



YANMAR CO.,LTD.

G3-29647-0120

4TNV88-GGEA

for Generator

SPECIFICATIONS & DRAWINGS FOR MASS PRODUCTION

24.Jan.2008

YANMAR CO.,LTD.

Contents

G3-29647-0120

| Drawing No. | Part No. | Name | Qty. | Remarks |
|---------------|--------------|---------------------|------|---------|
| B3-29647-0140 | | Out line | | |
| E3-29004-0050 | | Wiring Diagram | | |
| Z3-71301-0031 | | Detail of Flywheel | | |
| G3-29647-0120 | | Scope of Supply | | |
| | | | | |
| | | LOOSE PARTS | | |
| | 129930-13201 | GASKET, SILENCER | 1 | |
| | 129601-44500 | RADIATOR ASSY | 1 | |
| | 124450-44510 | TANK ASSY, SUB | 1 | |
| | 124450-44550 | CLAMP, SUB TANK | 1 | |
| | 129601-44560 | GUARD, FAN | 1 | |
| | 121256-44600 | BRACKET, SUB TANK | 1 | |
| | 119255-44660 | RUBBER, RADIATOR | 2 | |
| | 129602-49010 | PIPE, COOLING WATER | 1 | upper |
| | 129612-49040 | PIPE, COOLING WATER | 1 | lower |
| | 119225-52102 | PUMP, FUEL FEED | 1 | |
| | 119802-55700 | SEPARATOR ASSY | 1 | |
| | 119643-66900 | DIODE | 1 | |
| | 119650-77910 | RELAY ASSY, GLOW | 1 | |
| | 129211-77920 | TIMER, SECTION 1 | 1 | |
| | 23010-038000 | CLAMP, HOSE 38 | 2 | |
| | 23010-044000 | CLAMP, HOSE 44 | 2 | |
| | OATNV-G00101 | OPERATION MANUAL | 1 | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note :

- ① Since the durability of electric parts basically apply to R2 level of JIS D0203, please inform the customer not to clean with steam or high pressure water.
- ② Electric parts should not mounted on the engine directly (relay, timer etc.) must be kept free from wet & high humidity and be kept with good air ventilation.
- Regarding the vibration of the electrical components, these vibration level must be kept less than 4G.
- ③ Since there is the possibility of corrosion problem on engine cylinder liner or other parts, please do not sell and use the engine with EGR valve in other than emission regulated area. (Emission regulated area means North America, Europe and Japan)

Engine Development Dept.

Manager

T. Goto

Sec. Manager

K. Yamada

| | For Conference | For Apporval | For Installation | Final Drawing |
|------------|-------------------|-----------------|---------------------|------------------|
| Customer | | | | |
| Branch | | | | |
| Exp. Dept. | | | | |
| Copy | | | | |
| Total | | | | |

Checked

K. Yokoi

Drawn

Sakamoto

W.No.

4TNV88-GGEA

ENGINE SPECIFICATIONS

G3-29647-0120

| No | Model name | | 4TNV88-GGEA | | Remarks |
|----|------------------------------|-----------------------|--------------------------------------|-----------------------|---------------------------------|
| 1 | Type | | 4 cycle, Inline, Water-cooled Diesel | | |
| 2 | No. of cylinders-Bore×stroke | | mm | 4-φ88×90 | |
| 3 | Combustion system | | Direct Injection | | |
| 4 | Compression ratio | | 19.1 | | |
| 5 | Displacement | | litter | 2.19 | |
| 6 | Rated output | | kW(PS) | 18(24.5)/21.6(29.4) | |
| | | | min ⁻¹ | 1500/1800 | |
| 7 | Continuous rating | | kW(PS) | 16.4(22.3)/19.6(26.6) | |
| | | | min ⁻¹ | 1500/1800 | |
| 8 | Max. torque | | N·m | ~ | |
| | | | min ⁻¹ | (+/-) | |
| 9 | Specific fuel consumption | | g/kW-h(g/PS-h) | 243(179) | at rated output |
| 10 | Ambient condition | | 25°C、750mmHg、30% | | |
| 11 | Engine speed at no load | Max. | min ⁻¹ | 1925 | +25/-25 |
| | | Min. | min ⁻¹ | 1500 | +25/-25 |
| 12 | Governorability | Governor type | centrifugal-all speed governor | | |
| | | Temporary | % | max.10 | load 100% ↓ 0% |
| | | Permanent | % | max.5 | |
| | | Recovery time | sec | max.5 | |
| | | Stability | min ⁻¹ | max.15 | |
| 13 | Gradients | Longitudinal | deg | 30(25) | intermitted () : continuous |
| | | Lateral | deg | 30(25) | |
| 14 | Firing order | | 1-3-4-2-1 | | order from F.W. |
| 15 | Direction of rotation | | counterclockwise | | viewed from F.W. |
| 16 | Engine dry weight | | kg | approx.170 | |
| 17 | Fuel injection timing | | deg | FIT16.5(+1/-1) | FIT b.T.D.C |
| 18 | Fuel system | Fuel type | Diesel oil | | |
| | | Fuel injection pump | Distributortype(YPD-MP2),Yanmar made | | |
| | | Fuel injection nozzle | hole type | | |
| | | Fuel filter | paper element | | |
| 19 | Lubrication system | System | forced feed | | |
| | | Oil grade | API class CD, SAE grade 10W30 | | |
| | | Oil pump | trochoid pump | | |
| | | Oil filter | paper element | | |
| | | Oil capacity | liter | 7.4 | max. |
| | | | liter | 3.4 | effective. |
| | | Oil pressure | kgf/cm ² | 4 | at rated output |
| | | | kgf/cm ² | 0.6 | at low idle |
| 20 | Cooling system | Heat exchanger | none | | |
| | | Pressure cap | kgf/cm ² | 0.9 | |
| | | Fan | 6-φ380 | | |
| | | Coolant capacity | liter | 2.7 | |

4TNV88-GGEA

ENGINE SPECIFICATIONS

G3-29647-0120

| No | Model name | | 4TNV88-GGEA | Remarks |
|----|--------------------|--------------|----------------------------|---------|
| 21 | Air cleaner | | 6inchi Single Element Type | |
| 22 | Breather system | | closed | |
| 23 | Muffler | | none | |
| 24 | Starting system | Starter | 12V-1.4kW | |
| | | Battery | 95D31 | |
| | | Starting aid | air heater 400W | |
| 25 | Generator | | 12V-40A | |
| 26 | Engine color | | Silver | |
| 27 | Applied regulation | | | |

<Career>

| | | |
|--|-------|-------------|
| | W.No. | 4TNV88-GGEA |
|--|-------|-------------|

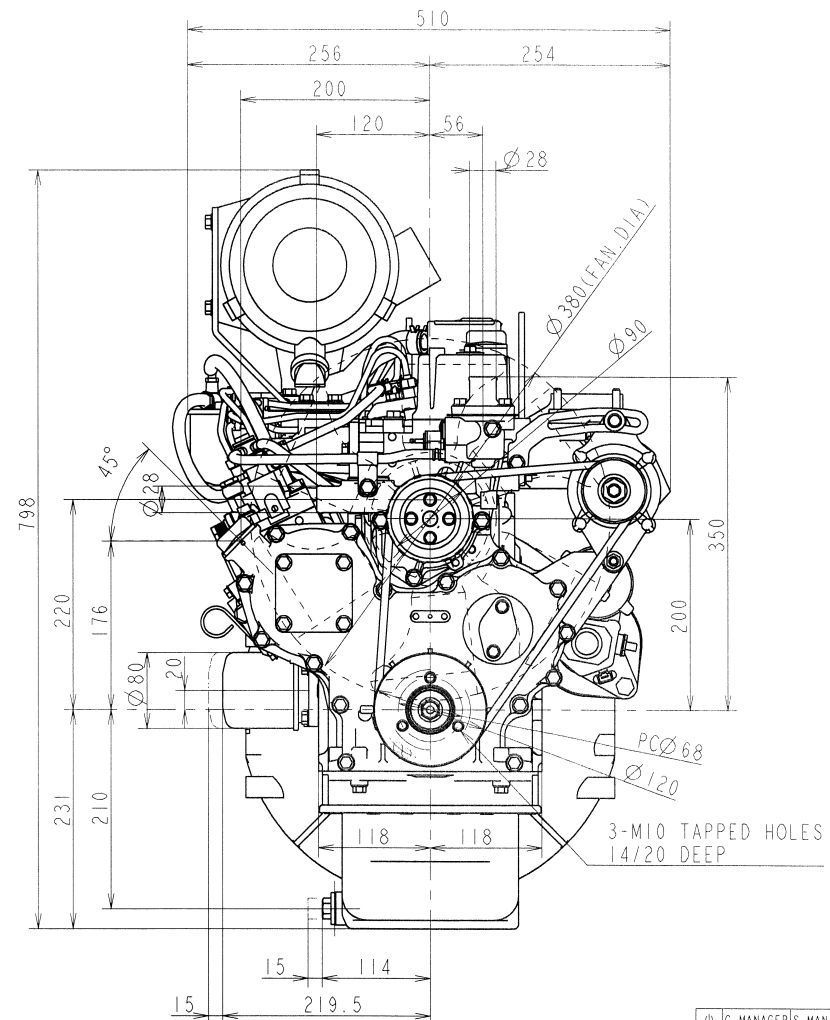
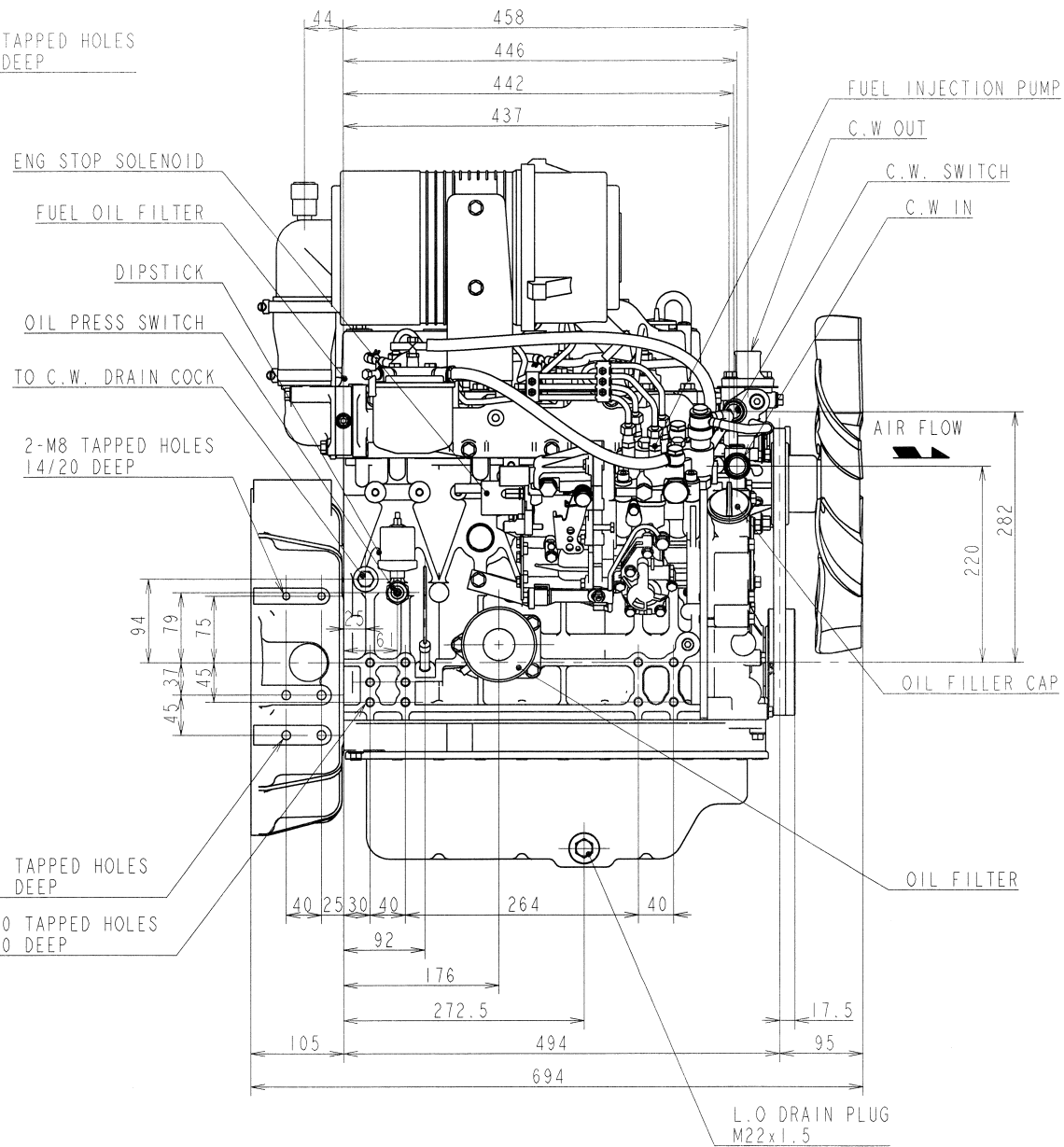
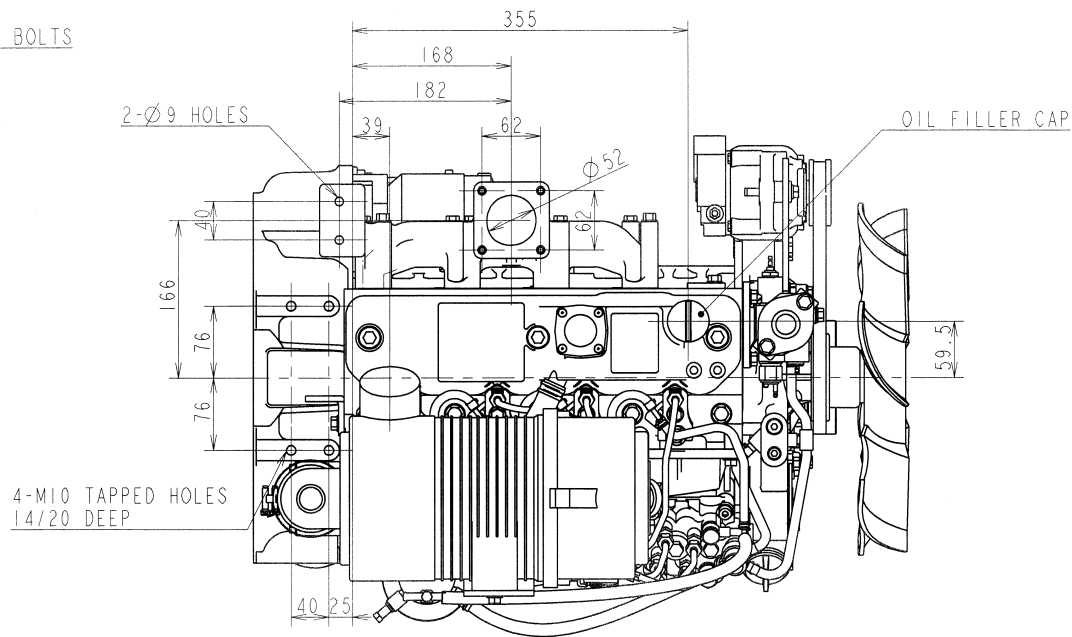
4TNV88-GGEA

SCOPE OF SUPPLY

G3-29647-0120

| No | ENGEN MODEL | 4TNV88-GGEA | Parts number | Remarks |
|------------------------|----------------------------|--------------|--------------|------------------------------|
| FUEL SYSTEM | | | | |
| 1 | Fuel Injection Pump | installed | 729647-51390 | |
| 2 | Fuel Injection Nozzle | installed | 729246-53101 | Mark"WCB" |
| 3 | Fuel Transfer Pump | provided | 119225-52102 | As loose parts |
| 4 | Fuel Filter | installed | 119802-55801 | 5 μ 、2000cm ² |
| 5 | Fuel Filter Bracket | installed | 129004-55612 | |
| 6 | Fuel Injection Line | installed | 129601-59800 | |
| 7 | Fuel Line(Filter to Pump) | installed | 129210-59090 | L=290 |
| 8 | Fuel Pipe (Pump to Filter) | installed | 129210-59150 | L=400 |
| 9 | Water Separator | provided | 119802-55700 | As loose parts |
| 10 | Throttle Lever | installed | 129246-61441 | |
| LUB,OIL SYSTEM | | | | |
| 11 | Oil Pan | installed | 129400-01770 | DEEP |
| 12 | Oil filler Extension pipe | installed | 124160-01751 | |
| 13 | Breather Pipe | installed | 129601-03080 | |
| 14 | Switch ,lub .oil pressure | installed | 114250-39450 | 0.5kg/cm2 (CA104) |
| 15 | Dipstick | installed | 129004-34802 | |
| 16 | Guide ,dipstick | installed | 121520-34810 | |
| 17 | Oil filter | installed | 129150-35160 | |
| 18 | Oil Cooler | not provided | none | |
| COOLING SYSTEM | | | | |
| 19 | Radiator | provided | 129601-44500 | As loose parts |
| 20 | Rubber Isolaters | provided | 119255-44660 | As loose parts |
| 21 | Pipe A,radiator | provided | 129602-49010 | As loose parts |
| 22 | Pipe B,radiator | provided | 129612-49040 | As loose parts |
| 23 | Sub tank(radiator) | provided | 124450-44510 | As loose parts |
| 24 | Water Pump | installed | 129004-42001 | |
| 25 | Cooling Fan | installed | 129612-44700 | Mark"UN" ϕ 380push |
| 26 | Spacer ,fan | installed | 121267-44760 | t=18mm |
| 27 | Guide ,fan | provided | 129601-44560 | As loose parts |
| 28 | Pully ,fan | installed | 129155-42350 | D=90mm |
| 29 | V-Belt | installed | 119831-42290 | A37.5inch |
| 30 | Switch, water temp. | installed | 121250-44901 | 110°C |
| 31 | Sender, water temp. | installed | 124250-49351 | |
| 32 | Thermostat | installed | 129155-49801 | 71deg |
| 33 | Thermostat Cover | installed | 129350-49530 | |
| 34 | Water Drain Fitting | installed | 171056-49120 | PLUG |
| 35 | 3-Way Plug ,cooling water | not provided | none | |
| ELECTRIC SYSTEM | | | | |
| 36 | Starter | installed | 129407-77010 | 12V-1.4kW(DENSO) |
| 37 | Alternator | installed | 129423-77200 | 12V-40A(DENSO) |
| 38 | Relay ,solenoid | provided | 119650-77910 | As loose parts |
| 39 | Timer ,solenoid | provided | 129211-77920 | As loose parts |
| 40 | Engine Shut Off | installed | 119653-77950 | |
| 41 | Starting Aid | installed | 129100-77501 | 12V-400W |
| 42 | Diode ,solenoid relay | provided | 119643-66900 | As loose parts |
| 43 | Timer, air heater (glow) | not provided | none | |
| 44 | Relay, air heater (glow) | not provided | none | |
| 45 | Current Limiter | not provided | none | |
| 46 | Safety relay, starter | not provided | none | |

| PTO SYSTEM | | | | |
|-----------------------|--------------------------------|--------------|--------------|----------------|
| 47 | Flywheel Housing or Back plate | installed | 171420-01600 | SAE #4 |
| 48 | Flywheel | installed | 171420-21590 | SAE #4 |
| 49 | Bearing ,retainer | not provided | none | |
| 50 | Pully ,crankshaft | installed | 119802-21660 | D=120mm |
| 51 | Gear case | installed | 719802-01500 | |
| 52 | Hydraulic Pump | not provided | none | |
| 53 | Device ,hydraulic pump | not provided | none | |
| INTAKE/EXHAUST SYSTEM | | | | |
| 54 | Air Cleaner | installed | 129601-12590 | |
| 55 | Bracket ,air cleaner | installed | 129508-12560 | |
| 56 | Manifold ,intake | installed | 129601-12100 | |
| 57 | Joint | installed | 171340-77520 | |
| 58 | Muffler | not provided | none | |
| 59 | Gasket ,muffler | provided | 129930-13201 | As loose parts |
| 60 | Manifold ,exhaust | installed | 129601-13109 | |
| 61 | Bend ,exhaust | not provided | none | |
| 62 | Turbine | not provided | none | |
| GAUGE | | | | |
| 63 | Drive Unit ,tachometer | not provided | none | |
| 64 | Cable ,tachometer | not provided | none | |
| 65 | Tachometer | not provided | none | |
| 66 | Key Switch | not provided | none | |
| 67 | Cover ,terminals | not provided | none | |
| 68 | Pilot lamp | not provided | none | |
| 69 | Guage ,oil/water temp | not provided | none | |
| 70 | Guage ,oil pressure | not provided | none | |
| OTHERS | | | | |
| 71 | Filter Wrench ,lub .oil | not provided | none | |
| 72 | Filter Wrench ,fuel .oil | not provided | none | |



| | | |
|-------------------|------------------|----|
| WEIGHT (RAW) | (\pm %) | kg |
| WEIGHT (CALC.) | (\pm %) | kg |
| S. ENGINEER | MANAGER | |
| <i>Y. Arima</i> | <i>K. Yamada</i> | |
| CHECKED | SPECIALIST | |
| <i>H. Zohari</i> | | |

| | | | |
|---------------|--------------|-------------|------|
| DESIGNED | DRAWN | DATE: Y.M.D | NAME |
| M. Lakshmanan | N. Walingaha | 2008.1.15 | |

YANMAR

POWER SYSTEM OPERATIONS DIV., YANMAR CO., LTD.

OUTLINE

| | |
|------|---------------|
| CODE | B3-29647-0140 |
|------|---------------|

| | |
|------------|------------|
| C. MANAGER | S. MANAGER |
| J. Kato | |

SCALE 1:4

| | |
|-------|-------|
| SCALE | 1 : 4 |
|-------|-------|

MATERIAL

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
|--|--|--|--|--|--|--|--|

| | | |
|---------|---------|----|
| 47-0140 | AW SIZE | A1 |
|---------|---------|----|

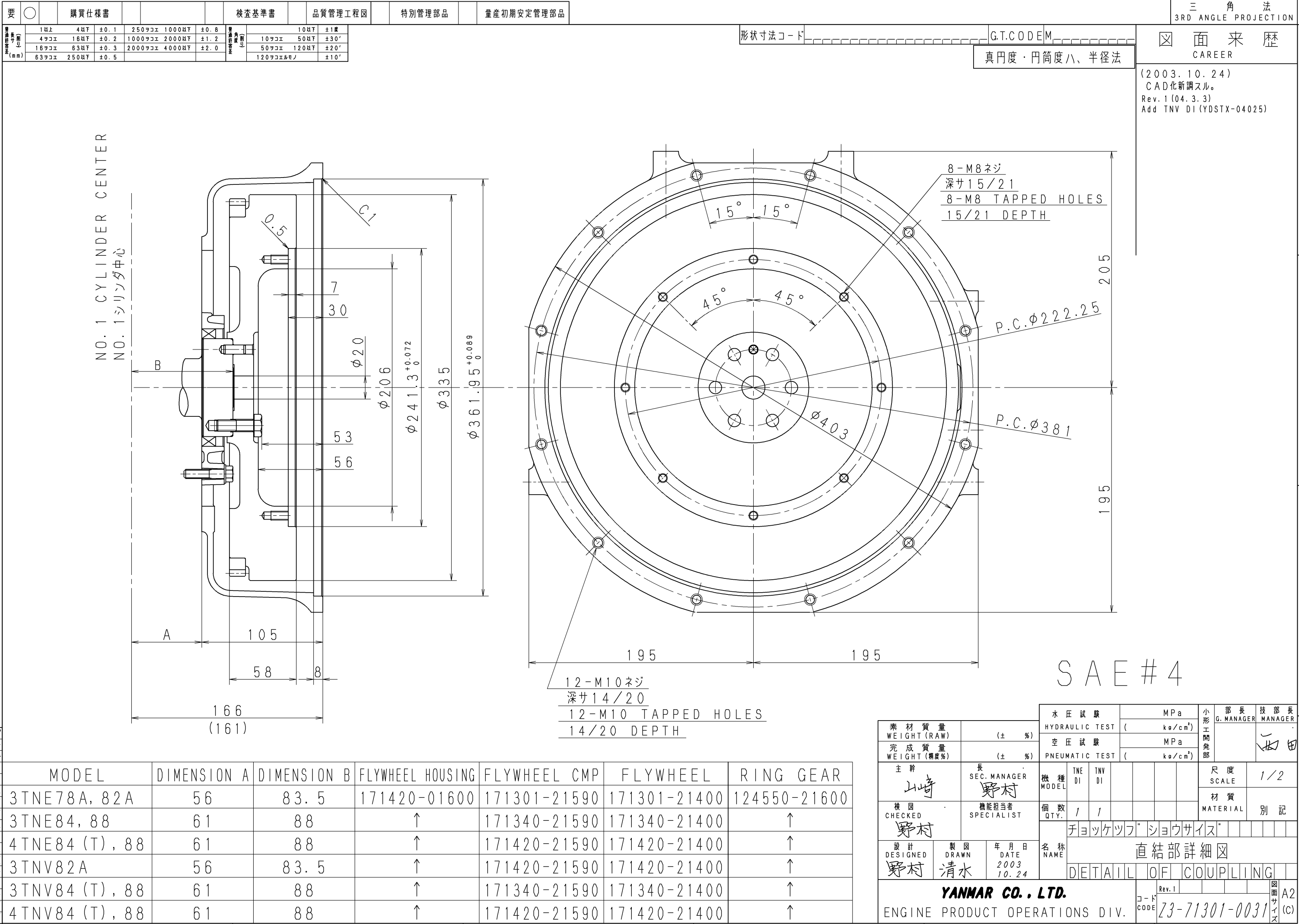


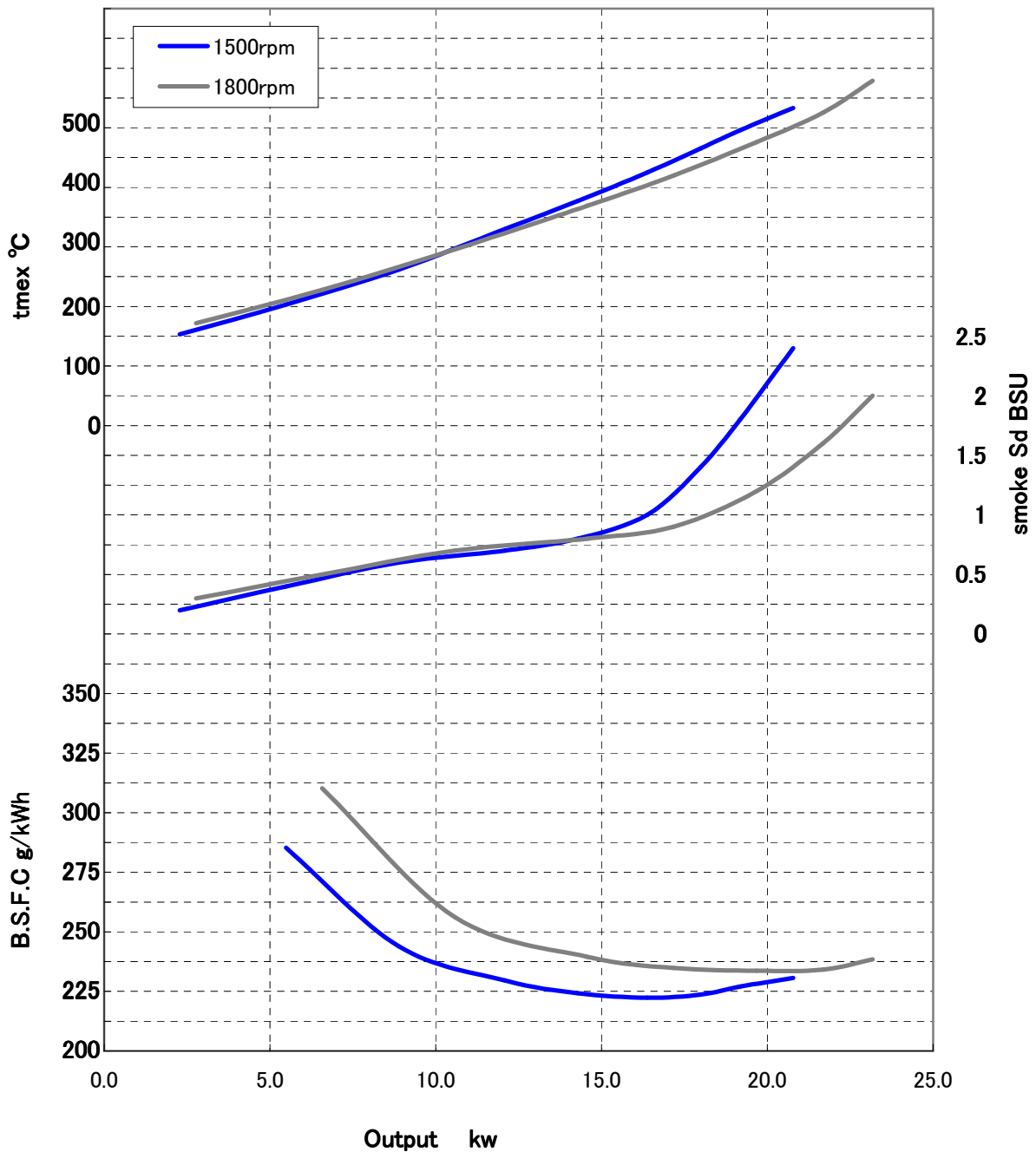
Fig. 4TNV88 Engine performance curve

n-BxS: 4-88x90

Displacement: 2.189L

| | |
|-------------|--------------|
| Silencer | 129004-13500 |
| Air cleaner | 5inch |
| CW fan | 129612-44700 |

| | |
|--------------|-------|
| Crank pulley | D=120 |
| Fan puley | D=90 |
| φ380 | PushF |



The engine operating environment and driven machine conditions must be studied carefully when selecting an engine in order to make the most of the engine performance, extend the service life and improve the machine capacity.

This manual describes the items that must be considered when selecting an engine and determining the specifications to ensure that the engine is not used beyond its capacity.

APPLICATION STANDARD

| No. | Item | Application Standard | | | Remarks | | |
|------------|-------------------------------|---|---|---|--|--|---|
| 1 | Engine type | Special swirl combustion chamber system engines (IDI engines) | | Engines with cylinder bore of 76 mm or less | TNV series | | |
| | | Direct injection system engines (DI engines) | | Engines with cylinder bore of 82 mm or more | | | |
| 2 | Output/rpm | Output rpm | | See <i>Specifications on page 3-5.</i> Engine Specifications | | Same as in JIS and ISO | |
| | | Output Setting conditions | Ambient temperature | | 25°C (77°F) | | |
| | | | Atmospheric pressure | | 100 kPa (750 mmHg) | | |
| | | | Relative humidity | | 30% | | |
| | | Output power correction | | See <i>Power Corrections on page 4-3.</i> | | | |
| 3 | Special operating environment | Precautions against sand dust | | See <i>Special Operating Environment on page 1-5.</i> | | | |
| | | Precautions for outdoor installation | | | | | |
| | | Precautions against sea air and snow melting agents | | | | | |
| | | Precautions against cold environment | | | | | |
| | | Precautions against hot environment | | | | | |
| 4 | Fuel oil | Fuel oil | | Ambient temperature °C (°F) | Equivalent fuel | See <i>Standard Diesel Fuel Line Layout on page 10-7</i> for the fuel specifications in each country. | |
| | | Diesel fuel | | ≥ -5 (23) | JIS No. 2 | | |
| | | | | 15 to -20 (59 to -4) | JIS No. 3 | | |
| | | | | <-20 (<-4) | JIS special No. 3 | | |
| | | Kerosene | | Not allowed | | | |
| | | Heavy oil | | Not allowed | | | |
| | | JP-4 | | Not allowed | | | |
| JP-8, JP-5 | | Contact Yanmar for consideration | | | | | |
| 5 | Engine oil | See <i>Engine oil on page 11-5.</i> | | | | The initial replacement of the lubricating oil and lubricating oil filter should be done at 50 hours of service. | |
| | | Lubricating oil class | Lubricating oil replacement interval (hr) | Lubricating oil filter replacement interval (hr) | | | |
| | | CD, CF, CF-4, CI-4 E-3, E-4, E-5, DH-1 | Every 250 | Every 250 | | | |
| | | Allowable maximum engine oil temperature | | | ≤120°C (248°F) | | At the specified maximum ambient temperature. |
| 6 | Engine coolant | Allowable cooling water temperature at engine outlet | | ≤105°C (221°F) | See <i>Cooling System on page 9-1.</i> | See <i>Engine Coolant on page 9-4.</i> | |
| | | Water quality | | Soft water | | | |
| | | Antifreeze mixing ratio% | | Atmospheric temperature °C (°F) | | See <i>Radiator on page 9-8.</i> | |
| | | 30 | | 0 to -15 (32 to 5) | | | |
| | | 40 | | -15 to -25 (5 to -13) | | | |
| | | 50 | | -25 to -40 (-3 to -40) | | | |

APPLICATION STANDARD

| No. | Item | Application Standard | | | | Remarks |
|-----|--|--|----------------|-----|------|---|
| 7 | Power take-off (PTO) | See <i>P.T.O. Systems</i> on page 15-1. | | | | |
| 8 | Low-temperature startability | See <i>Low-temperature startability</i> on page 1-7. | | | | |
| 9 | Allowable inclination angle | Continuous operation | All directions | IDI | ≤25° | See <i>Crankcase Breather System</i> on page 11-18. |
| | | | | DI | ≤30° | |
| | | Instantaneous operation (within 3 minutes) | All directions | IDI | ≤30° | |
| | | | | DI | ≤35° | |
| 10 | Allowable exhaust back pressure | See <i>Allowable Air Intake Restriction and Exhaust Back Pressures</i> on page 1-30. | | | | |
| 11 | Allowable air restriction at intake manifold | | | | | |

SPECIAL OPERATING ENVIRONMENT

The engine performance depends greatly on the operating and environmental conditions.

Please consult with Yanmar when unusual operating conditions exist.

Precautions Against Dusty Conditions

| Condition | Part | Countermeasure |
|--------------------------------------|---|---|
| Wear due to dusty or sandy condition | Air cleaner | The following measures and cleaning are necessary to prevent dust from entering the engine: Use double element (safety element) Use evacuator valve Use dust indicator |
| | Alternator | Dust-proof type may be required for preventing entry of sand and dust. |
| | Starting motor | |
| | Breather air reservoir (for turbocharged engine only) | Since dust can enter from the breather pipe while the engine is stopped, an air reservoir may be installed at the end of the breather pipe. |
| | Cooling fan | to improve the wear resistance, a fan made of nylon 6 (reinforced with glass fiber) or steel may be required. |
| | V pulley | To improve the wear resistance, a hardened pulley may be required. |
| | V-belt | To counteract belt wear, a larger type V-belt may be required. |
| | Radiator | Changing the core type and fin material may be required. Heat balance check after the modification is required. |

Precautions for Outdoor Installation

| Condition | Part | Countermeasure |
|------------------|--|--|
| Rain, snow, etc. | Rain cap (for both air cleaner and exhaust silencer) | Entry of rainwater, snow, etc. must be prevented. |
| | Electrical parts | Since electrical parts correspond to level R2(*) in JIS D 0203, either install them where they will not be splashed with water, or provide covers. |
| Location | ----- | Flat, well-ventilated place |

(*) Level R2: A water spraying test level for checking the performance of the portion subject to indirect exposure to rainwater or splashing water.

Precautions Against Salty Conditions (Air, Sea Water, Road Salt)

| Condition | Part | Countermeasure |
|---|---------------------------|---|
| Location exposed to salt air or road salt | Electrical parts | Since corrosion may occur, careful maintenance is necessary. |
| | Speed control lever shaft | |
| | Stop lever shaft | |
| | Exhaust manifold bolts | |
| | Stop lever return spring | |
| | Radiator | |
| Location where salt water may splash directly onto the engine | ----- | Do not install engine where it can be splashed with salt water. |

APPLICATION STANDARD

Precautions Against Cold Environment

| Environmental temperature | Part | Countermeasure | Remarks |
|---------------------------------|--------------------|---|---|
| -30°C (-22°F) or above | Battery (high CCA) | Specification must be changed. | See <i>Low-temperature startability</i> on page 1-7 for startability. |
| | Starting motor | | |
| -30°C to -40°C (-22°F to -40°F) | Cooling water hose | Special rubber may be required to prevent rubber parts from being damaged by hardening. Choose components that will maintain flexibility at this temperature range. | |
| | Intake air hose | | |
| | O-rings | | |
| | Oil seal | An electric feed pump is required. | |
| | Fuel hose | | |
| | Fuel feed pump | A block heater should be used. | |
| | Starting aid | | |
| -40°C (-40°F) or below | | Not recommended. | |

Precautions Against Hot Environment

| Environmental temperature | Part | Countermeasure |
|---------------------------|------------------|--|
| Below 40°C (104°F) | Electrical parts | The temperature inside the engine hood must be kept below 80°C (176°F) to protect the electrical parts. Provide ventilation around electrical parts. |
| Above 40°C (104°F) | Radiator | A large capacity radiator and fan must be used to prevent the cooling water and lubricating oil temperatures from getting too hot. |
| | Cooling fan | |
| | Oil cooler | Increase capacity or install as standard equipment. |
| | Electrical parts | The temperature inside the engine hood must be kept below 80°C (176°F) to protect the electrical parts. Provide ventilation around electrical parts. |

Others

| Condition | Part | Countermeasure |
|---|-------|---|
| Location where explosive, flammable or toxic gas exists | ----- | Engine is not designed for installation where explosive, flammable or toxic gas exists. |

DIESEL FUEL SYSTEM

Layout for DI Engines with MP2 or MP4 Type Fuel Injection Pump

Fuel Line Layout for DI Engines.

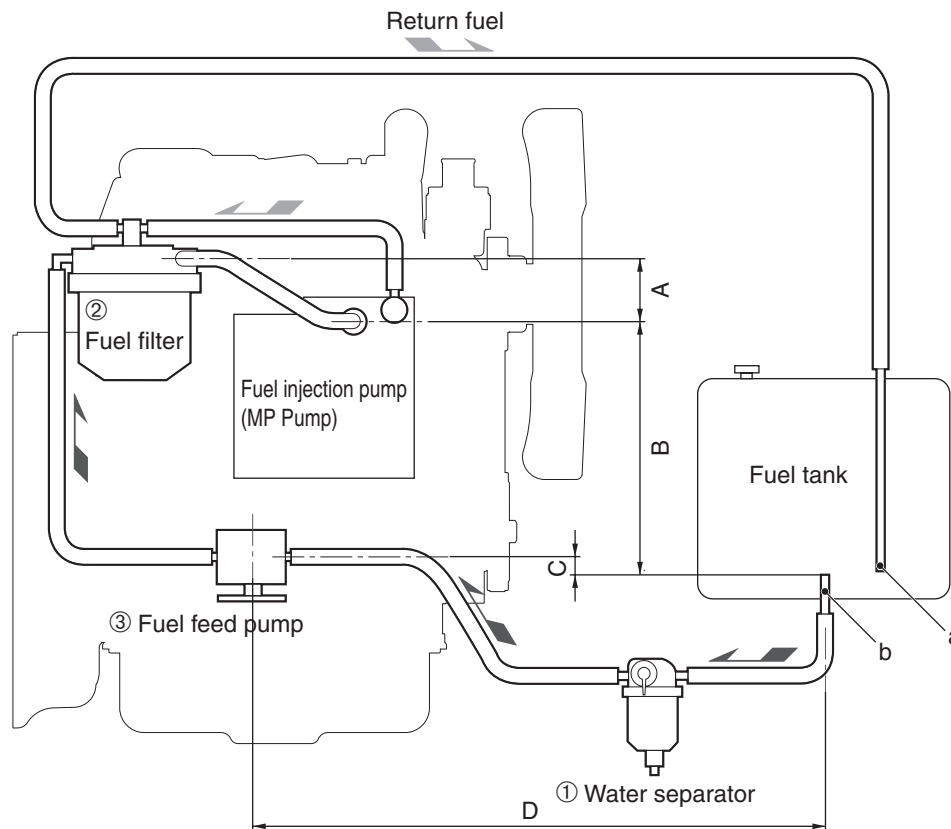


Figure 10-5

Note: Keep return line (a) away from diesel fuel outlet (b) to prevent the diesel fuel line from drawing in air and / or hot diesel fuel. NEVER connect return line (a) to the inlet line.

Diesel Fuel System Part Names and Functions for DI Engines

| No. | Part name | Function |
|-----|--------------------------------------|--|
| (1) | Diesel Fuel Filter / Water separator | Same as IDI engine. |
| (2) | Diesel fuel filter | Has 5 μm mesh paper element inside. Capacity to resist pressure is 7 kg/cm ² . There is a valve on the inlet of the fuel filter for air bleeding. |
| (3) | Diesel fuel pump | Sends fuel to the fuel injection pump from fuel tank. |
| | Electric | Mounted off the engine. Consult Yanmar before using a non-Yanmar fuel pump. An additional check valve is not necessary on the Yanmar electric fuel pump since it has one built in. Note: On a bench test, diesel fuel injection pump performance was not influenced by a minimum voltage of 10 V. |

Note: Mechanical feed pump is not available for DI engines.

Fuel Line Layout (DI engines)

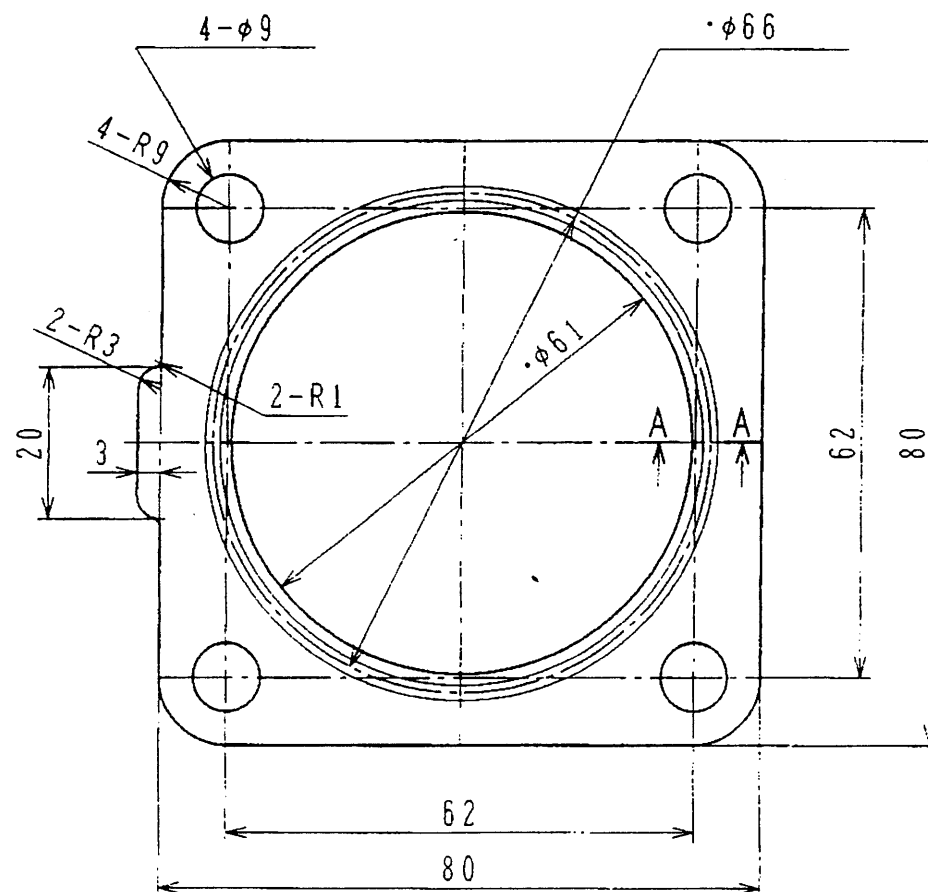
| Position | Standard value | Content |
|----------|----------------|--|
| A | 50 ~ 150 mm | From fuel filter outlet to fuel injection pump inlet. For air bleeding, fuel filter outlet position should be higher than the fuel injection pump inlet position. |
| B | ≤ 1000 mm | Total head of diesel fuel pump (from diesel fuel tank outlet to injection pump inlet) |
| C | ≤ 400 mm | Suction head in dry conditions (from diesel fuel tank outlet to diesel fuel pump inlet) |
| D | ≤ 2000 mm | Suppression of the suction side resistance at of the fuel feed pump (from diesel fuel tank outlet to diesel feed pump inlet) |

Parts Specification for Engine

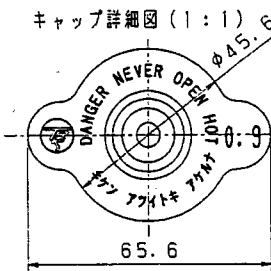
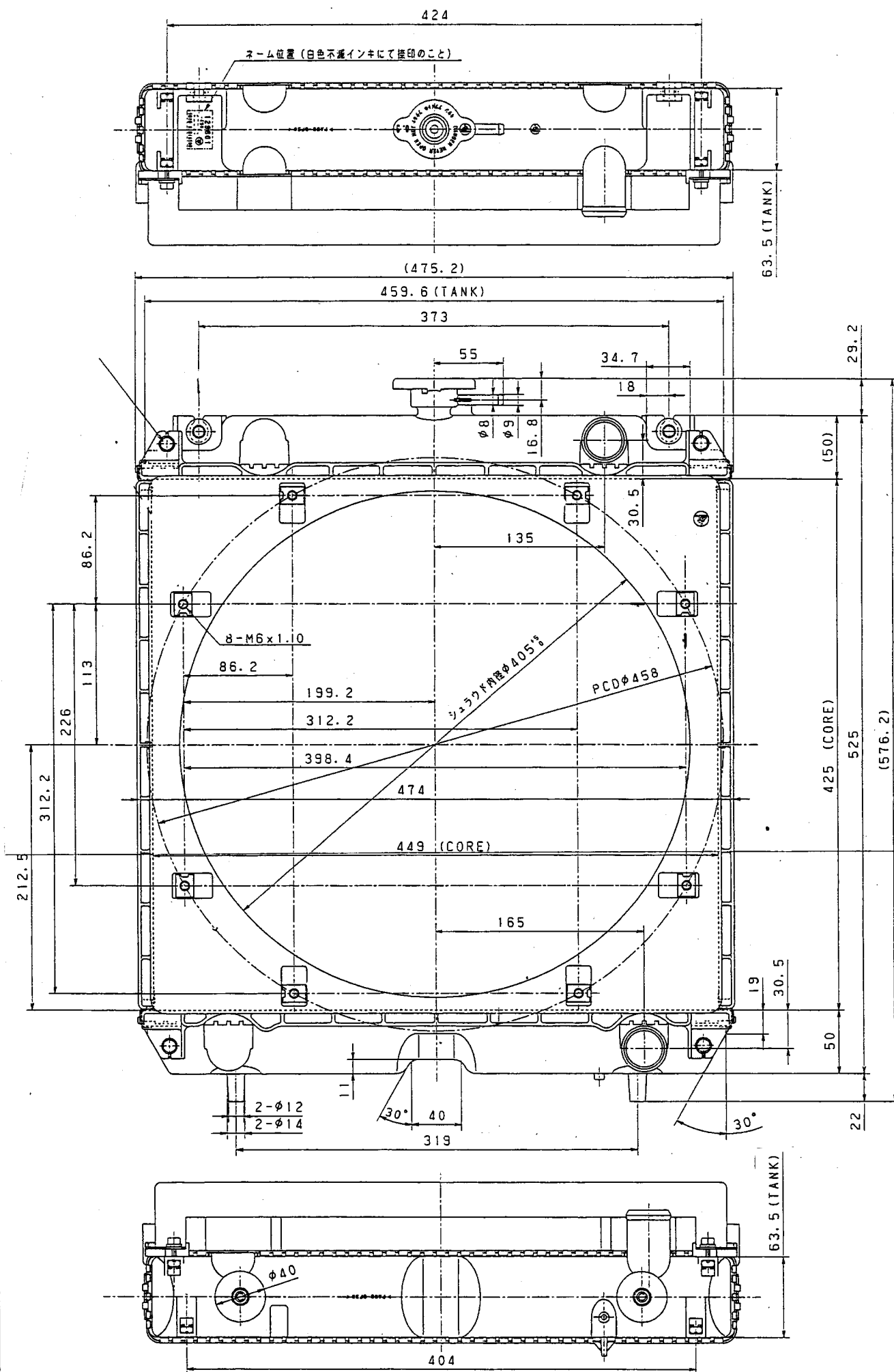
| | | |
|--------------------------------------|---|--|
| Engine model | 3TNV82A ~ 4TNV98 | |
| Diesel fuel pump | Electric type: | 119225-52102 (standard), 129612-52100 (with water proof coupler) |
| Diesel fuel filter / water separator | Standard : Filter mesh: Water reservoir: | 129242-55700 (fuel inlet & outlet horizontal) 100 mesh (with valve) 150 cc |
| Diesel fuel filter | Bracket: Filter: Filter mesh: Filtration size: | 129004-55612 (with automatic air bleeding hole φ0.7) 119802-55800 5 μm 2000 cm ² |
| Engine model | 4TNV98T | |
| Diesel fuel pump | Same as 3TNV82A ~ 4TNV98 | |
| Diesel fuel filter / water separator | Same as 3TNV82A ~ 4TNV98 | |
| Fuel filter | Bracket: Filter: Filter mesh: Filtration size: | 123907-55610 123907-55800 5 μm 5000 cm ² |

For poor quality fuel

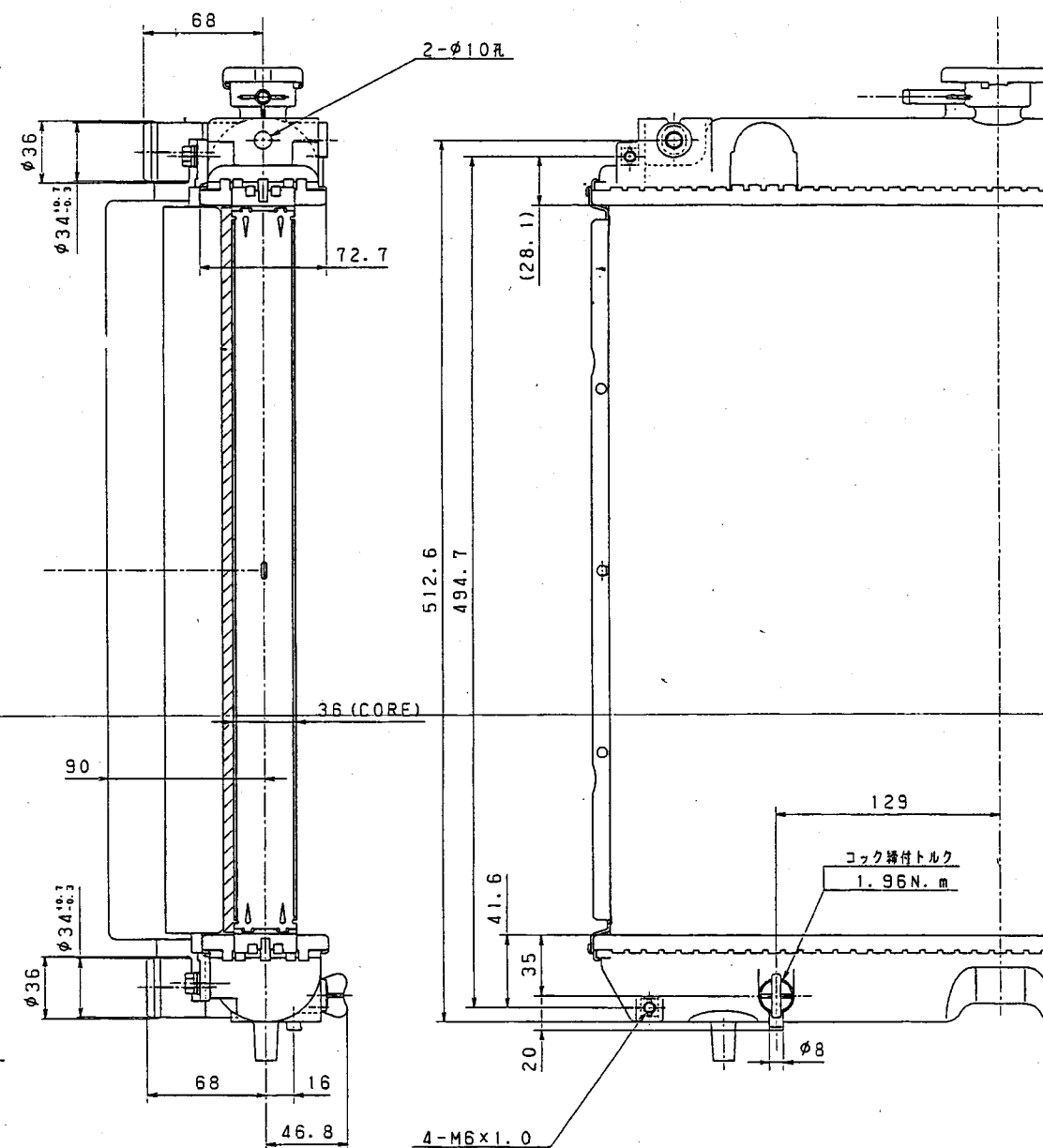
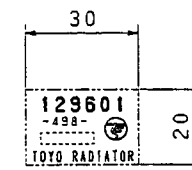
| | | | |
|-------------------|--|--|--|
| 3TNV82A to 4TNV98 | Filter Filter mesh Filtration size | 129004-55800 1 μm 1650 cm ² | 129907-55800 1 μm 4000 cm ² |
| 4TNV98T | Filter Filter mesh Filtration size | 129907-55800 1 μm 4000 cm ² | |



| | |
|----------|--------------|
| MODEL | TNE SERIES |
| NAME | GASKET |
| PART No. | 129930-13200 |



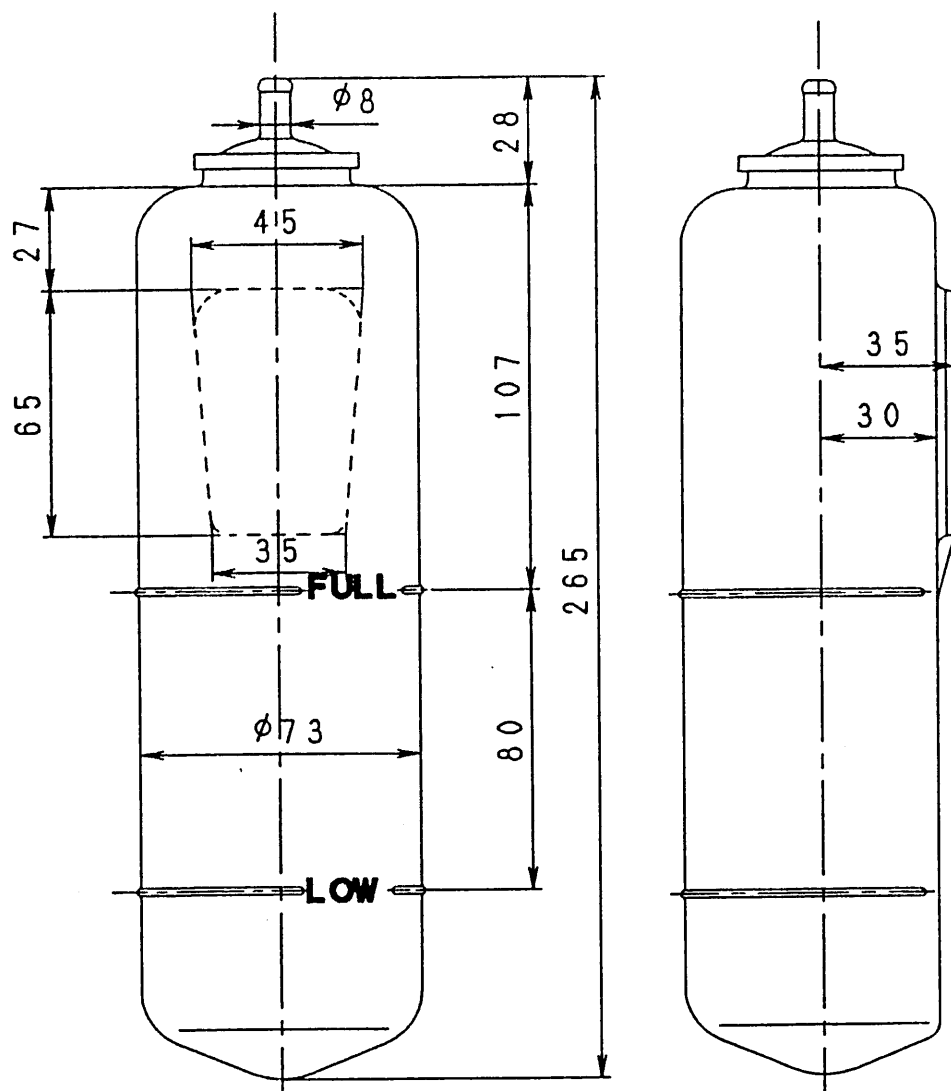
スタンプ詳細 (1:1)



| ラジエータ | | | |
|--------|------------------|-------------------|-----------------|
| 項目 | 記号 | 単位 | 値 |
| 流量 | Q | m ³ /s | 8 |
| 水流量 | Q _w | L/min | 40 |
| 入口温度 | T _{in} | °C | 50 |
| 出口温度 | T _{out} | °C | 50 |
| 放射能力 | R | kW | 35.7 ±10% |
| 空気抵抗 | P _a | Pa | 245 ±20% |
| 水圧抵抗 | P _w | kPa | 88 ±14.7 |
| 開閉圧力 | P _o | kPa | 4.9 |
| 試験圧力 | P _t | kPa | 177 |
| 振動耐性 | A | m/s ² | 58.8 |
| 振動耐性 | B | Hz | 22.3 |
| 振動耐性 | C | 10 ⁴ | 10 ⁴ |
| コア形式 | TYPE | | CF23-2 |
| コア寸法 | SIZE | mm | 449 |
| コア寸法 | SIZE | mm | 425 |
| コア寸法 | SIZE | mm | 36 |
| フィンピッチ | PITCH | mm | 4.0/2 |
| 放射面積 | AREA | m ² | 6.07 |
| フィン面積 | AREA | m ² | 1.30 |
| 放射面積 | AREA | m ² | 7.37 |
| 放射面積 | AREA | m ² | 0.191 |
| 水圧抵抗 | P _w | kPa | 16.4 |
| 水流量 | Q _w | L | 2.2 |
| 重量 | W | kg | (4.5) |
| 表面処理 | TREAT | | 塗装済 |

ヤンマー株式会社
適用名称

| | |
|-------|--------------|
| 適用機種 | 4TNV84/88 |
| 部品名称 | ラジエータ |
| 部品コード | 129601-44500 |



タンク容量：全量 約847cc、 上限 約450cc、 下限 約150cc

TANK CAPACITY: Approx. 847cc (Total), Approx. 450cc (at FULL), Approx. 150cc (at LOW)

サブタンク

SUB TANK

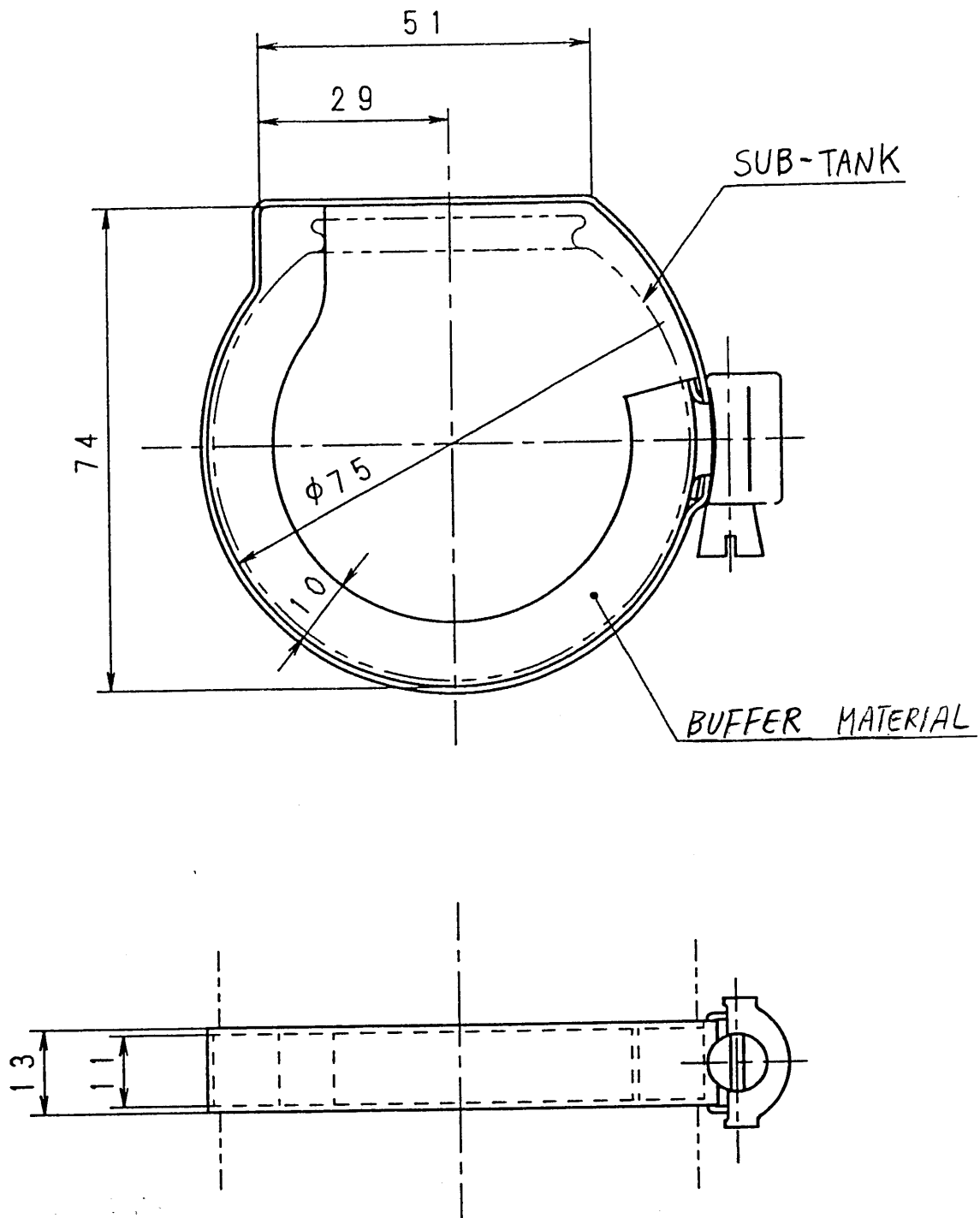
ヤンマーディーゼル株式会社

YANMAR DIESEL ENGINE CO., LTD.

DWG. NO.

部品コード

124450-44510



バンド (サブタンク
CLAMP

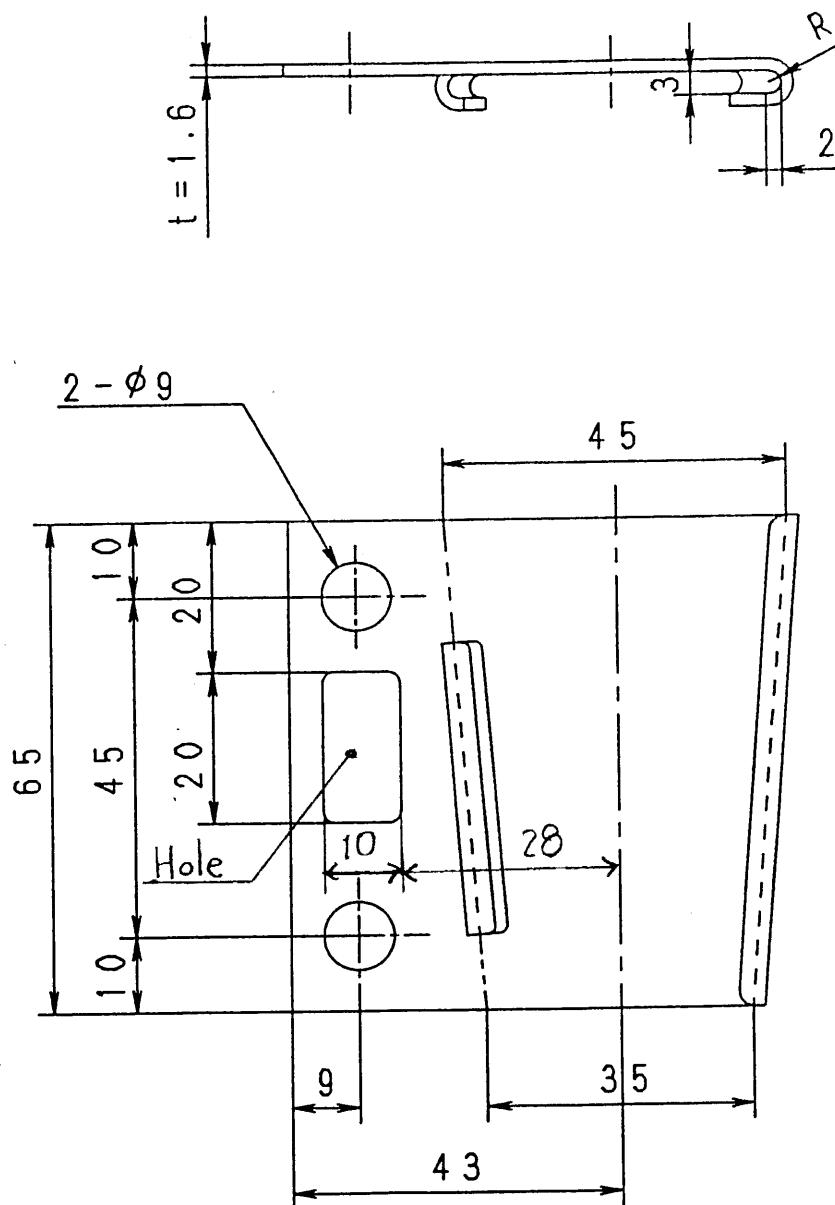
ヤンマーディーゼル株式会社
YANMAR DIESEL ENGINE CO., LTD.

DWG. NO.

部品コード

124450-44550





ブラケット (サブタンク)
BRACKET FOR SUB TANK

ヤンマーディーゼル株式会社
YANMAR DIESEL ENGINE CO., LTD.

DWG. NO.

部品コード

121256-44600

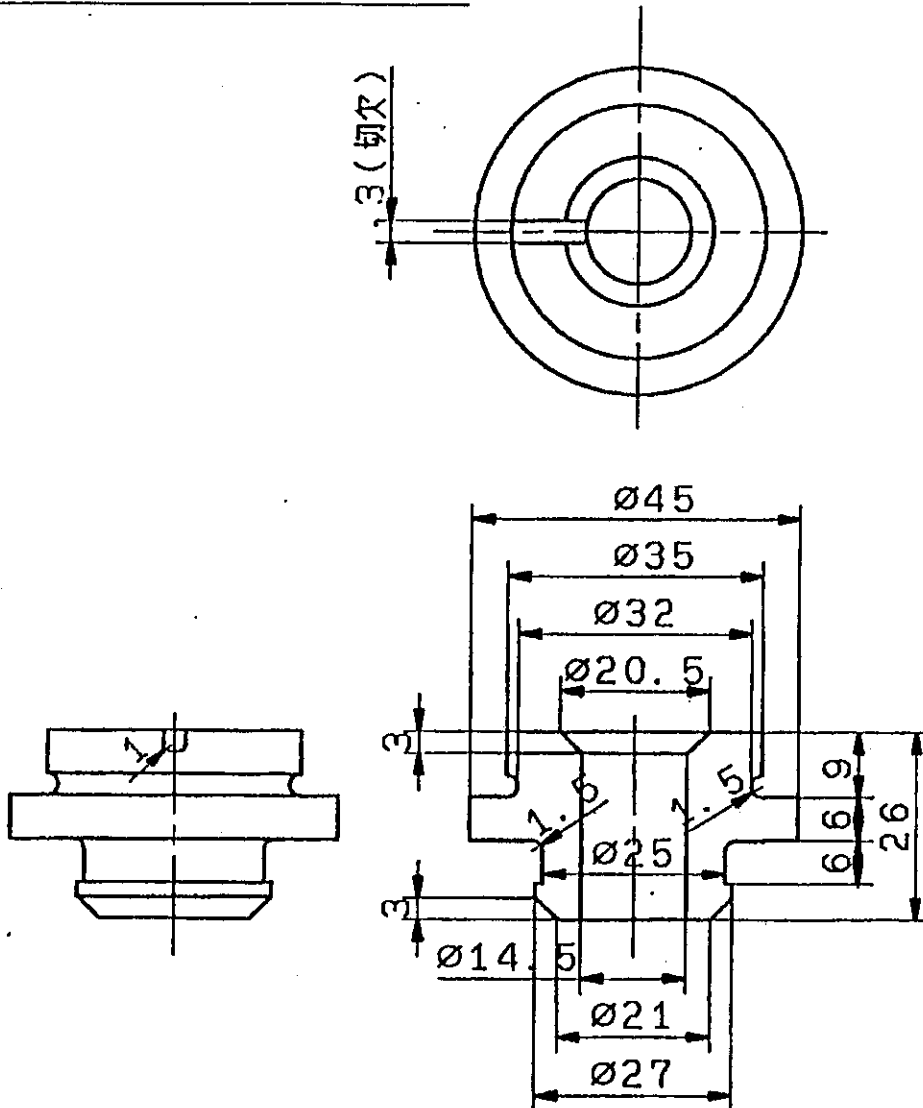
備考

1. 材質: CR, J4 硬度 $70^{\circ} \pm 5^{\circ}$

Note

material: CR

rubber hardness: $70^{\circ} \pm 5^{\circ}$

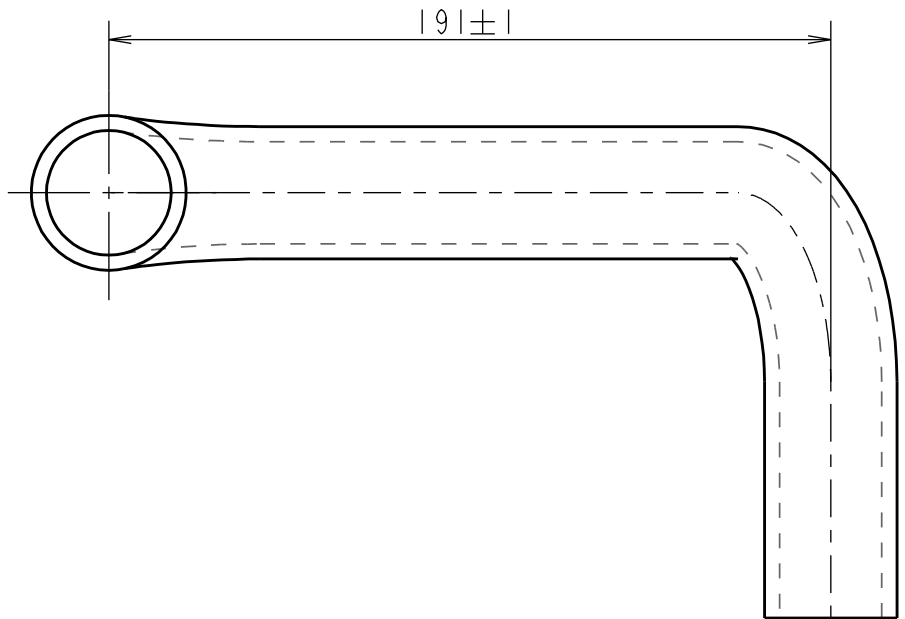
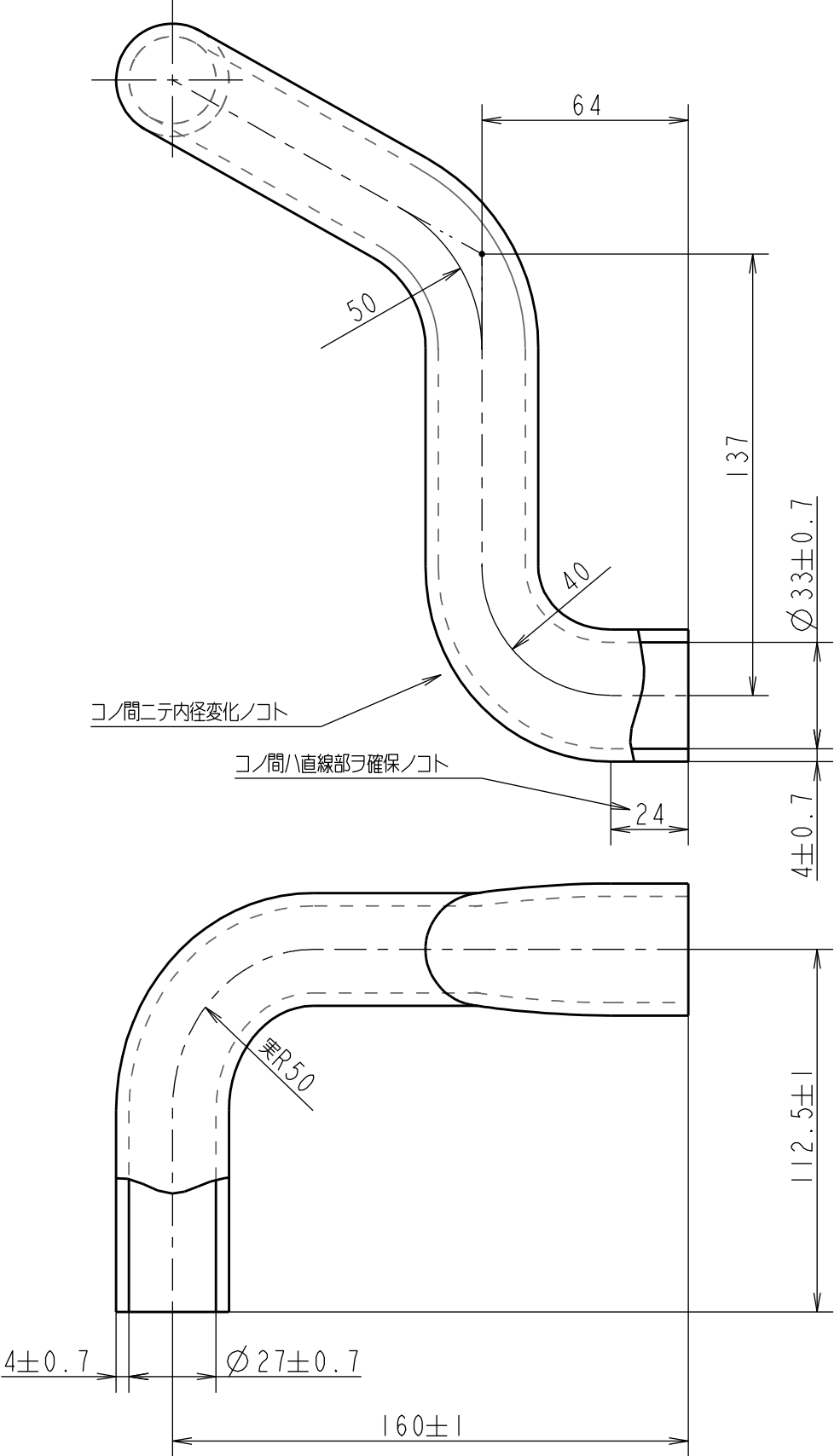


Dumper

Silent blocks

| | |
|---------------|--------------|
| ヤンマーディーゼル株式会社 | |
| 適用名称 | |
| 適用機種 | |
| 部品名称 | 円板ゴムクッション |
| 部品コード | 119255-44660 |

3D-CAD



TUBE A, COOLING WATER
CW-T(A)

YANMAR

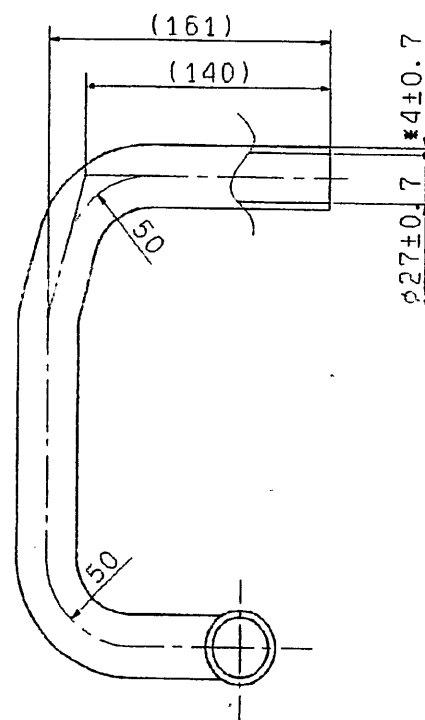
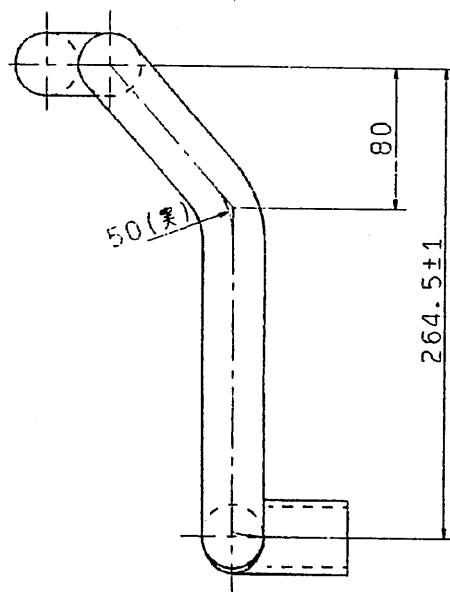
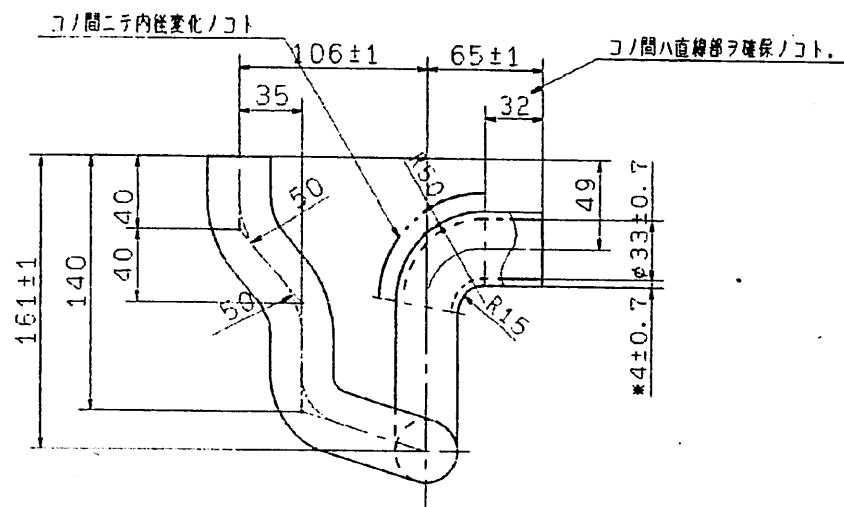
ENGINE PRODUCT OPERATIONS DIV., YANMAR CO., LTD.

CODE

129602-49010

ENG. MODEL

??????



| | |
|---------------|--------------|
| ヤンマーディーゼル株式会社 | |
| 適用名称 | |
| 適用機種 | |
| 部品名称 | CW-T(B |
| 部品コード | 129612-49040 |

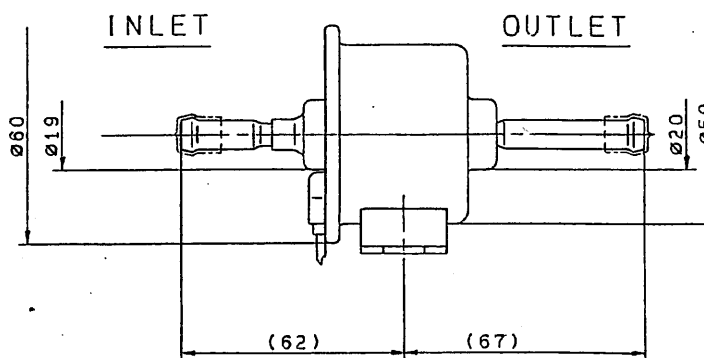
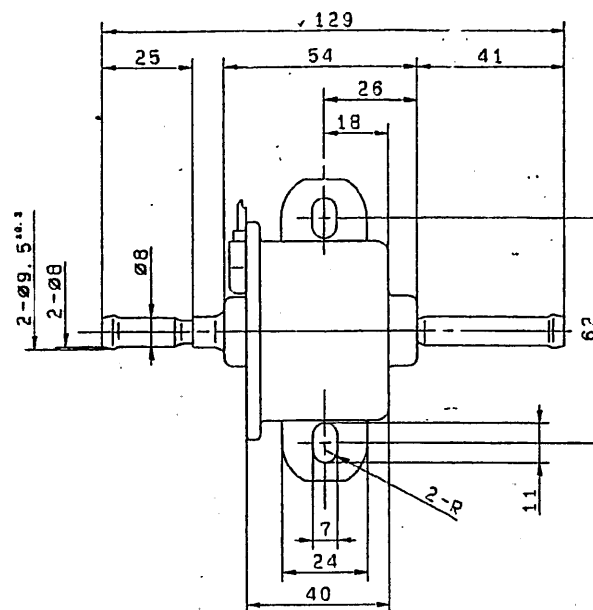
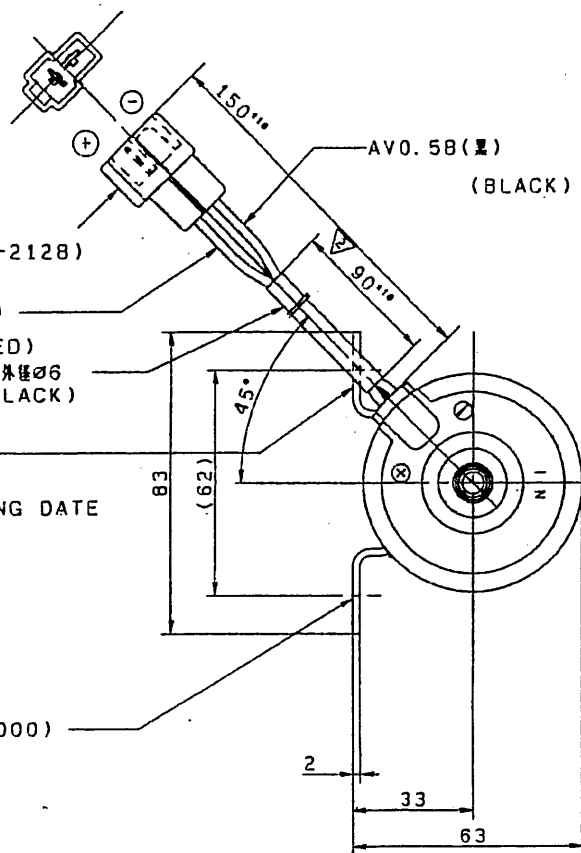
YANMAR DIESEL ENGINE CO., LTD.

矢崎 7322-2128
(YAZAKI 7322-2128)

AVO. 5R (赤)
(RED)
ビニールチューブ (黒) 外径φ6
VINYL TUBE (BLACK)

製造年月日刻印
(例 7410)
MANUFACTURING DATE
(EX. 7410)

略品番刻印 (2000)
PART NO.



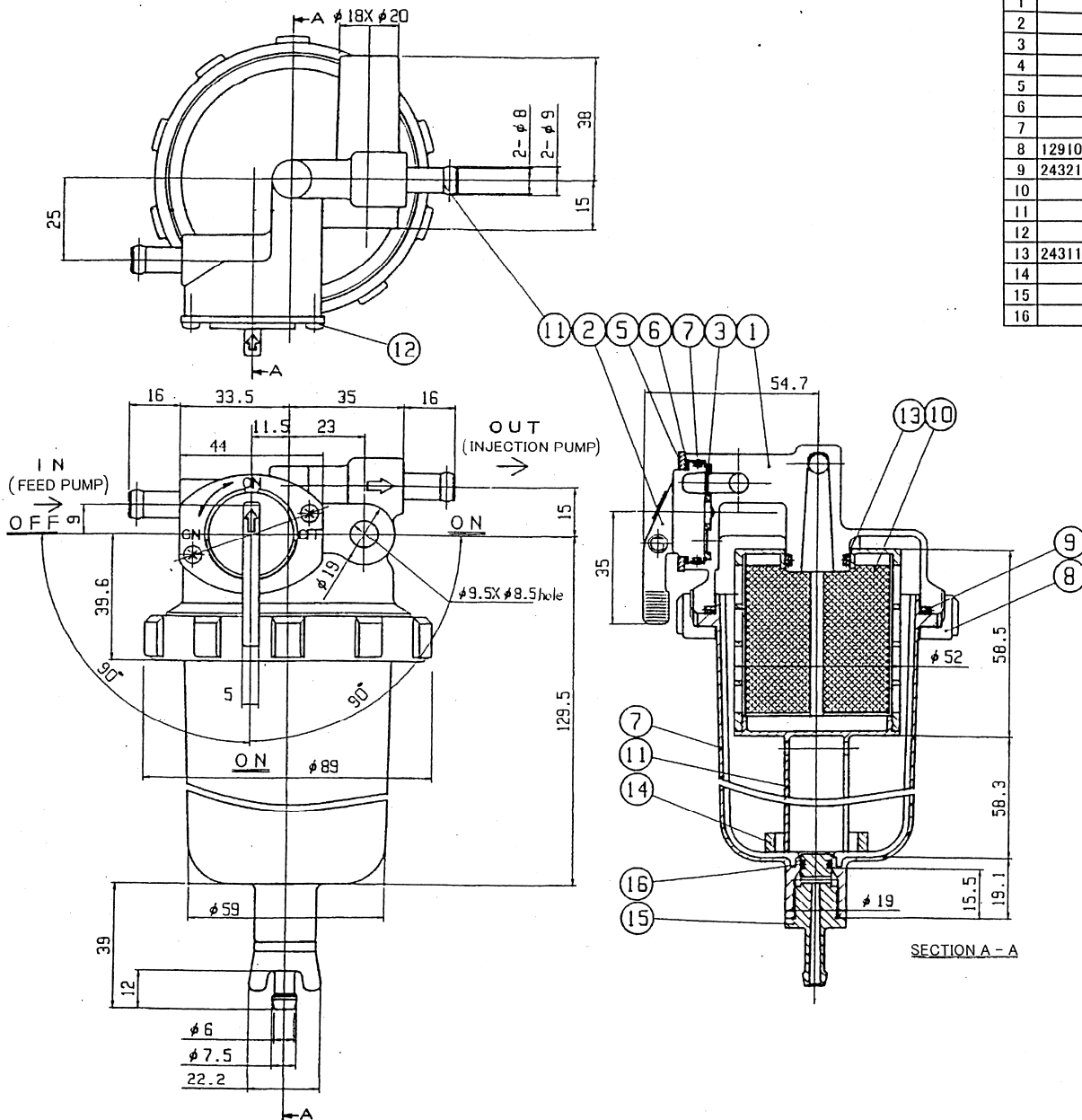
SPECIFICATIONS

(ROOM TEMPERATURE CHARACTERISTIC.
MEASUREMENT METHOD AND EQUIPMENT
ARE BASED ON JIS D3606)

1. RATED VOLTAGE: 12V DC
2. OPERATING VOLTAGE RANGE: 8.5~16.5V
3. OPERATING CURRENT: MAX 1.5A
4. DELIVERY: MIN 400cm³/min AT FREE FLOW (9.8kPa(0.1kgf/cm²) TOTAL PRESSURE)
5. TOTAL PRESSURE (DELIVERY + SUCTION)
: MAX 37.3kPa(0.38kgf/cm²) AT ZERO DELIVERY
6. SUCTION PRESSURE AT DRY CONDITION
: MAX -4.0kPa(-30mmHg)
7. AIR TIGHTNESS: SHOULD HAVE NO LEAKAGE UNDER A PRESSURE OF 98kPa(1kgf/cm²) APPLIED TO INLET AND OUTLET FOR 15 SECONDS
8. OPERATING TEMP. RANGE: -30~70°C
9. TEST FUEL: JIS K2203 OR K2201
10. FIXING DIRECTION FOR TEST: INLET & OUTLET PIPES HORIZONTALLY
11. MASS: 305g
12. SURFACE TREATMENT: ZINCIFICATION

YANMAR DIESEL

| | |
|------------|----------------|
| PARTS NAME | FUEL FEED PUMP |
| PARTS CODE | 119225-52102 |



| NO. | YANMAR CODE | SUPPLIER CODE | MODEL NAME | MATERIAL | QUANTITY | NOTES |
|-----|--------------|---------------|---------------|----------|----------|------------------|
| 1 | | YD-259-1 | BODY | ADC12 | 1 | |
| 2 | | DI-2a | LEVER | ZDC2 | 1 | WHITE CHROMATE |
| 3 | | OK-3a | VALVE PACKING | NBR | 1 | |
| 4 | | KTO-2-4 | WAVE WASHER | SKS | 1 | |
| 5 | | DI-5a | PLATE | SPCC | 1 | MFZn2 |
| 6 | | YMO-1-26 | O RING | NBR | 1 | S-29 |
| 7 | | YD-259-7 | CUP | 12 NYLON | 1 | SEMI-TRANSPARENT |
| 8 | 129100-55690 | IA-8 | RING NUT | ZDC2 | 1 | WHITE CHROMATE |
| 9 | 24321-000650 | IA-9 | O RING | NBR | 1 | G65 |
| 10 | | YD-259-10 | ELEMENT | 66 NYLON | 1 | 108 MESH |
| 11 | | S12-08 | JOINT | C2700T | 2 | |
| 12 | | ZSR-30-13 | SCREW | S25C | 2 | MFZn2-C |
| 13 | 24311-000160 | YM-5-6 | O RING | NBR | 1 | P16 |
| 14 | | JB-14-12 | FLOAT | P.P | 1 | RED |
| 15 | | JB-13-18 | DRAIN PLUG | PCM | 1 | |
| 16 | | KG-6 | O RING | NBR | 1 | P7 |

| SPECIFICATION | | |
|----------------------------|--|-----------------------------|
| ITEM | CONDITION | STANDARD |
| AIRTIGHTNESS | AIR PRESSURE(100kPa)(1.0kg/cm ²) | NO LEAKAGE |
| FLOW RATE | | |
| LEVER OPERATION TORQUE | AFTER OPERATING A FEW TIMES | LESS THAN 0.7N·m (7kg·cm) |
| ADAPTIVE FUEL | | LIGHT OIL, YANMAR HEAVY OIL |
| ADAPTIVE TEMPERATURE RANGE | | -20°C ~ 80°C |
| LEVER OPERATION DURABILITY | OPERATION SPEED 15±5 | 1X103 REPRODUCTION |
| | REPRODUCTION/min | |

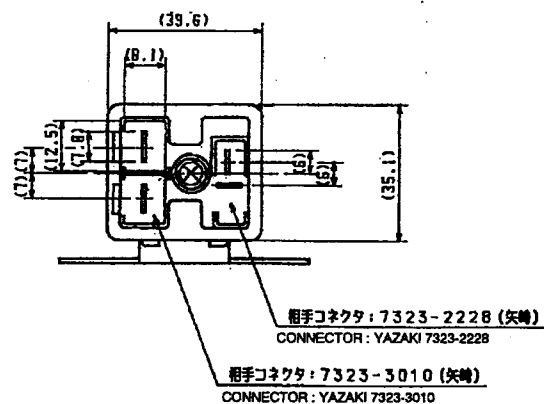
NOTE

1. ⑥ ASSEMBLE AND APPLY DIAMOND GREASE TO RING NUT SCREW.
TIGHTNING TORQUE: 15⁺⁵ N·m (150+50 kg·cm)
2. ⑪ FORCE FIT AFTER APPLYING ADHESIVE (THREE BOND 1303) TO JOINT.
DRAFT LOAD: MORE THAN 4 N·m (40kg)
3. ⑩ ELEMENT SPECIFICATIONS
FILTRAION AREA: MORE THAN 57cm²
OPENING: 152 μ
4. COUNTER VIBRATION: 8G, 50Hz
5. CAPACITY OF WATER-OIL SEPARTOR: MORE THAN 150cc
6. TO BE FREE FROM FOREIGN MATTERS AND BARRIS IN FUEL LINE.
7. INDICATED DETAIL OF DATE OF MANUFACTURE (ex.) 2001.5.14 [N15]

DAY 1-26, 27, 28, 29, 30, 31 YEAR 0-9 MONTH 1-9, 10, 11, 12
(A-Z) (a) (b) (d) (e) (f) THE END OF NUMBER OF THE YE/ (1~9)(O) (N) (D)

YANMAR DIESEL

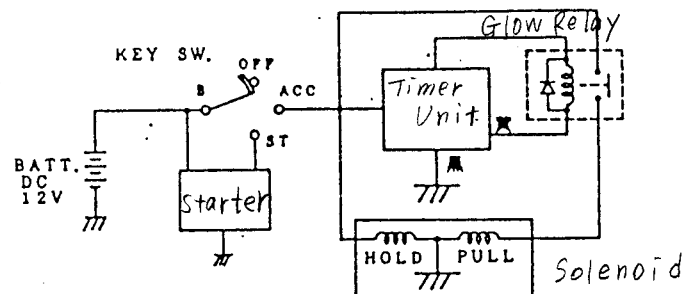
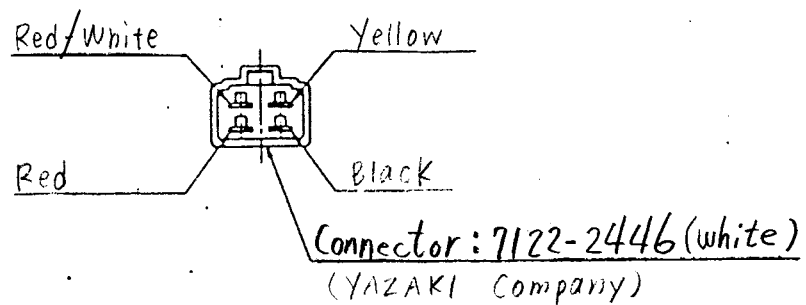
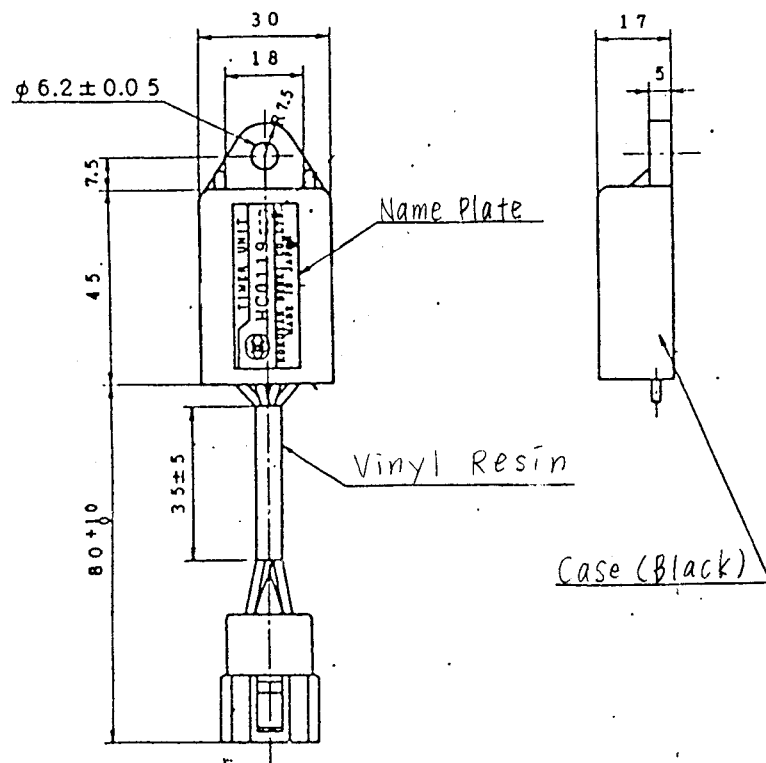
| | |
|------------|---------------------|
| PARTS NAME | WATER-OIL SEPARATOR |
| PARTS CODE | 119802-55700 |



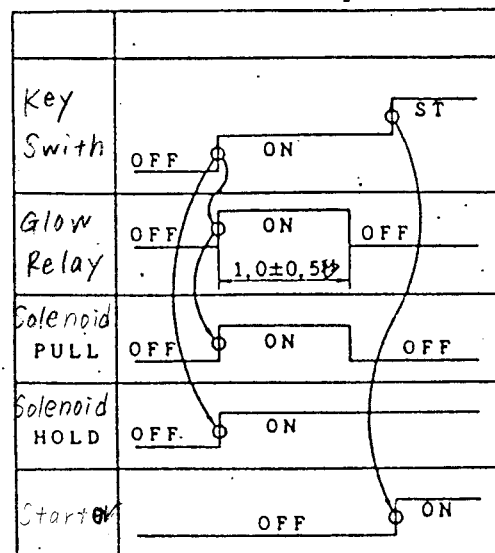
1. 定格電圧 : DC 12 V
2. 連続定格 : 10 MIN.
3. コイル抵抗値 : 37 Ω
4. インダクタンス : 66 mH (at 1 kHz)

1. RATED VOLTAGE : DC12V
2. MAXMUM OPERATING TIME : 10 MIN.
3. COILE RESISTANCE : 37 ohm
4. INDUCTANCE : 66mH (at 1kHz)

| YANMAR DIESEL ENGINE CO., LTD. ENGINE DEVELOPMENT DEPT. | |
|--|--------------|
| MODEL | TNE SERIESE |
| 部品名称 | グローリレー |
| NAME | GLOW RELAY |
| PART No. | 119650-77910 |



| | B | ACC | ST |
|-----|---|-----|----|
| OFF | | | |
| ON | ○ | ○ | |
| ST | ○ | ○ | ○ |



| | |
|------|------------------|
| NAME | Timer (1 second) |
| CODE | 129211-77920 |