DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

# CONFIGURATION STANDARDS FOR REBUILD OF POWER UNIT, MULTIPLE ENGINE (DDAD) APPLICABLE TO LANDING CRAFT MECHANIZED MARK VIII MOD-0 VESSELS HULL NOS. 8000 THRU 8427 NSN 1905-00-267-1097 AND POWER UNIT, MULTIPLE ENGINE (DDAD) APPLICABLE TO LANDING CRAFT MECHANIZED MARK VIII MOD-1 VESSELS HULL NOS. 8500 THRU 8560 AND 8580 THRU 8618 NSN 1905-00-935-6057

HEADQUARTERS, DEPARTMENT OF THE ARMY
15 JANUARY 1979

**DEPARTMENT OF THE ARMY TECHNICAL BULLETIN**

# CONFIGURATION STANDARDS FOR REBUILD OF POWER UNIT, MULTIPLE ENGINE (DDAD) APPLICABLE TO LANDING CRAFT MECHANIZED MARK VIII MOD-0 VESSELS HULL NOS. 8000 THRU 8427 NSN 1905-00-267-1097 AND POWER UNIT, MULTIPLE ENGINE (DDAD) APPLICABLE TO LANDING CRAFT MECHANIZED MARK VIII MOD-1 VESSELS HULL NOS. 8500 THRU 8560 AND 8580 THRU 8618 NSN 1905-00-935-6057

***Current as of 26 September 1978***

**Headquarters, Department of the Army, Washington, DC**
15 January 1979

## REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help Improve this manual If you find any mistake or if you know of a way to improve the procedures, please let us know Mall your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, U S Army Troop Support and Aviation Materiel Readiness Command, ATTN DRSTS-MTPS, 4300 Goodfellow Boulevard, St. Louis, MO 63120 A reply will be furnished to you

## LIST OF TABLES



## LIST OF FIGURES

## SECTION I
## INTRODUCTION

**1-1. General**. This bulletin provides specific configuration standards applicable to the Power Unit Multiple Engine used in conjunction with Landing Craft Mark VIII (LCM8s) Vessels, NSN 1905-00-267-1057 and NSN 1905-00-935-6057 It identifies the required components and dimensional characteristics of each unit and prescribes their correct application

**1-2. Purposes**. a. The configuration data contained herein is intended to provide information and guidance sufficient to insure that the power units, multiple engine will be rebuilt to the correct configuration for either the MOD-0 or MOD-1 Vessels eliminating the intermixing of stock at General Support or Depot levels of overhaul, and rebuild which could cause additional labor, expenses and/or modification of the engine compartment to receive the wrong power unit

b This TB will reasonably assure that the power units will be assembled to the correct configuration (engine to hull application) and will be supportable by the published DATMs that will apply to the specific engine hull application

**1-3 Scope**. The configuration data contained herein applies to all twin multiple power units (See Tables 1-1 and 1-2) installed in the TSARCOM Managed Landing Craft Mark VIII Vessels (LCM8s)

**1-4. Types of Problems**. a. Raw Water Pumps (Flanges not compatible to existing shipboard piping)

b. Throttle control link at governor (different governors REF 1-4g)

c. Transmission oil cooler cover (requires relocation of oil cooler lines)

d. Air inlet housing (interferes with upright stanchions in engine compartment

e Crankshaft pulleys (the MOD-1 requires different mounting)

f Oil Pans (the MOD-0 requires a shallow sump and the MOD-1 requires a deep sump which necessitates modification of the hull cross member beneath the engine on the MOD-0 Hull)

g. Governors (the MOD-0 has variable speed whereas the MOD-1 has limiting speed)

h. Front crankshaft power take off (mounted on outboard engine of each bank of engines required for hydraulic ramp pump on the MOD-1 Hulls)

i. Oil Filter engine (the MOD-0 has the filters located on the port, and starboard sides of the power units Whereas the MOD-1 filter is located at the front of the engine, causing problem with hand rail on MOD-0 Hulls)

j. Oil Filter Transmission (the MOD-0 does not have this item whereas the MOD-1 has this item)

k. Starter Electric 24VDC (the MOD-0 requires one for each engine, whereas the MOD-1 requires one on each outboard engine)

I. Starter Hydraulic (the MOD-1 requires one on each inboard engine)

m Pump Hydraulic Starter Engine Driven on MOD-1 (one each power unit required for the Starter Hydraulic gear train driven)

n. Pump Steering (one required on each power unit for Hydraulic Steering on the MOD-1 gear train driven)

o. Front crankshaft cover engine support (the MOD-0 has one each engine, whereas the MOD-1 has one each inboard engine and one crankshaft adapter housing on each outboard engine required for PTO mounting)

p. Fresh water line from Keel cooling grid to engine (the MOD-0 is 16 11/16 inches above centerline of crankshaft Whereas the MOD-1 is 18 13/32)

**Table 1-1. TABULATED DATA FOR POWER UNITS, MULTIPLE ENGINE USED ON NSN 1905-00-267-1097 LANDING CRAFT MECHANIZED MARK VIII MOD-0 HULL NUMBERS LCM-8000 THRU 8427 ENGINE SERIAL NUMBER RANGE AT TIME OF HULL CONSTRUCTION 12A2143 THRU 12A5030 POWER UNIT, MULTIPLE ENGINE, DIESEL, MARINE, KEEL COOLED, ASSEMBLED AS A TWIN 6-71 DIRECT CONNECTED TO AN ALLISON HYDRAULICALLY ACTUATED REVERSE GEAR, W/2:1 REDUCTION RATIO W/COMMON OUTPUT SHAFT RPMS OF 900**

**1. MODEL 12005A (STARBOARD POWER UNIT)**

BASIC ENGINE MODELS: 6-71-RD-63A (STARBOARD OUTBOARD)
6-71-RB-63A (STARBOARD INBOARD)
ROTATION AT REVERSE GEAR OUTPUT SHAFT: CLOCKWISE
PART NUMBER: 5186353-FSCM 72582
NSN: 2815-00-271-9083

**2. MODEL 12006A (PORT POWER UNIT)**

BASIC ENGINE MODELS: 6-71-LB-63A (PORT OUTBOARD)
6-71-LD-63A (PORT INBOARD)
ROTATION AT REVERSE GEAR OUTPUT SHAFT: COUNTERCLOCKWISE
PART NUBMER: 5186377-FSCM 72582
NSN: 2815-00-271-9084

**Table 1-2. TABULATED DATA FOR POWER UNITS, MULTIPLE ENGINE USED ON NSN 1905-00-935-6057 LANDING, CRAFT MECHANIZED MARK VIII MOD-1 HULL NUMBERS LCM-8500 THRU 8560 AND 8580 THRU 8618 ENGINE SERIAL NUMBER RANGE AT TIME OF HULL CONSTRUCTION 12A6350 THRU 12A7600 POWER UNIT, MULTIPLE ENGINE, DIESEL MARINE, KEEL COOLED, ASSEMBLED AS A TWIN 6-71 DIRECT CONNECTED TO AN ALLISON HYDRAULICALLY ACTUATED REVERSE GEAR, W/2:1 REDUCTION RATIO W/COMMON OUTPUT SHAFT RPMS OF 900**

**1. MODEL 12005A (STARBOARD POWER UNIT)**

BASIC ENGINE MODELS: 6-71-RD-63A (STARBOARD OUTBOARD)
6-71-RB-63A (STARBOARD INBOARD)
ROTATION AT REVERSE GEAR OUTPUT SHAFT: CLOCKWISE
PART NUMBER: 12005ARHSTBDCW-FSCM 72582
NSN: 2815-00-522-1871

**2. MODEL 1206A (PORT POWER UNIT)**

BASIC ENGINE MODELS: 6-71-LB-63A (PORT OUTBOARD)
6-71-LD-63A (PORT INBOARD)
ROTATION AT REVERSE GEAR OUTPUT SHAFT: COUNTERCLOCKWISE
PART NUMBER: 12006ALHPORTCCW - FSCM 72582
NSN: 2815-00-522-1872

## SECTION II
## CONFIGURATION STANDARDS

**2-1. General**. The basic engines assembled to the hydraulic reverse gears are compatible between both MOD0 and MOD-1 Vessels The hang on components determine the correct hull engine compartment arrangement to which the power unit will adapt The differences in the power units are clarified in paragraph 2-2 "Technical Data"

**2-2. Technical Data. A.** ***MOD-O Configuration***

**(1)** Table 2-1 lists those items that are peculiar to the LCM-8, MOD-0 engine power unit (Port and Starboard)

**(2)** Figures 2-1 thru 2-4 contain call outs relative to item numbers contained in Table 2-1

**(3)** Tables 2-2 and 2-3 contain a list of Detroit Diesel Allison Division of General Motors (DDAD) assigned type numbers for components for the Port and Starboard Power Units

**(4)** Figure 2-5 is an installation plan for MOD-0 LCM 8 engines utilizing components shown in Table 2-1

**b** ***Publications for MOD-O LCM 8, E/I 1905-00-267-1097.***

**(1)** TM55-1905-202-12
**(2)** TM55-1905-202-20P
**(3)** TM55-1905-202-35
**(4)** TM55-1905-202-35P
**(5)** LO 5-1905-202-12/1-2-3

**c** ***MOD-1 Configuration.***

**(1)** Table 2-4 lists those items that are peculiar to the LCM-8 MOD-1 Engine Power Units (Port and Starboard)

**(2)** Figures 2-6 and 2-7 contain call outs relative to item numbers contained in Table 2-4

**(3)** Tables 2-5 and 2-6 contain a list of DDAD assigned type numbers for components for the Port and Starboard Power Units

**(4)** Figure 2-8 is an installation plan for MOD-1 LCM 8 engines utilizing components shown in Table 2-4

**d.** ***Publication for MOD-I LCM 8, E/I 1905-00-935-6057***

TM 55-1905-217-12
TM 55-1905-217-20P
TM 55-1905-217-34
TM 55-1905-217-34P
LO 55-1905-217-12/1-2-3

**Table 2-1. ITEM PECULIAR TO MOD-0 POWER UNITS**
**LCM-8, MOD-0 NSN 1905-00-267-1097**
**2815-00-271-9084 (PORT) 2815-00-271-9083 (STBD)**

| ITEM | | DDAD P/N | FIG. NO | NSN | FSCM | PER VESSEL NO. REQ. |
|---|---|---|---|---|---|---|
| 1 | Reverse Gear oil cooler cover HSG | 5188862 | 2 4 | N/A | 72582 | 4 |
| 2 | Engine Lubrication oil filter (by pass) | 5572940 | 2-4 | 2940-00-287-3371 | 70040 | 4 |
| 3 | Raw water pump (Balance Shaft DRVN) | 5186476 | 2-3 | 4320-00-389-9090 | 72582 | 4 |
| 4 | Oil pan Shallow Sump | 5167230 | 2-4 | 2815-00-499-3551 | 72582 | 4 |
| 5 | Governor variable speed (LB & RB eng) | 5144137 | 2-4 | 2990-00-238-5484 | 72582 | 2 |
| 6 | Governor variable speed LD & RD eng | 5144138 | 2-2 | 2990-00-131-1858 | 72582 | 2 |
| 7 | Starter elec 24 VDC (LB & LD eng) | 1113875 | 2-1 | 2920-00-976-4689 | 16764 | 2 |
| 8 | Starter elec 24 VDC (RB & RD eng) | 1113876 | 2 2 | 2920-00-976-4690 | 16764 | 2 |
| 9 | Front crankshaft cover | 5182951 | 2-4 | N/A | 72582 | 4 |
| 10 | Crankshaft Pulley (2 groove 9" dia.) | 5164158 | 2-4 | 2815-00-363-8008 | 72582 | 4 |
| 1l | Accessory Dr for Alternator (Rear HSG Camshaft DRVN) | | 2-3 | N/A | 72582 | 2 |
| 12 | Throttle Control Link (for variable Gov) | 5177403 | 2-1 | 2815-00-589-1432 | 72582 | 4 |
| 13 | Tube Breather Engine (Gov to Blower) | 5168262 | 2-4 | 2815 00-499-3552 | 72582 | 4 |
| 14 | Pipe oil pump suction | 5174981 | Internal | 2815-00-902-1880 | 72582 | 4 |

**NOTE**

a. The blower inlet silencer is bolted direct to the blower housing There is no requirement for an air inlet adapter housing on the MOD-0 hull as these engines do not have manual shut downs for cutting off air supply in case of an emergency

b. All the above items 1 thru 14 are required to be on the engines for proper adaptability of the engines to the hull

c. The MOD-0 vessels have air activated ramp & steering, air supplied from front crankshaft bolt driven compressors

d. Port and Starboard power units identical except rotation

**Table 2-2. COMPONENT TYPE (DDAD) NUMBERS FOR MOD-0**
**PORT POWER UNIT**
**NSN 2815-00-271-9084**

| NOMENCLATURE | DDAD TYPE NO. |
|---|---|
| a. Manifold Exhaust w/900 Elbow & Flange | 71 |
| b. Air Silencer | 3 |
| c. Cylinder Head (2V) | 4 |
| d. Crankshaft Front Cover | 20 |
| e. Crankshaft Pulley | 17 |
| f. Fuel Injector (HV 7) | 12 |
| g. Fuel Pump (LB Engine) | 71 |
| h. Fuel Pump (LD Engine) | 76 |
| i. Fuel Filter (Primary) | 154 |
| j. Fuel Filter (Secondary) | 553 |
| k. Accessory Drive (for alternator drive belt driven from balance shaft LD Engine) | |
| 1. Governor (LB Engine Variable Speed Mechanical) | 520 |
| m. Governor (LD Engine Variable Speed Mechanical) | 521 |
| n. Injector Controls | 34 |
| o. KeelCoollng | 172 |
| p. Fresh Water Pump (LB Engine) | 1 |
| q. Fresh Water Pump (LD Engine) | 2 |
| r. Vibration Damper (Heavy) | 3 |
| s. Vibration Damper (Light) | 6 |
| t. Starter Electric 24V 70 AMP LB & LD Engine | 25 |
| u. Alternator 24V 70 AMP (Belt Driven from accessory drive of LD Engine, Motorola P/N 10-90 | |
| v. Dipstick Engine | 132 |
| w Marine Transfer Gear Oil Pump LB Engine | 431 |
| x. Marine Transfer Gear Oil Pump LD Engine | 432 |
| y. Oil Filter (Engine Dual Mounted) | 87 |
| z. Oil Cooler (Engine) | 283 |
| aa. Oil Pan (Engine) | 120 |
| ab. Marine Transfer Gear (2 1 HM) | 36 |
| ac. Thermostat (Engine) | 11 |
| ad. Throttle Controls (For Variable Speed Governor) | 140 |
| ae. Raw Water Pump | 14 |
| af. Engine Base | 154 |
| ag. Instruments | 807 |

**Table 2-3. COMPONENT TYPE (DDAD) NUMBERS FOR MOD-0**
**STARBOARD POWER UNIT**
**NSN 2815-00-271-9083**

| NOMENCLATURE | DDAD TYPE NO. |
|---|---|
| a. Manifold Exhaust w/900 Elbow & Flange | 71 |
| b. Air Silencer | 3 |
| c. Cylinder Head (2V) | 4 |
| d. Crankshaft Front Cover | 20 |
| e. Crankshaft Pulley | 17 |
| f. Fuel Injector (HV 7) | 12 |
| g. Fuel Pump (RB Engine) | 71 |
| h. Fuel Pump (RD Engine) | 76 |
| i. Fuel Filter (Primary) | 154 |
| j. Fuel Filter (Secondary) | 553 |
| k. Accessory Drive (for alternator drive belt driven from balance shaft LD Engine) | |
| I. Governor (RB Engine Variable Speed Mechanical) | 520 |
| m. Governor (RD Engine Variable Speed Mechanical) | 521 |
| n. Injector Controls | 34 |
| o. KeelCooling | 172 |
| p. Fresh Water Pump (RB Engine) | 1 |
| q. Fresh Water Pump (RD Engine) | 2 |
| r. Vibration Damper (Heavy) | 3 |
| s. Vibration Damper (Light) | 6 |
| t. Starter Electric 24V 70 AMP RB & RD Engine | 24 |
| u. Alternator 24V 70 AMP (Belt Driven from accessory drive of RD Engine, Motorola P/N 10-90 | |
| v. Dipstick Engine | 132 |
| w. Marine Transfer Gear Oil Pump RD Engine | 431 |
| x. Marine Transfer Gear Oil Pump RB Engine | 432 |
| y. Oil Filter (Engine Dual Mounted) | 87 |
| z. Oil Cooler (Engine) | 283 |
| aa. Oil Pan (Engine) | 120 |
| ab. Marine Transfer Gear (2 1 HM) | 36 |
| ac. Thermostat (Engine) | 11 |
| ad. Throttle Controls (For Variable Speed Governor) | 140 |
| ae. Raw Water Pump | 14 |
| af. Engine Base | 154 |
| ag. Instruments | 807 |

**Table 2-4. ITEMS PECULIAR TO MOD-1 POWER UNITS LCM-8, MOD-i NSN 1905-00-935-6057, 2815-00-522-1872 (PORT), 2815-00-522-1871 (STBD)**

| ITEM | NOMENCLATURE | DDAD P/N | FIG. NO. | NSN | FSCM | PER VESSEI. NO. REQ. |
|---|---|---|---|---|---|---|
| 1 | Reverse Gear oil cooler HGS | 5167775 | 2-6A&2 7A | N/A | 72582 | 4 |
| 2 | Engine lubrication oil filter (full flow) | 519fi393 | 2-6A&2 7A | 2940 00 836-8263 | 70040 | 4 |
| 3 | Reverse Gear oil filter | 5129129 | 2 6A&2 7A | 2815 00 901 0977 | 70040 | 4 |
| 4 | Air inlet housing (for manual shutdown | 5128740 | 2-6B&2-7B | 2815 00-421 1462 | 72582 | 4 |
| 5 | Raw water pump (camshaft I)RVN) | 5115396 | 2 6B&2-7B | 2815-00 793 6786 | 72582 | 4 |
| 6 | Power Take off (outboard eng) | 5143770 | 2 fiA&2 7A | 2990-00 168 2291 | 72582 | 2 |
| 7 | Adapter HSG front covet (for PTO) | 5176128 | 2 6A&2 7A | N/A | 72582 | 2 |
| 8 | Oil pan deep SUMP (RB & LB engine) | 5126851 | 2 6A&2 7A | N/A | 72582 | 2 |
| 9 | Oil pan deep SUMP (RD & LD) engine) | 5126850 | 2-6A&2 7A | N/A | 72582 | 2 |
| 10 | Pipe oil pump suction | 5174981 | Internal | N/A | 72582 | 2 |
| 11 | Engine fuel cooler (Rohr) | 5136348 | Not shown | 2815 00 938 5760 | 72582 | 4 |
| 12 | Hvdro starter (inboard engine) | CMD2A221STBD | 2-6B3&2 7B | 2990 00 115 0317 | 01843 | 2 |
| | | CMD2A1 11PORT | | 2990 00-844 2879 | 01843 | 2 |
| 13 | Governor (LB & RB eng) | 5172764 D/W | 2 6A&2-7A | 2910 00 110 9509 | 72582 | 2 |
| 14 | Governor (LD & RD eng) | 5112938 D)/W | 2 6A&2 7A | 2910 00 110 9508 | 72582 | 2 |
| 15 | Starter elec 24 VDC (RD eng) | 1108850 | 2-6A&2 7A | 2920 00 777-3392 | 72582 | 1 |
| 16 | Starter elec 24 VDC (I,B eng) | 11 8890 | 2 6A&2 7A | 2920 00 640 7462 | 72582 | 1 |
| 17 | Hydro starter (engine DRVN pump) LD & RB engines | RPA300412 | 2 6B&2-7B | 4320 00-864 6236 | 01843 | 2 |
| 18 | Hydraulic Steering pump LB & RD) | V110 25 1C10LS214 | 2 6B&2 7B | 4320-00 115 8811 | 62983 | 2 |
| 19 | Throttle control link | 2090270 | 2 6A&2 7A | 2910 00 588-8444 | 72582 | 4 |
| 20 | Front Crankshaft cover | 5182951 | 2 6A&2 7A | N/A | 72582 | 2 |

**NOTE**

a. The blower inlet has an adaptor housing between the blower and silencer for manual emergency shut down of the engines

b. The MOD-1 vessels have hydraulically actuated ramp, hydraulics supplied for the ramp from the PTO Driven Pump at Front of each outboard Engine (2)

c. Hydraulic Power Steering Hydraulic Oil Supplied From Pump located on rear of engine (Gear train Driven)

d. Port and Starboard Power Units Identical Except Rotation

**Table 2-5. COMPONENT TYPE (DDAD) NUMBERS FOR MOD-1 PORT POWER UNIT, NSN 2815-00-522-1872**

| NOMENCLATURE | DDAD TYPE NO. |
|---|---|
| a. Manifold Exhaust F/W Cooled w/90° Elbow and Flange | 71 |
| b. Air Silencer | 3 |
| c. Air Inlet Housing (w/Emergency Shutdown) | 228 |
| d. Cylinder Head (2 Valve) | 4 |
| e. Crankshaft Front Cover (LD Eng) | 20 |
| f. Fuel Injector (HV7) | 12 |
| g. Fuel Pump (LB Eng) | 71 |
| h. Fuel Pump (LD Eng) | 76 |
| i. Fuel Filter (Primary) | 154 |
| j. Fuel Filter (Secondary) | 553 |
| k. Crankshaft Pulley (LD Eng) | 17 |
| I. Fuel Lincs and Cooler | 1114 |
| m. Accessory Drive | 180 |
| n. Governor (LB Eng Limiting Speed Mechanical, double weight) | 972 |
| o. Governor (LD Eng Limiting Speed Mechanical, double weight) | 972 |
| p. Injector Controls | 34 |
| q. Keel Cooling | 172 |
| r. Hydraulic Marine Gear Pump (mounted on Blower Drive LB Eng) | 798 |
| s. Hydraulic Marine Gear Pump (mounted on Blower Drive LD Eng) | 799 |
| t. Hydraulic Starter (LD Eng American Bosch P/N CMD2A111) | 799 |
| u. Oil Distribution System | 381 |
| v. Oil( Filter Eng Oil (Mounted In front of H/E Full Flow) | 100 |
| w. Oil Cooler Eng 011 | 283 |
| x. Oil Pan (0-20° LB Eng) | 196 |
| y. Oil Pan (0-20° LD Eng) | 199 |
| z. Crankshaft Front Cover (mounted on LB Eng adaptor hsg for PTO) | |
| aa. Front PTO (LB Eng MTD) | 316 |
| ab. Power Transfer Gear (2 1 HM) | 36 |
| ac. Thermostat | 11 |
| ad. Throttle Controls | 140 |
| ae. Alarm or Shut Off | 687 |
| af. Starting Aid | 38 |
| ag. Raw Water Pump (mounted on camshafts LB & LD Engs) | 72 |
| ah. Tachometer Adaptor (Dual) | 509 |
| ai. Electric Starter (LB Eng 24 VDC) | 132 |
| aj. Hydraulic Starter (Eng Driven Pump mounted on Balance Shaft LD Eng, American Bosch P/N RPA300412) | |
| ak. Vibration Damper (Heavy) | 3 |
| al. Vibration Damper (Light) | 6 |
| am. Alternator 24V 70 AMP (Belt Driven Front C/S of LD Eng) Motorola P/N 8SA3006P | |
| an. Fresh Water Pump (B Eng) | 1 |
| ao. Fresh Water Pump (D Eng) | 2 |
| ap. Engine Base | 154 |
| aq. Instruments | 807 |
| ar. Hydraulic Steering Pump (mounted on Balance Shaft LB Eng) Vickers P/N V110-25-1C1I0LS214 | |
| as. Oil Filter Marine reverse gear DDAD (P/N 5129129) | |

**Table 2-6. COMPONENT TYPE (DDAD) NUMBERS FOR MOD-1 STARBOARD POWER UNIT, NSN 2815-00-522-1871**

| NOMENCLATURE | DDAD TYPE NO. |
|---|---|
| a. Manifold Exhaust F/W Cooled w/90° Elbow and Flange | 71 |
| b. Air Silencer | 3 |
| c. Air Inlet Housing (w/Emergency Shutdown) | 228 |
| d. Cylinder Head (2 Valve) | 4 |
| e. Crankshaft Front Cover (RB Eng) | 20 |
| f. Fuel Injector (HV7) | 12 |
| g. Fuel Pump (RB Eng) | 71 |
| h. Fuel Pump (RD Eng) | 76 |
| i. Fuel Filter (Primary) | 154 |
| j. Fuel Filter (Secondary) | 553 |
| k. Crankshaft Pulley (RB Eng) | 17 |
| l. Fuel Lincs and Cooler | 1114 |
| m. Accessory Drive | 180 |
| n. Governor (RB Eng Limiting Speed Mechanical, double weight) | 972 |
| o. Governor (RD Eng Limiting Speed Mechanical, double weight) | 972 |
| p. Injector Controls | 34 |
| q. Keel Cooling | 172 |
| r. Hydraulic Marine Gear Pump (mounted on Blower Drive RB Eng) | 798 |
| s. Hydraulic Marine Gear Pump (mounted on Blower Drive RD Eng) | 799 |
| t. Hydraulic Starter (RD Eng American Bosch P/N CMD2A111) | 799 |
| u. Oil Distribution System | 381 |
| v. Oil Filter Eng Oil (Mounted in front of H/E Full Flow) | 100 |
| w. Oil Cooler Eng Oil | 283 |
| x. Oil Pan (0-20° RB Eng) | 196 |
| y. Oil Pan (0-20° RD Eng) | 199 |
| z. Crankshaft Front Cover (mounted on RD Eng adaptor hsg for PTO) | |
| aa. Front PTO (RD Eng MTD) | 316 |
| ab. Power Transfer Gear (2 1 HM) | 36 |
| ac. Thermostat | 11 |
| ad. Throttle Controls | 140 |
| ae. Alarm or Shut Off | 687 |
| af. Starting Aid | 38 |
| ag. Raw Water Pump (mounted on camshafts RB & RD Engs) | 72 |
| ah. Tachometer Adaptor (Dual) | 509 |
| ai. Electric Starter (LB Eng 24 VDC) | 132 |
| aj. Hydraulic Starter (Eng Driven Pump mounted on Balance Shaft RD Eng, American Bosch P/N RPA300412) | |
| ak. Vibration Damper (Heavy) | 3 |
| al. Vibration Damper (Light) | 6 |
| am. Alternator 24V 70 AMP (Belt Driven Front C/S of LD Eng) Motorola P/N 8SA3006P | |
| an. Fresh Water Pump (B Eng) | 1 |
| ao. Fresh Water Pump (D Eng) | 2 |
| ap. Engine Base | 154 |
| aq. Instruments | 807 |
| ar. Hydraulic Steering Pump (mounted on Balance Shaft RB Eng) Vickers P/N V110-25-1C10LS214 | |
| as. Oil Filter Marine reverse gear DDAD (P/N 5129129) | |

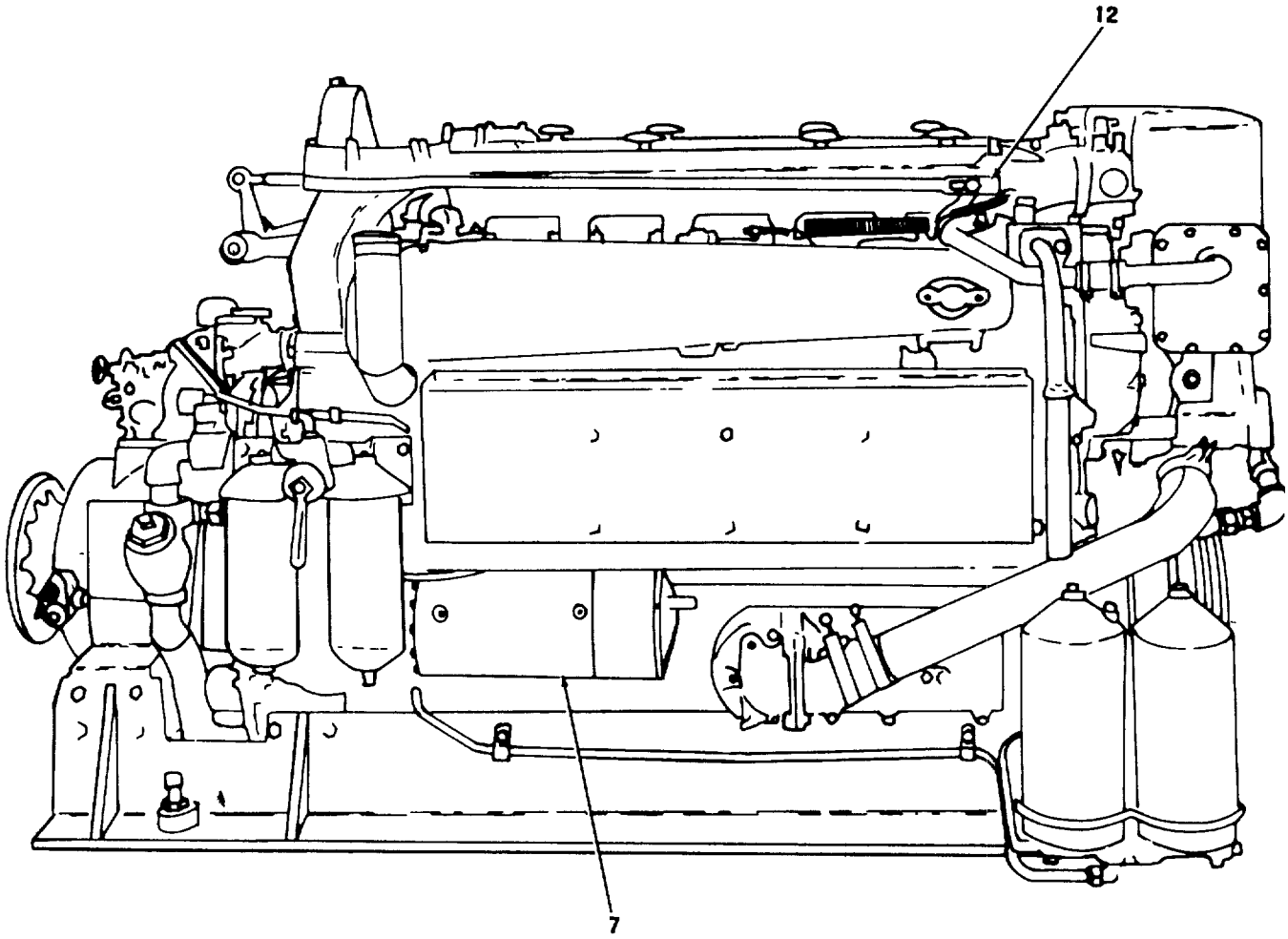



**Figure 2-1. Side View of Starboard Unit-Starboard Side MOD-0-Hulls**

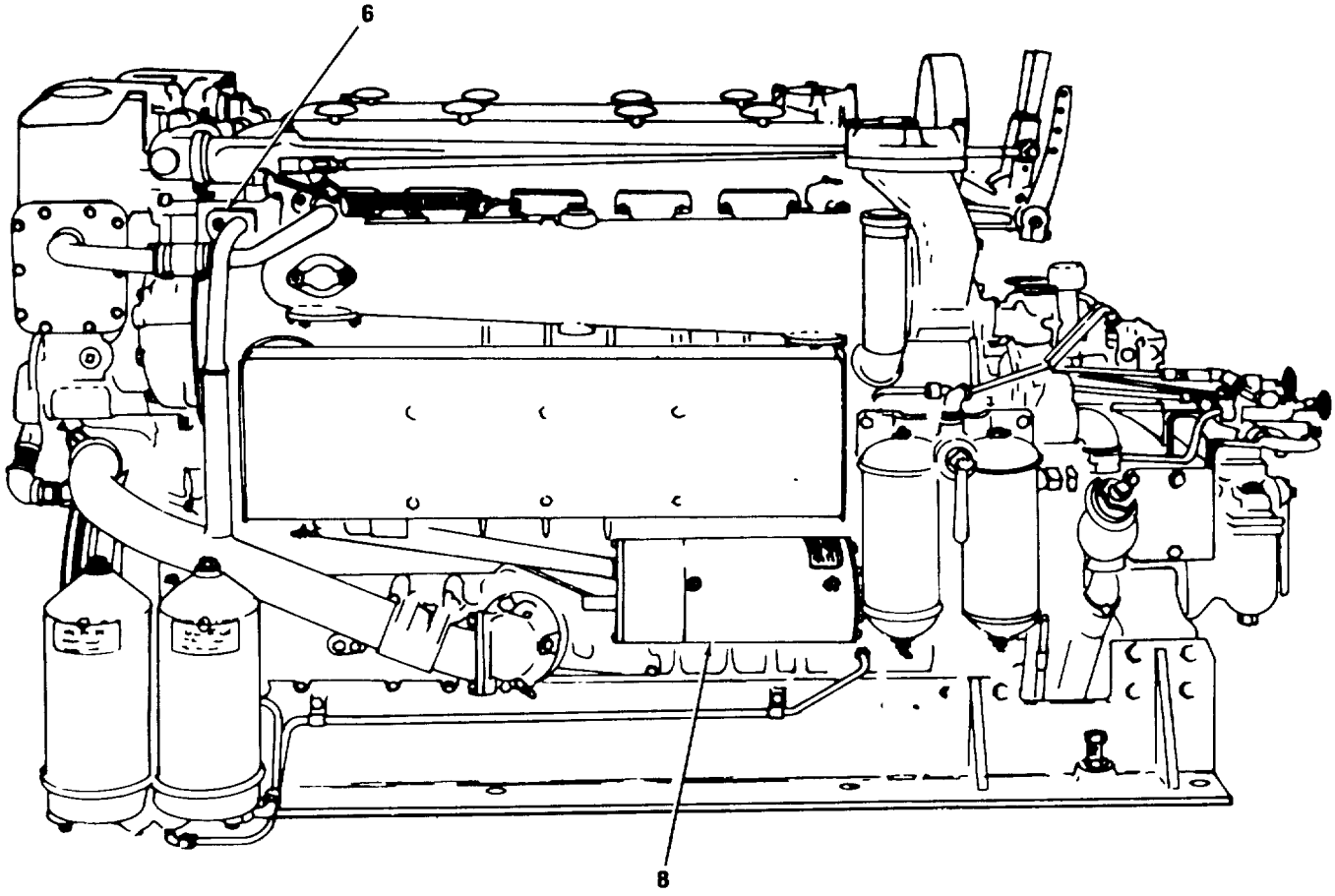



**Figure 2-2. Side View of Starboard Unit-Port Side MOD-0-Hulls.**

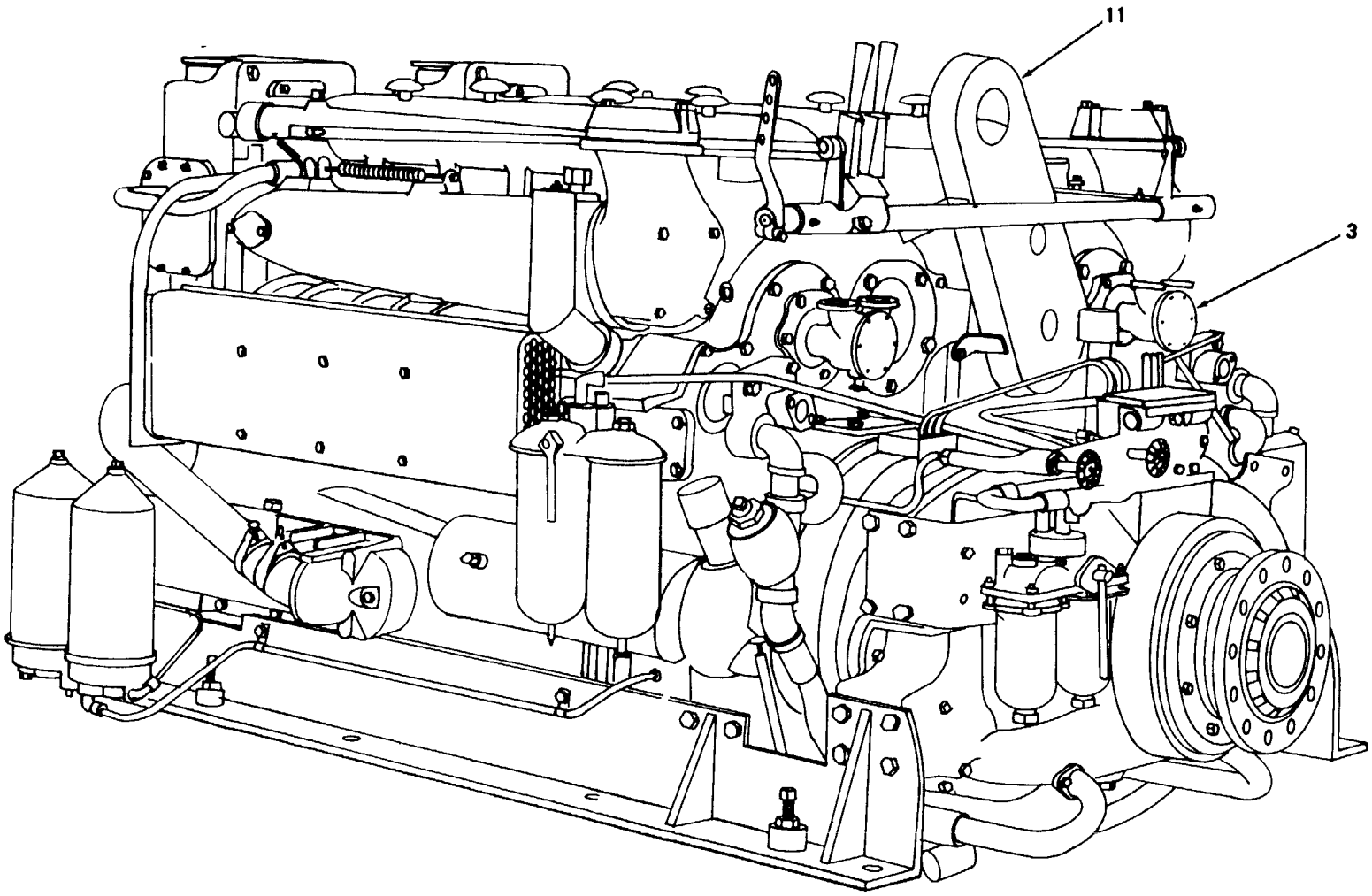



**Figure 2-3. Three Quarter View of Starboard Unit-After End, Port Side MOD-0-Hulls**

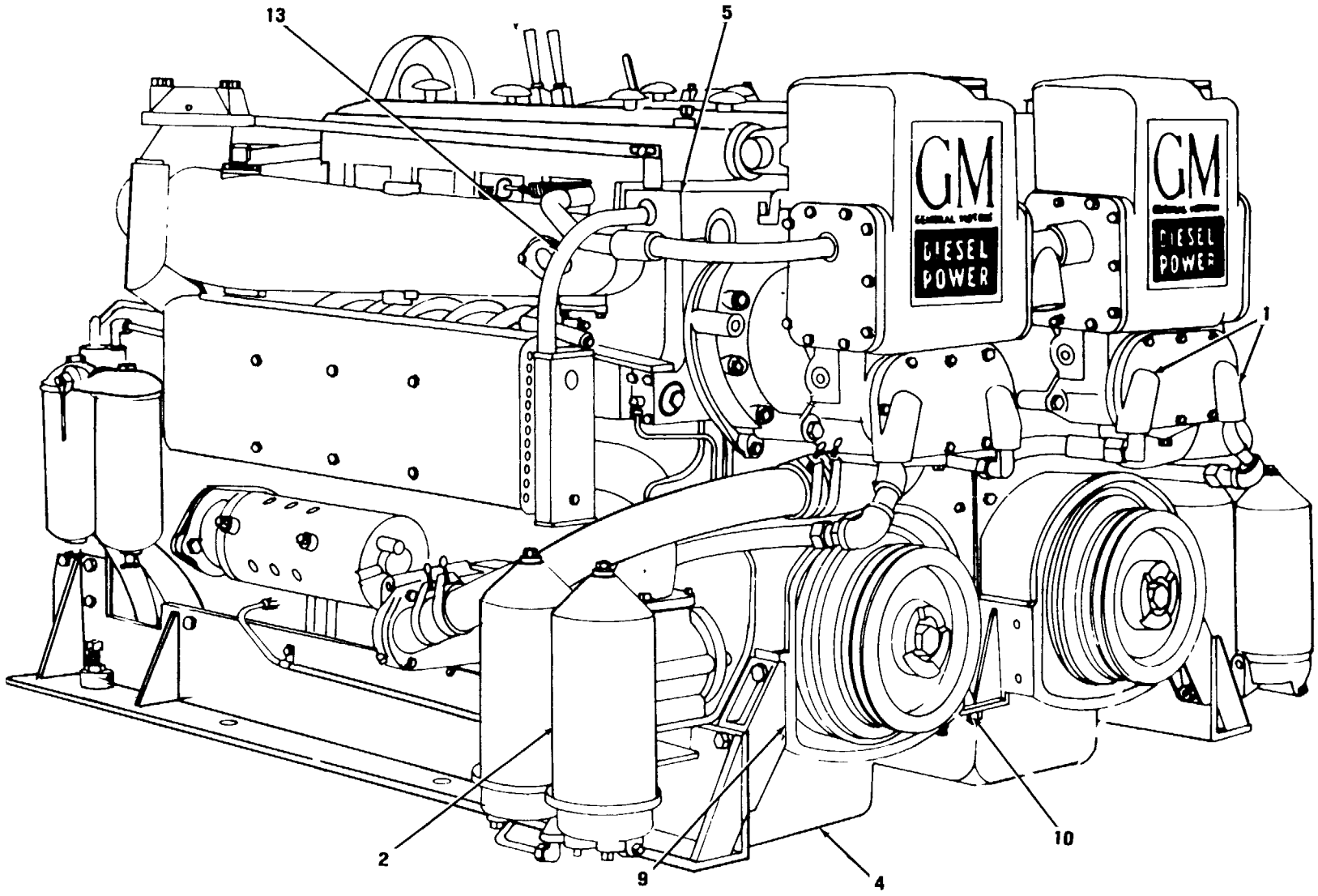
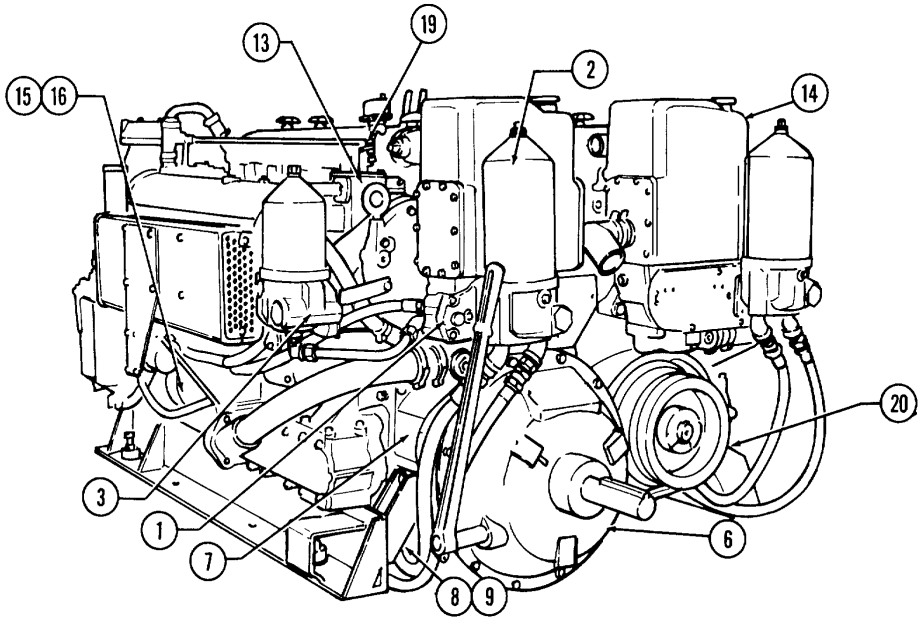



**Figure 2-4. Three Quarter View of Starboard of Unit-Forward End, Starboard Side MOD-0-Hulls**

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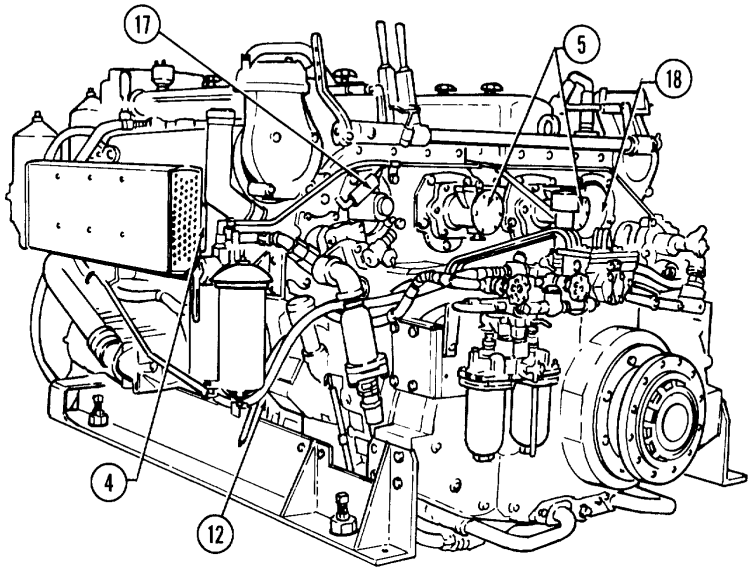


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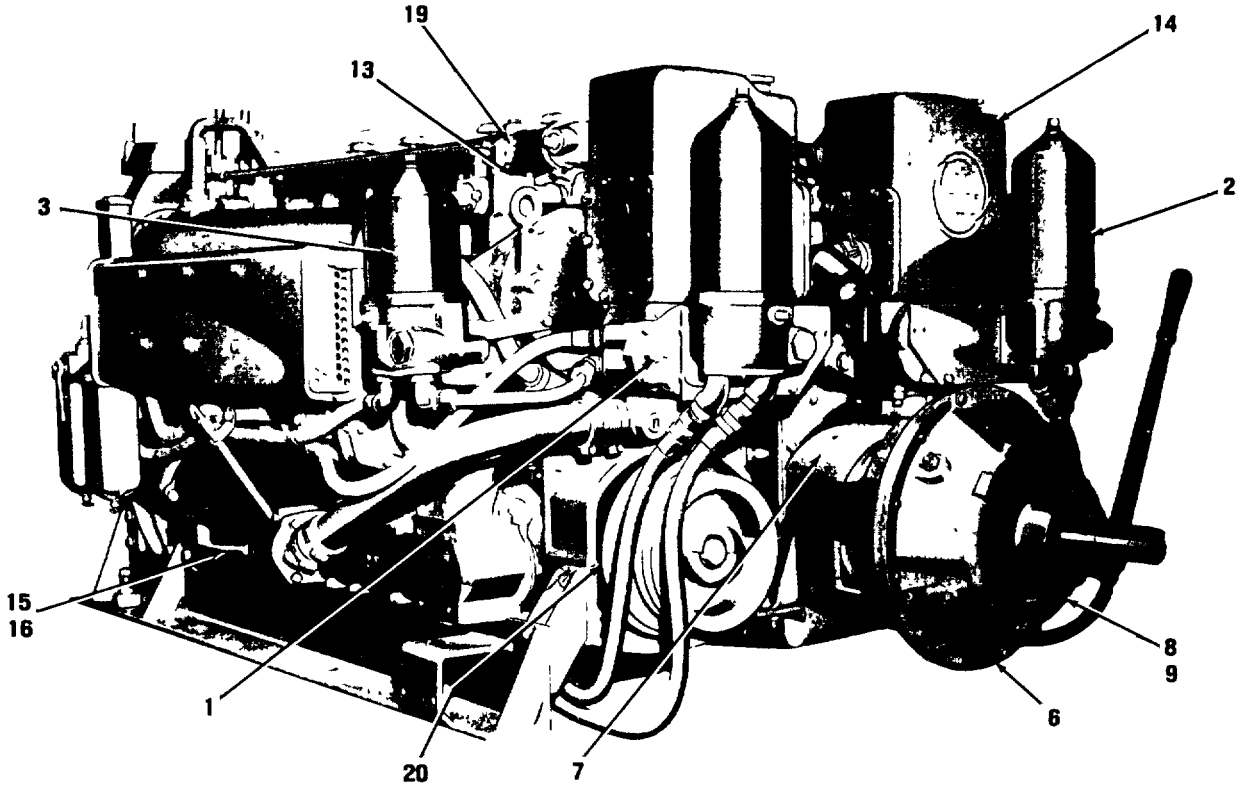
**Figure 2-6. Three Quarter View Starboard Unit, Forward End Starboard Side-View A, and Three Quarter View of Starboard Unit, After End Port Side-View B for MOD-1-Hulls**

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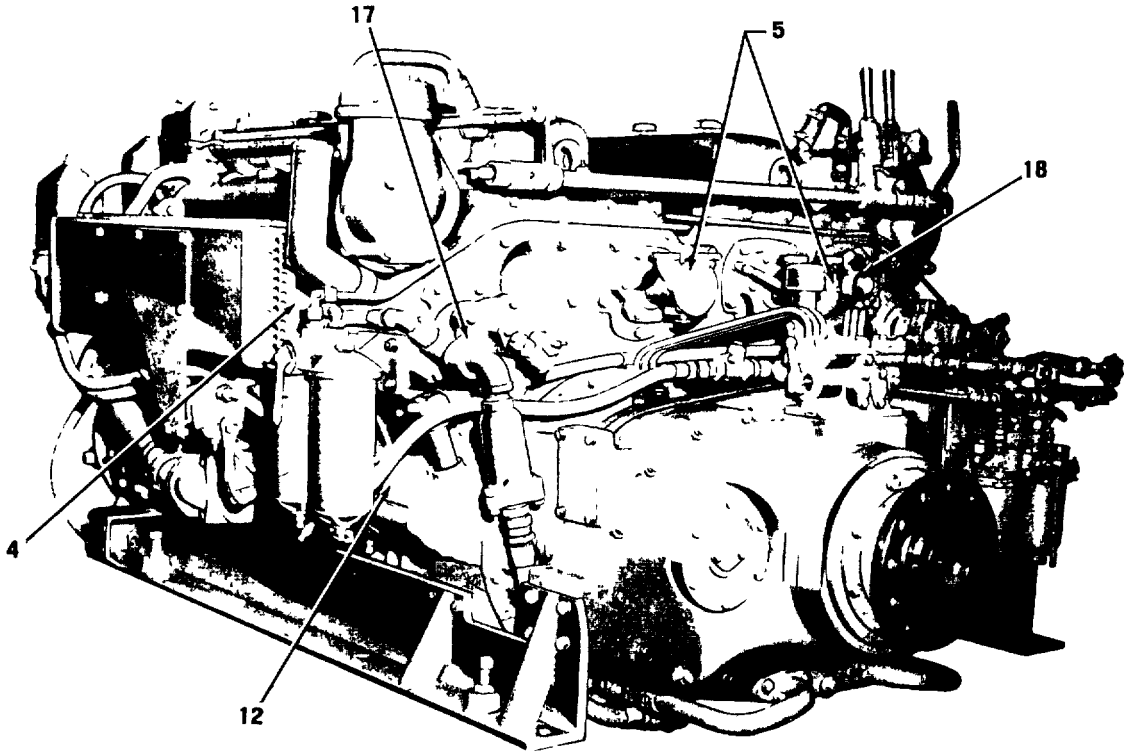


B

**Figure 2-7. Three Quarter View of Port Unit, Forward End Starboard Side-View A, and Three Quarter View of Port Unit, After End Port Side-View B for MOD-1-Hulls.**

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**BERNARD W. ROGERS**
***General, United States Army***
**Chief of Staff**

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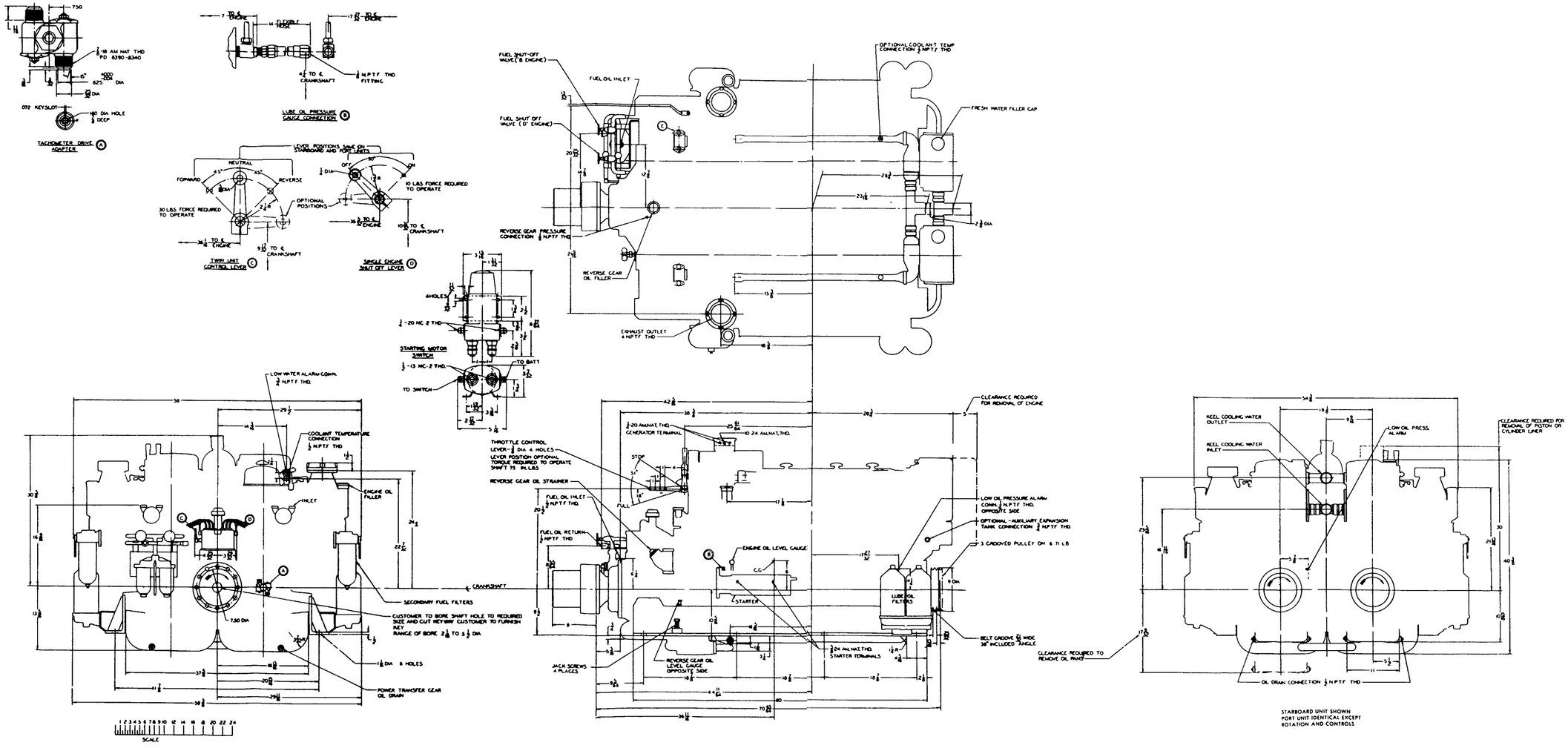


**Figure 2-5. Installation Plan for power Units MOD-0-Hulls.**

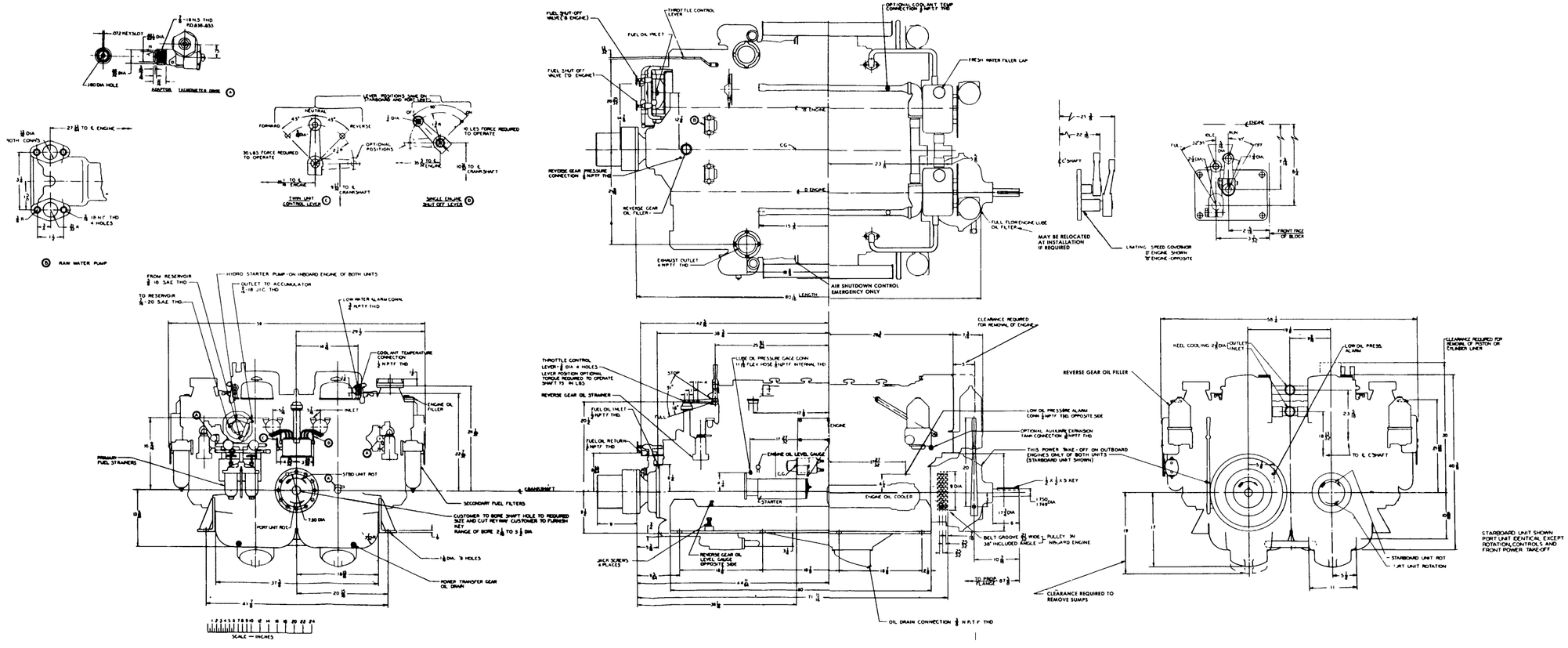


**Figure 2-8. Installation Plan for Power Units MOD-1-Hulls.**

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