed with a diagram showing the lifting attachments and lifting slings, the capacity of each attachment, and the required length and size of each sling cable. A silhouette of the pump system furnished showing the center of gravity shall be provided on the transportation plate. Tiedown attachments shall be identified by stenciling or other suitable marking. Tiedown markings shall clearly indicate that the attachments are intended for the tiedown of the pump system on the carrier when shipped.

3.11 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to ensure interchangeability of component parts, assemblies, accessories, and spare parts.

3.12 Identification plate. An identification plate will be furnished by the contracting officer for each pump system. The contractor shall stamp all necessary data in the blank spaces of the plate provided for that purpose, and securely affix a plate to each pump system in a conspicuous place with nonferrous screws, rivets, or bolts not less than 0.125-inch (3 mm) in diameter. The applicable nomenclature contained in the contract item description shall be placed in the top blank.

3.13 Instruction plate. The pump system shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the equipment. Plates shall be securely affixed to the equipment with nonferrous screws or bolts of not less than 0.125-inch (3 mm) diameter.

3.14 Lubrication. Unless otherwise specified (see 7.2), means for lubrication shall be in accordance with the manufacturer's standard practice. The lubricating points shall be easily visible and accessible. Hydraulic lubrication fittings shall be in accordance with SAE J534. Where use of high-pressure lubricating equipment, 1,000 psig (6 895 kpag) or higher, will damage grease seals or other parts, a suitable warning shall be affixed to the equipment in a conspicuous location.

3.15 Cleaning, treatment, and painting. Unless otherwise specified (see 7.2), the pump system shall be treated and painted in accordance with the manufacturer's standard practice. All surfaces of the pump system other than corrosion-resisting steel shall be protected against corrosion and present a neat appearance.

3.16 Servicing and adjusting. Prior to acceptance of the pump system by the Government, the contractor shall service and adjust the pump system for immediate operational use as required in the operator's manual. The servicing and adjusting shall include at least the following:

- a. Proper functioning of all lighting and electrical systems.
- b. Adjustment of engine to include tune-up (when required).
- c. Complete lubrication with grades of lubricants recommended for ambient temperature at the delivery point.
- d. Cooling system filled to capacity with a clean solution of equal parts by volume of water and antifreeze (ethylene glycol). The pump system shall be conspicuously tagged to identify the lubricants and their temperature range.

#### 4. REGULATORY REQUIREMENTS.

4.1 Materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR). Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this commercial item description are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this commercial item description.

4.2 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within specified tolerances using conversion tables contained in the latest version of ASTM E380, and all other

requirements of this commercial item description including form, fit and function are met. If a product is manufactured to metric dimensions and those dimensions exceed the tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable. The contracting officer has the option of accepting or rejecting the product.

## 5. QUALITY ASSURANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

6. PACKAGING. The preservation, packing, and marking shall be as specified in the contract or order.

## 7. NOTES.

### 7.1 Source of documents.

7.1.1 Copies of government specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.

7.1.2 The Federal Acquisition Regulation (FAR) and Code of Federal Regulations (CFR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.1.3 ASME Standards are available from American Society of Manufacturing Engineers, United Engineering Center 345 East 47th Street, New York, NY 10017.

7.1.4 ASTM Standards are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.1.5 SAE Standards are available from Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.

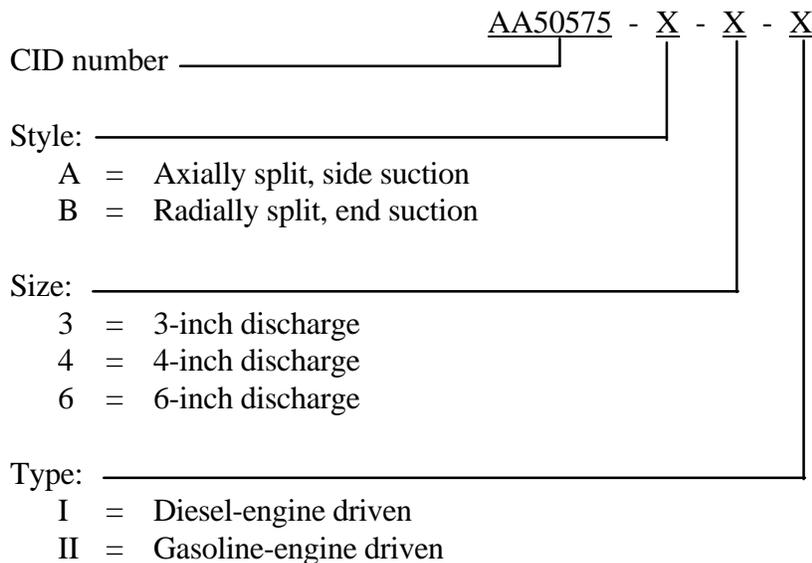
7.1.6 NFPA Standards are available from National Fire Protection Agency, Batterymarch Park, Quincy, MA 02269.

### 7.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number and date of this commercial item description.
- b. The pump system style, size, and type shall be as specified (see 2. and 3.1).
- c. Pump casing material required (see 3.3).

- d. When pump performance is other than as specified (see 3.3.1).
- e. When elbow connection requirements are different than as specified (see 3.4).
- f. When batteries are other than specified (see 3.7.2).
- g. When batteries are to be charged other than as specified (see 3.7.2).
- h. When an auxiliary priming system is required (see 3.8.3).
- i. When auxiliary lighting is required (see 3.8.4).
- j. When firehose connections are required (see 3.8.5).
- k. When lifting and tiedown attachments are required (see 3.10).
- l. When lubrication is other than as specified (see 3.14).
- m. When treatment painting is other than as specified (see 3.15).

7.3 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. The PIN to be used for items acquired to this description are created as follows:



7.4 National Stock Numbers (NSNs): The following is a list of NSNs assigned which correspond to this commercial item description. The list may not be indicative of all possible NSNs associated with the commercial item description.

4320-00-274-5077

7.5 Subject term (key word) listing.

- Axially split casing
- Multi-stage
- Radially split casing
- Single stage
- Skid base mounted

MILITARY INTEREST:

Custodian:  
Navy - YD1

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:  
Navy - YD1

(Project 4320-0021)

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

### I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER  
A-A-50575

2. DOCUMENT DATE (YYMMDD)  
970207

### 3. DOCUMENT TITLE

PUMP-ENGINE SYSTEM, CENTRIFUGAL, WATER-GASOLINE-FUEL OIL, SKID-BASE-MOUNTED

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

### 5. REASON FOR RECOMMENDATION

### 6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*

b. ORGANIZATION

c. ADDRESS *(Include Zip Code)*

d. TELEPHONE *(Include Area Code)*  
(1) Commercial  
(2) AUTOVON  
*(if applicable)*

7. DATE SUBMITTED  
(YYMMDD)

### 8. PREPARING ACTIVITY

a. NAME

RUSSELL REYNOLDS

b. TELEPHONE *Include Area Code)*  
(1) Commercial  
(805) 982-5946

(2) AUTOVON  
551-5946

c. ADDRESS *(Include Zip Code)*

COMMANDING OFFICER, NCBC CODE 15E2C  
1000 23RD AVENUE  
PORT HUENEME, CA 93043-4301

**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:**  
DEFENSE QUALITY AND STANDARDIZATION OFFICE  
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466  
Telephone (703) 756-2340 AUTOVON 289-2340