



**YANMAR CO.,LTD.**

G3-23947-0010

# **4TNV106T-GGE**

Used for 56kVA generator

**SPECIFICATIONS & DRAWINGS FOR MASS PRODUCTION**

27.Jun.2007

**YANMAR CO.,LTD.**

# Contents

G3-23947-0010

Drawing No.	Part No.	Name	Qty.	Remarks
B3-23947-0010		Out line		
E3-23907-0010		Wiring Diagram		
Z3-23915-1100		Detail of Flywheel		
G3-23947-0010		SCOPE OF SUPPLY		
		LOOSE PARTS		
	129472-13520	GASKET, TURBOCHARGER	1	
	123901-18080	GASKET	1	
	119225-52102	PUMP, FUEL FEED	1	
	129242-55700	SEPARATOR ASSY	1	
	119643-66900	DIODE	1	for solenoid
	119650-77910	RELAY ASSY, GLOW	1	for solenoid
	128300-77920	TIMER, GLOW PLUG	1	
	129211-77920	TIMER, SECTION 1	1	for solenoid

**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. Amada*

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

Checked

*K. yokoi*

Drawn

Sakamoto

	W.No.	4TNV106T-GGE
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# ENGINE SPECIFICATIONS

G3-23947-0010

No	Model name	<b>4TNV106T-GGE</b>		Remarks	
1	Type	4 cycle, Inline, Water-cooled Diesel			
2	No.of cylinders-Bore×stroke	mm	4-φ106×125		
3	Combustion system	Direct Injection			
4	Compression ratio	18			
5	Displacement	litter	4.412		
6	Rated output	kW(PS)	56(76.1)/66.9(91)		
		min <sup>-1</sup>	1500/1800		
7	Continuous rating	kW(PS)	50.9(69.2)/60.9(82.8)		
		min <sup>-1</sup>	1500/1800		
8	Max.torque	N·m	~		
		min <sup>-1</sup>	(+/-)		
9	Specific fuel consumption	g/kW-h(g/PS-h)	220.4(162)	at rated output	
10	Ambient condition	25°C、750mmHg、30%			
11	Engine speed at no load	Max.	min <sup>-1</sup>	1925	+25/-25
		Min.	min <sup>-1</sup>	1500	+25/-25
12	Governorability	Governor type	centrifugal-all speed governor		
		Temporary	%	max.10	load
		Permanent	%	max.5	100%
		Recovery time	sec	max.5	↓
		Stability	min <sup>-1</sup>	max.15	0%
13	Gradients	Longitudinal	deg	15(10)	intermitted
		Lateral	deg	15(10)	( ) : continuous
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.355		
17	Fuel injection timing	deg	FIT11.5(+0.5/-0.5)	FIT b.T.D.C	
18	Fuel system	Fuel type	Diesel oil		
		Fuel injection pump	Distributortype(YPD-MP4),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	14	max.
			liter	9	effective.
		Oil pressure	kgf/cm <sup>2</sup>	4.5	at rated output
kgf/cm <sup>2</sup>	0.6		at low idle		
20	Cooling system	Heat exchanger	none		
		Pressure cap	kgf/cm <sup>2</sup>	0.9	
		Fan	7-φ550		
		Coolant capacity	liter	6	

4TNV106T-GGE

# ENGINE SPECIFICATIONS

G3-23947-0010

No	Model name	4TNV106T-GGE	Remarks
21	Air cleaner	none	
22	Breather system	open	
23	Muffler	none	
24	Starting system	Starter	12V-3.0kW
		Battery	130E41
		Starting aid	air heater 1000W
25	Generator	12V-60A	
26	Engine color	Silver	
27	Applied regulation		

< Career >

	W.No.	4TNV106T-GGE
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## SCOPE OF SUPPLY

G3-23947-0010

No	ENGEN MODEL	4TNV106T-GGE	Parts number	Remarks
<b>FUEL SYSTEM</b>				
1	Fuel Injection Pump	installed	723947-51300	
2	Fuel Injection Nozzle	installed	723947-53100	Mark "VCJ"
3	Fuel Transfer Pump	provided	119225-52102	Electric, As loose parts
4	Fuel Filter	installed	129907-55801	1 $\mu$ , 4000c m <sup>2</sup>
5	Fuel Filter Bracket	installed	129004-55612	
6	Fuel Injection Line	installed	123908-59800	
7	Fuel Line(Filter to Pump)	installed	119160-59010	L=400mm
8	Fuel Pipe (Pump to Filter)	installed	129957-59040	L=500mm
9	Water Separator	provided	129242-55700	Clear cup, As loose parts
10	Throttle Lever	installed	not fixed	
<b>LUB,OIL SYSTEM</b>				
11	Oil Pan	installed	123900-01710	Drain: Inlet side
12	Oil filler Extension pipe	installed	124160-01751	2 places
13	Breather Pipe	installed	123901-03090	
14	Switch ,lub .oil pressure	installed	114250-39450	0.5kg/cm2 (CA104)
15	Dipstick	installed	123982-34801	
16	Guide ,dipstick	installed	121520-34810	
17	Oil filter	installed	119005-35160	
18	Oil Cooler	not provided	123912-33011	
<b>COOLING SYSTEM</b>				
19	Radiator	not provided	none	
20	Rubber Isolaters	not provided	none	
21	Pipe A,radiator	not provided	none	
22	Pipe B,radiator	not provided	none	
23	Sub tank(radiator)	not provided	none	
24	Water Pump	installed	123907-42000	Low position type
25	Cooling Fan	installed	123915-44741	Mark "V6"
26	Spacer ,fan	installed	123900-44761	T=25mm
27	Guide ,fan	not provided	none	
28	Pully ,fan	installed	123900-42470	D=130mm
29	V-Belt	installed	25163-004801	Btype 48 inch
30	Switch, water temp.	installed	121250-44901	110 °C
31	Sender, water temp.	not provided	none	
32	Thermostat	installed	124610-48610	71deg
33	Thermostat Cover	installed	123962-49500	
34	Water Drain Fitting	installed	119620-49290	COCK
35	3-Way Plug ,cooling water	not provided	none	
<b>ELECTRIC SYSTEM</b>				
36	Starter	installed	129940-77010	12V-3.0kW (HITACHI)
37	Alternator	installed	123900-77210	12V-60A (HITACHI)
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	built-in type, Yazaki-coupler
41	Starting Aid	installed	123900-77500	12V 1kW

42	Diode ,solenoid relay	provided	119643-66900	As loose parts
43	Timer, air heater (glow)	provided	128300-77920	As loose parts
44	Relay, air heater (glow)	not provided	none	
45	Current Limiter	not provided	none	
46	Safety relay, starter	not provided	none	
<b>PTO SYSTEM</b>				
47	Flywheel Housing or Back plate	installed	123910-01620	SAE #3 (171.5)
48	Flywheel	installed	123915-21590	SAE #3
49	Bearing ,retainer	not provided	none	
50	Pully ,crankshaft	installed	123946-21660	D=150 mm
51	Gear case	installed	123907-01540	
52	Hydraulic Pump	not provided	none	
53	Device ,hydraulic pump	not provided	none	
<b>INTAKE/EXHAUST SYSTEM</b>				
54	Air Cleaner	not provided	none	
55	Bracket ,air cleaner	not provided	none	
56	Manifold ,intake	installed	123907-12100	Upward
57	Joint	installed	123912-18350	
58	Muffler	not provided	none	
59	Gasket ,muffler	provided	129472-13520	As loose parts
		provided	123901-18080	As loose parts
60	Manifold ,exhaust	installed	123908-13120	Upward
61	Bend ,exhaust	not provided	none	
62	EGR Pipe	not provided	none	
63	EGR Valve	not provided	none	
64	EGR Cooler	not provided	none	
65	Turbine	not provided	none	
<b>ELECTRIC CONTROLL SYSTEM</b>				
66	ECU	not provided	none	
67	Main Relay	not provided	none	
68	Lack Actuator Relay	not provided	none	
69	Starter Relay	not provided	none	
<b>GAUGE</b>				
70	Drive Unit ,tachometer	not provided	none	
71	Cable ,tachometer	not provided	none	
72	Tachometer	not provided	none	
73	Key Switch	not provided	none	
74	Cover ,terminals	not provided	none	
75	Pilot lamp	not provided	none	
76	Guage ,oil/water temp	not provided	none	
77	Guage ,oil pressure	not provided	none	
<b>OTHERS</b>				
78	Filter Wrench ,lub .oil	not provided	none	
79	Filter Wrench ,fuel .oil	not provided	none	

NEED	PURCHASING SPECIFICATION	REQUEST FOR APPROVAL	DELIVERY DRAWING	INSPECTING STANDARD	QC-PROCESS
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GEN. TOL.	DRAFT ANG.	OUTSIDE	INSIDE	NOMINAL DIM	S MAX	5 TO	10 TO	18 TO	30 TO	L-CAST
±0.1	1/100	2/100	3/100	SANDMOLD	±1.0	±1.5	±2.0	±3.0	±3.5	120 MAX
		3/100		SHELL	±0.8	±1.0	±1.5	±2.0	±3.5	250 TO
										400 TO
										800 TO
										1600 TO
										0.5 TO
										6 TO
										30 TO
										120 TO

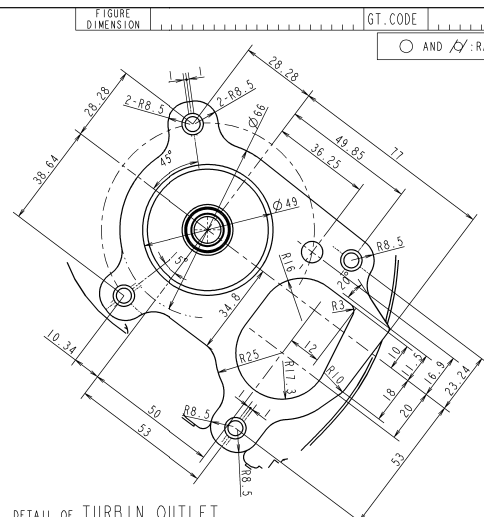
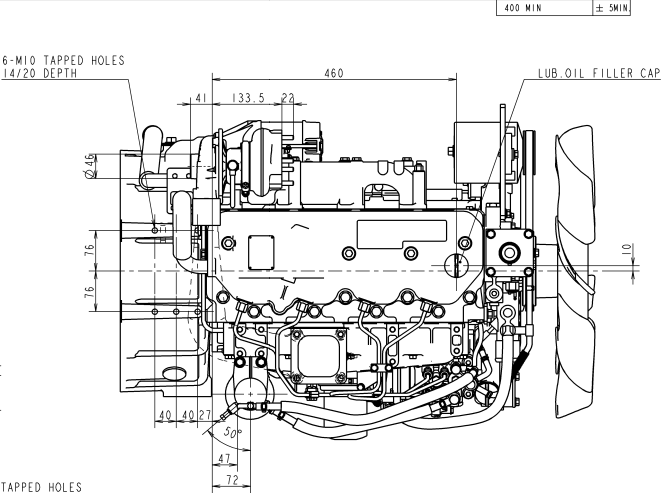
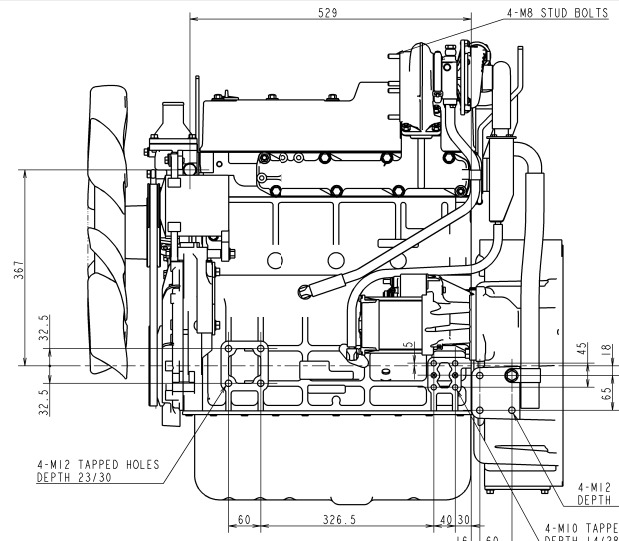
0.5 TO	6 TO	30 TO	120 TO	250 TO	400 TO	800 TO	1600 TO	ANG. CHIP
±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±1.5	±2.0	10 MAX
								50 TO
								120 TO
								400 MIN

10 MAX	50 TO	120 TO	400 MIN
±0.1	±0.2	±0.3	±0.5

FIGURE DIMENSION

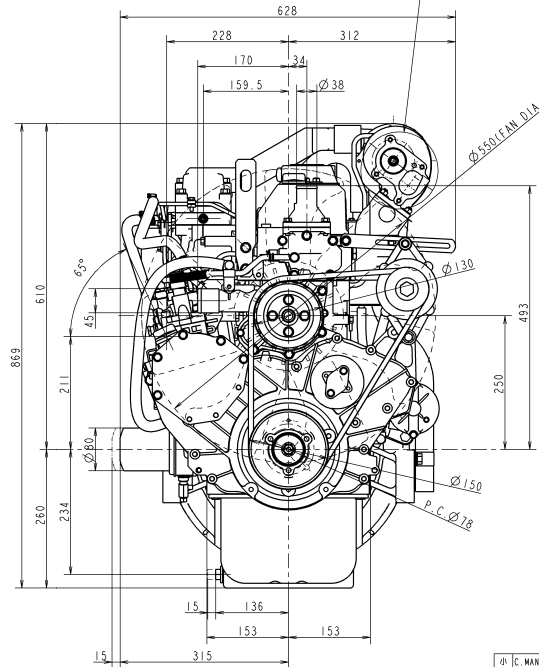
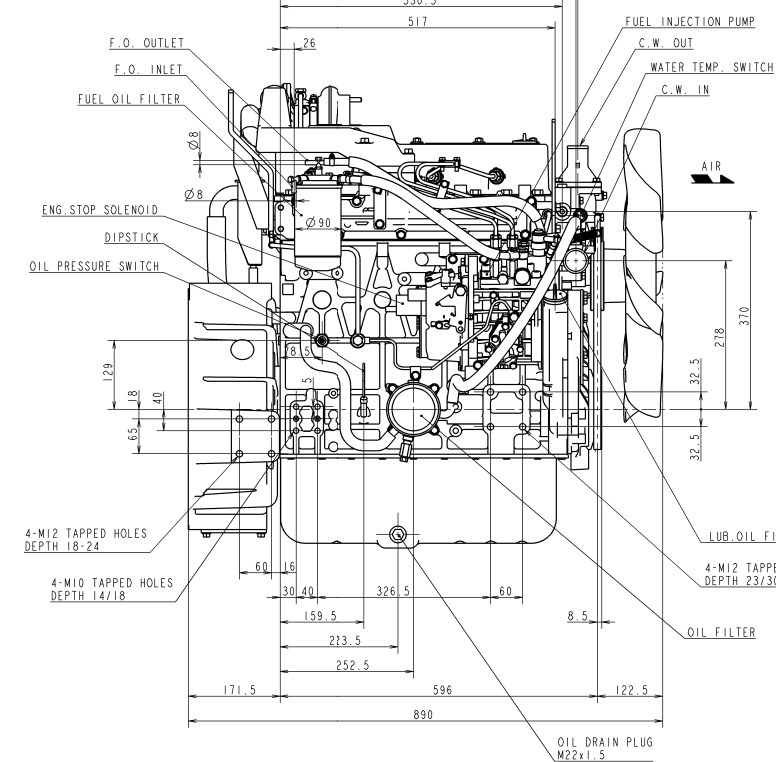
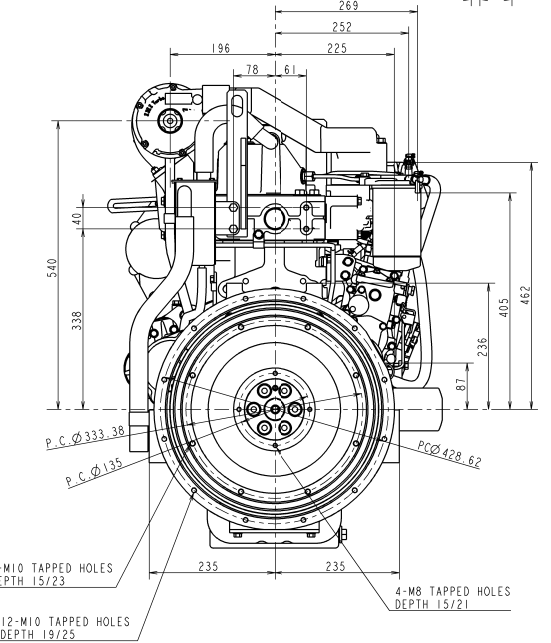
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○ AND √ RADIAL



DETAIL OF TURBIN OUTLET SCALE 1:1

DETAIL OF TURBIN OUTLET



WEIGHT (DRAW)	(± X)	kg	SCALE	1:5
WEIGHT (CALC.)	1289912.492kg	(± X)	MATERIAL	CMP
S. ENGINEER	MANAGER	MODEL	4TNV106T-GGE	
CHECKED	SPECIALIST	QTY	1	
DESIGNED	DRAWN	DATE: Y.M.D	2007.6.25	NAME
4TNV106T-GGE OUTLINE				
<b>YANMAR</b>				
POWER SYSTEM OPERATIONS DIV., YANMAR CO., LTD.				
CODE	B3-23947-0010	DATE	EST.	A1

3D-CAD  
 NOTICE  
 CONFORM TO THE HONOR CODED 115-V-2001J  
 CONCERNING THE LIMITATIONS OF THE ENVIRONMENTAL BURDEN MATERIAL\*  
 FOR THE USE OF THE ENVIRONMENTAL BURDEN MATERIAL OF THIS PART.  
 \*環境負荷低減物質の規制  
 本図面に記載の環境負荷低減物質の規制  
 YIS V-0001 (環境負荷低減物質)  
 本図面に記載の環境負荷低減物質の規制  
 本図面に記載の環境負荷低減物質の規制

MARK	COLOR
B	Black
W	White
R	Red
L	Blue
G	Green
Y	Yellow
Br	Brown
Lg	Light Green
Sb	Sky blue
O	Orange
P	Pink
Gr	Gray
R/W	Red/White

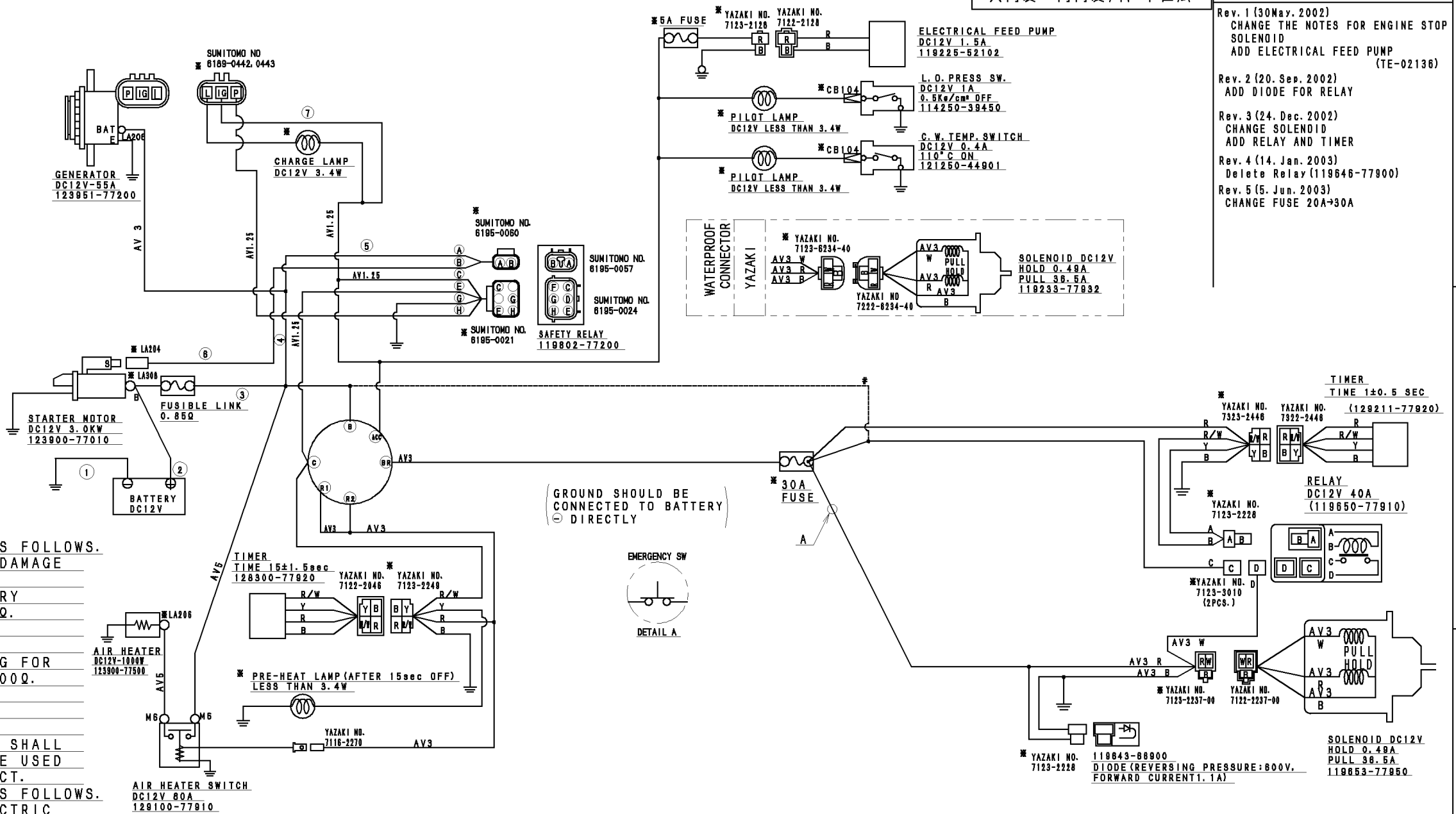
形状寸法コード G.T.CODE 真円度・円筒度八、半径法

面来歴 CAREER

- Rev. 1 (30 May. 2002) CHANGE THE NOTES FOR ENGINE STOP SOLENOID ADD ELECTRICAL FEED PUMP (TE-02136)
- Rev. 2 (20 Sep. 2002) ADD DIODE FOR RELAY
- Rev. 3 (24 Dec. 2002) CHANGE SOLENOID ADD RELAY AND TIMER
- Rev. 4 (14 Jan. 2003) Delete Relay (119646-77900)
- Rev. 5 (5 Jun. 2003) CHANGE FUSE 20A→30A

	B	R1	R2	ACC	C	BR
PRE-HEATING	○	○	○	○	○	○
OFF	○					
ON	○					
START	○	○	○	○	○	○

KEY SW. DIAGRAM



- NOTES**
1. WIRING OF STARTER MUST BE OBSERVED AS FOLLOWS. OTHERWISE IT CAUSES MISS STARTING OR DAMAGE OF STARTERMOTOR.
    - 1-1. TOTAL ELECTRIC RESISTANCE OF BATTERY CABLE (1+2) SHOULD BE LESS THAN 2/1000Ω. REFERENCE: AV15: ≤1.4m, AV20: ≤2.2m, AV30: ≤3.8m, AV40: ≤4.6m
    - 1-2. TOTAL ELECTRIC RESISTANCE OF WIRING FOR STARTER (3~6) SHOULD BE LESS THAN 5/100Ω. REFERENCE OF TERMINAL RESISTANCE: 15/1000Ω PER COUPLER, 0Ω PER SCREW SETTING
  2. BATTERY TREATMENT MUST BE OBSERVED AS FOLLOWS. OTHERWISE IT MAY CAUSE BURNING OF ELECTRIC EQUIPMENTS OR COMPONENTS. ALTERNATOR (DIODES) BURNING CAUSED BY BATTERY CABLE CONNECTION REVERSELY IS NOT WARRANTED.
    - 2-1. BATTERY SHOULD BE FIXED BY FITTING. (NOT TO MOVE)
    - 2-2. BATTERY CABLE LENGTH SHOULD BE ADJUSTED PROPERLY AND CLAMPED NOT TO BE CONNECTED REVERSELY.
    - 2-3. NOT LOOSE THE BATTERY CABLE TERMINAL, NOR TURN THE BATTERY SWITCH OFF DURING THE ENGINE RUNNING.
  3. ONLY THE SPECIFIED LOAD SHOULD BE APPLIED ON THE ALTERNATOR "L" AND "P" LINE. IT IS NOT ALLOWED TO CONNECT ANY LOAD UNSPECIFIED WITHOUT YANMAR APPROVAL.
  4. CHECK ANY SURGE CURRENT OR VOLTAGE OCCURED UNDER NORMAL OPERATIONS AND EXPECTIVE ERRONEOUS OPERATIONS, AND CONFIRM THE CIRCUIT NO SURGE OCCURS. ESPECIALLY PROVIDE THE FLYWHEEL DIODE FOR "C-LOAD" AND DIODE FOR "L-LOAD".

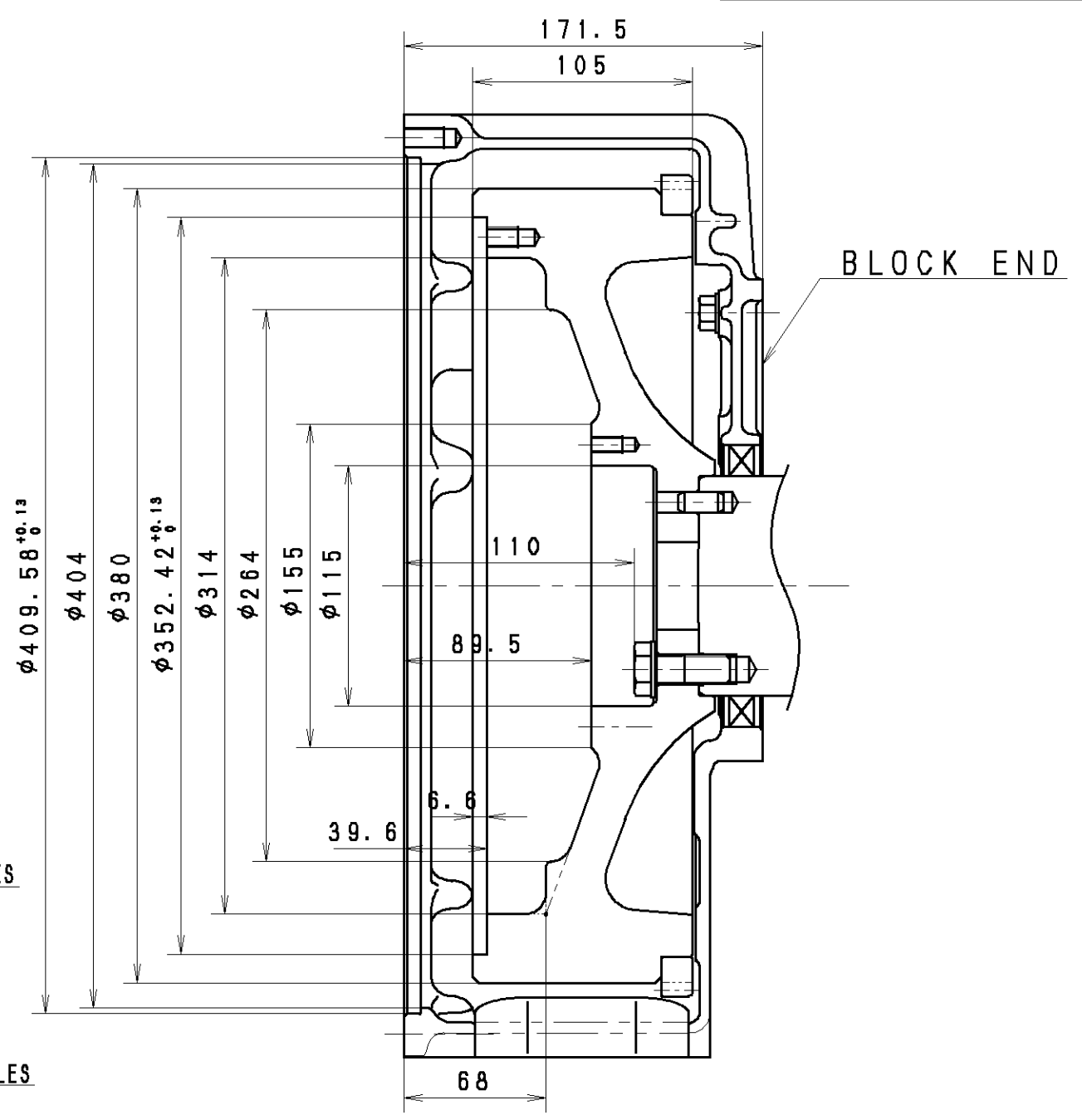
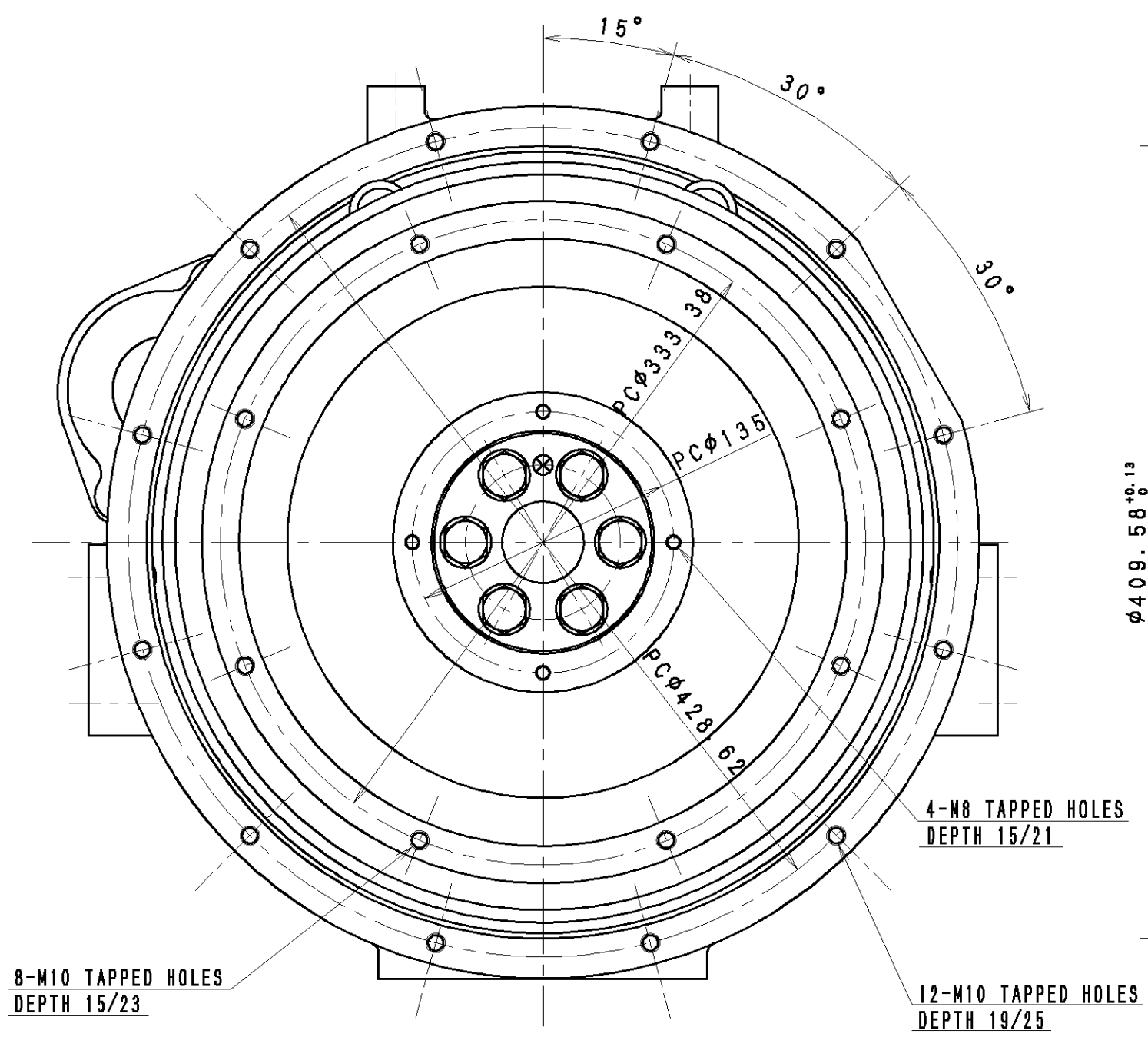
- NOTES FOR ENGINE STOP SOLENOID**
1. PERMISSIBLE RESISTANCE OF SOLENOID CIRCUIT SHOULD BE LESS THAN 0.07Ω TO GUARANTEE PERMISSIBLE LOWEST VOLTAGE 9V TO WORK SOLENOID (PULL COIL). (TERMINAL RESISTANCE: 15/1000Ω PER COUPLER, 0Ω PER SCREW SETTING. COUPLER RESISTANCE OF SOLENOID DOESN'T NEED TO BE COUNTED) REFERENCE: AV2 (0.0088Ω/m): ≤8.0m...WITHOUT TERMINAL RESISTANCE, AV3 (0.0056Ω/m): ≤12.5m...SAME AS ABOVE. WHEN YOU EXCEED PERMISSIBLE RESISTANCE, ADOPT THE CIRCUIT IMPRESSED FROM THE POWER SUPPLY TO THE SOLENOID DIRECTLY USING A RELAY...REFER TO #
  2. HIGH TEMPERATURE PARTS, SUCH AS AN EXHAUST PIPE, SHOULD NOT APPROACH FOR THE PULL POWER FALL OF SOLENOID, AND HEATING PREVENTION OF INNER COIL TEMPERATURE. (PERMISSIBLE AMBIENT TEMPERATURE: -30~100℃)
  3. INSTALL FUSE TO PROTECT THE HARNESS AGAINST TROUBLES SUCH AS SHORT CIRCUIT OR CONTINUOUS DRIVE OF PULL-COIL.
  4. THE POWER SUPPLY OF SOLENOID MAY NOT BE COMMON WITH THE LINE OF ALTERNATOR INITIAL EXCITATOR AS SHOWN IN THIS DRAWING. (OTHERWISE, SOLENOID MAY LOOSE STOP FUNCTION DUE TO THE POWER SUPPLY FROM ALTERNATOR "L" TERMINAL.)
  5. IN CASE OF WATERPROOF CONNECT OR APPLICATION, CONNECTOR SHOULD BE FIXED BY FITTING TO PREVENT LEAD WIRE BREAK.
  6. IN CASE OF EMERGENCY STOP OF MACHINE FOR SAFETY WILL BE APPLIED, SWITCH LOCATION SHOULD BE SHOWN AS A.
  7. IN CASE OF THE SOLENOID CIRCUIT RESISTANCE WOULD BE LIMIT, # WIRING IS APPLICABLE.

**REMARKS**  
1. \* MARKED PARTS ARE NOT PROVIDED BY YANMAR.

素材質量 WEIGHT (RAW)	(± %)	水圧試験 HYDRAULIC TEST	MPa	小形工 開発部	部長 G. MANAGER	技部長 MANAGER
完成質量 WEIGHT (組立後)	(± %)	空圧試験 PNEUMATIC TEST	MPa			J. Mshida
主席	長 SEC. MANAGER Y. Yamada	機種 MODEL	4TNV 4TNV 106 106T	尺度 SCALE	SCALE OUT	
検閲 CHECKED H. Yokoi	機能担当者 SPECIALIST	個数 QTY.		材質 MATERIAL		
設計 DESIGNED H. Yokoi & Shimizu	製図 DRAWN 2002 1.29	年月日 DATE		ケツセンズ		
名称 NAME			WIRING DIAGRAM			
YANMAR CO., LTD.			Rev. 1 Rev. 2 Rev. 3 Rev. 4 Rev. 5			
ENGINE PRODUCT OPERATIONS DIV.			コード CODE E3-23907-0010			



真円度・円筒度八、半径法



重要ポイント	○
精度/種類/記号	
種類	記号
真直度	—
真円度	○
線形	⌒
平面度	□
円筒度	○
面形	⌒
平行度	//
直角度	⊥
傾斜度	∠
位置度	⊕
同軸度	◎
対称度	≡
円筒度	○
全長公差	∕

Flywheel Housing	123910-01600
Flywheel	123915-21400
Ring Gear	127410-21480

素材質量	WEIGHT (RAW)	(± %)
完成質量	WEIGHT (完成)	(± %)
設計	DESIGNED	Yamada
検閲	CHECKED	S. Yamashita
製図	DRAWN	A. OTSUKA
年月日	DATE	1999 3. 5

水圧試験	MPa	HYDRAULIC TEST (
空圧試験	MPa	PNEUMATIC TEST (
機種	4TNE 4TNE	MODEL 106 106T
数量	1	QTY. 1
名称	直結部詳細図	
名称	COUPLING DIMENSIONS	

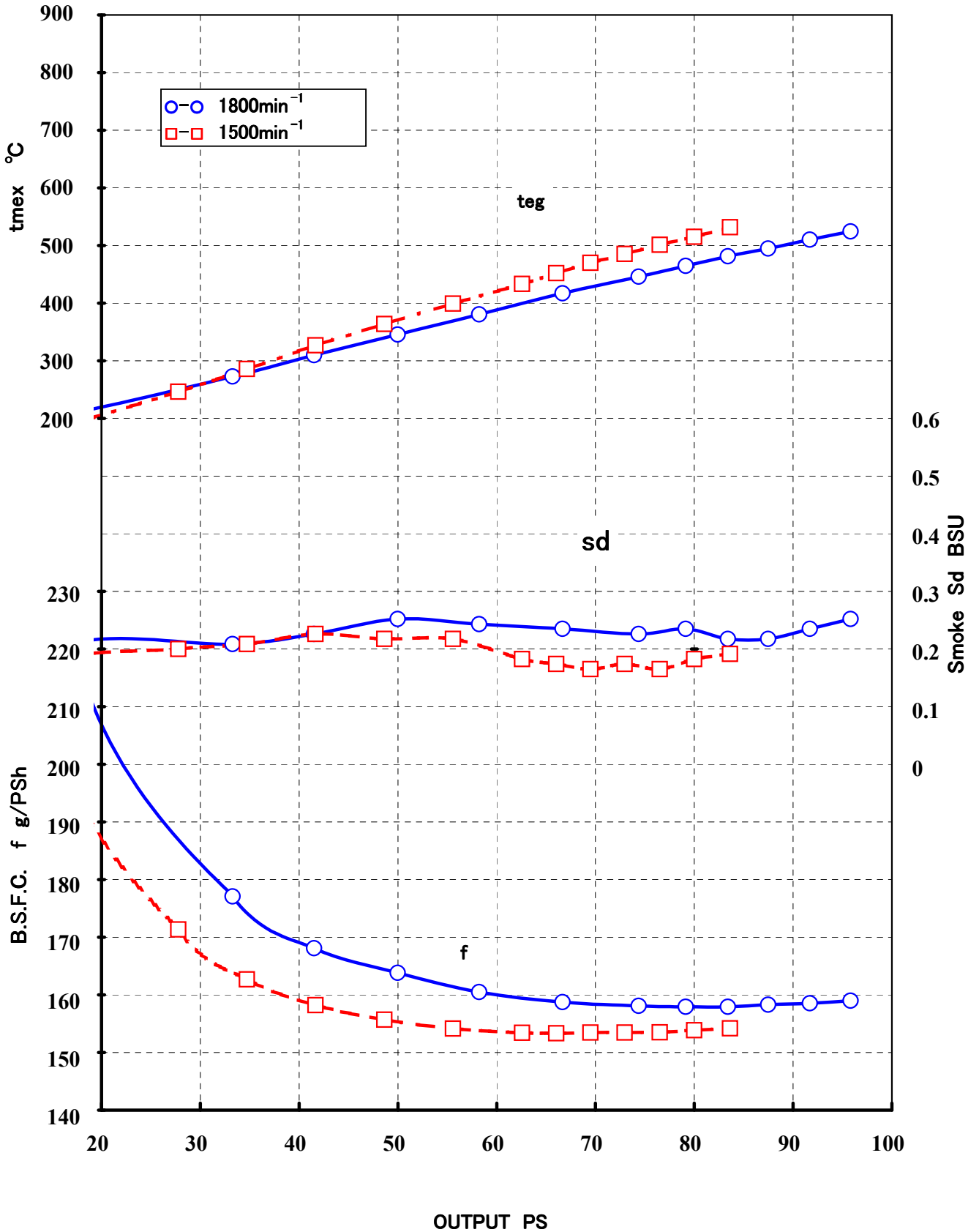
部長	MANAGER	一技長	MANAGER
検査	検査	検査	検査
R 度	SCALE	1/3	
材質	MATERIAL	---	
コード	CODE	Z3-23915-1100	A3 (B)

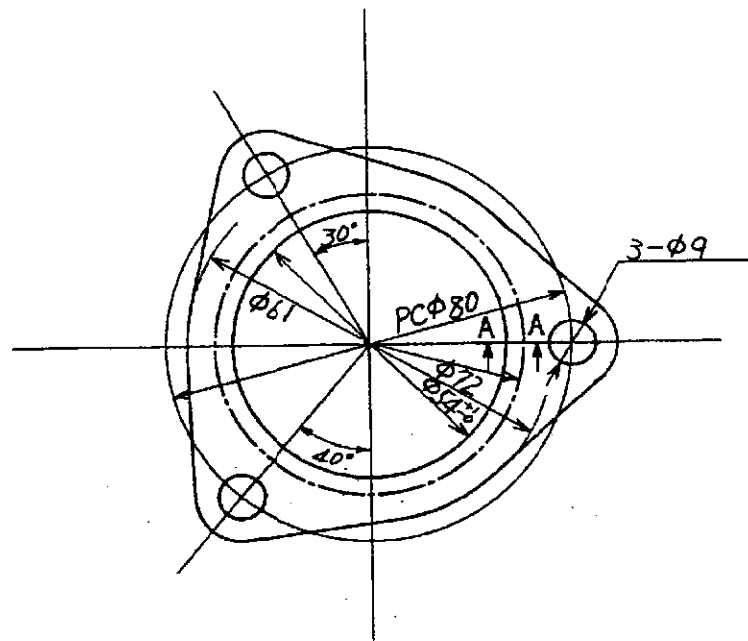
# Fig. 4TNV106T Engine performance curve

n-BxS:4-106x125  
 Displacement : 4.412zl

Silencer	123912-13531
Air cleaner	8inch
CW fan	123915-44741

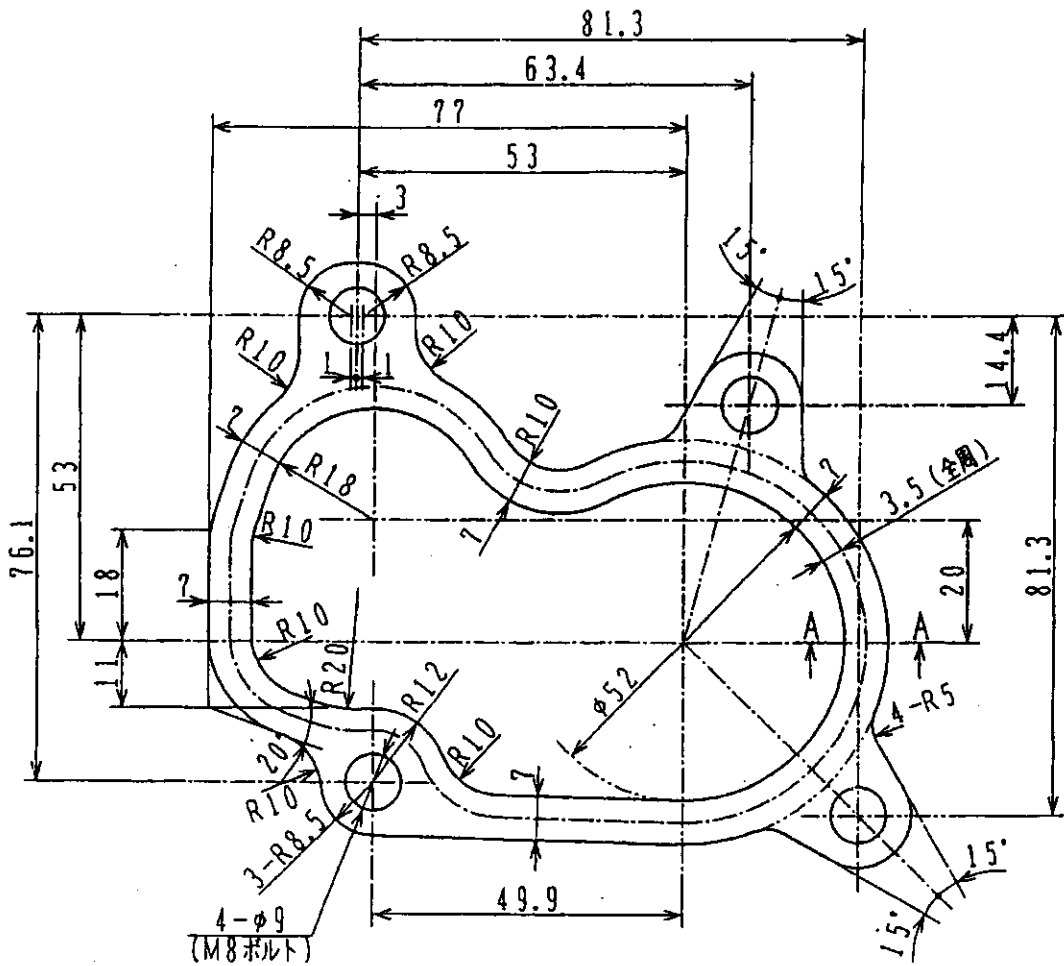
Crank pulley	D=150
Fan pulley	D=130
φ 550	PushF





$t = 0.5$

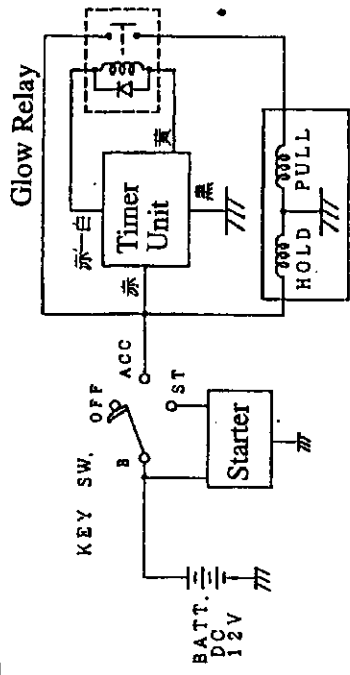
GASKET, TURBOCHARGER		
<b>YANMAR</b> ENGINE PRODUCT OPERATIONS DIV., YANMAR CO., LTD.	CODE	129472-13520



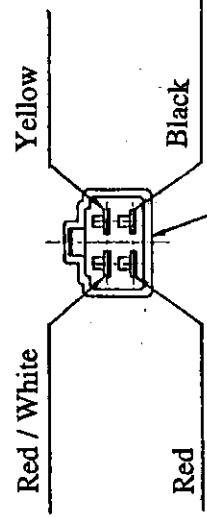
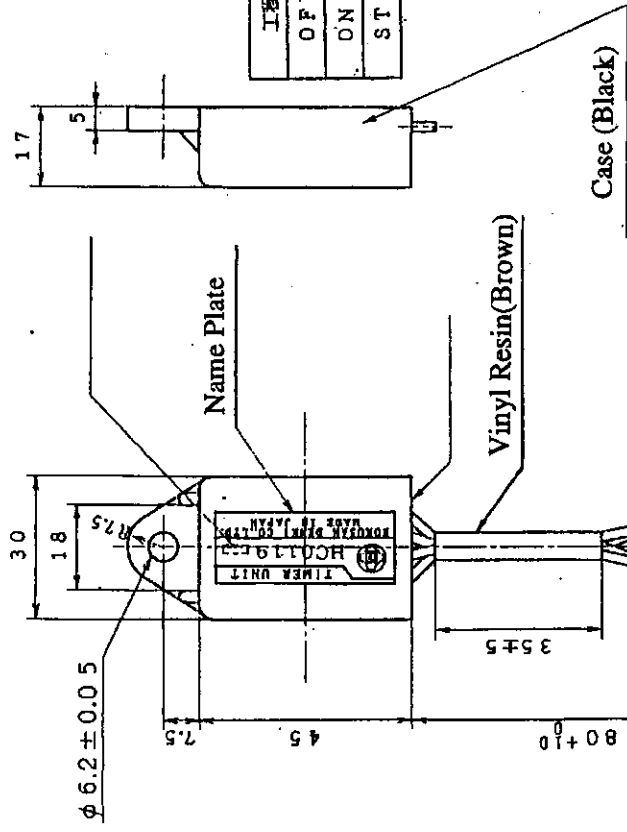
$t = 0.5$

YANMAR DIESEL ENGINE CO., LTD	
部品名称 PART	P/K (T/C OUT)
PART No.	123901-18080

3D-CAD



工機	B	ACC	ST
OFF			
ON	○	○	
ST			○



Connector : 7122-2446 (white)  
(YAZAKI Company)

項目	動作シケンス	
Key Switch	OFF	ON
Glow Relay	OFF	ON OFF
Solenoid Pull	OFF	ON OFF
Solenoid Hold	OFF	ON
Starter	OFF	ON

1.0±0.5秒

TIMER (1sec)  
タイマー (1sec)

**YANMAR**

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

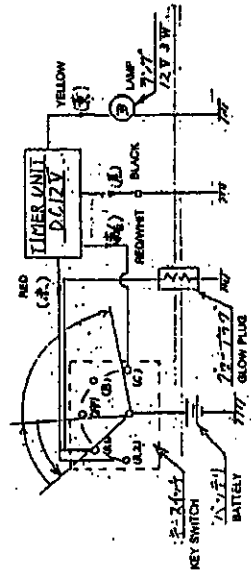
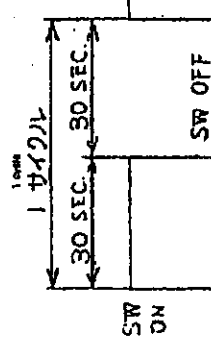
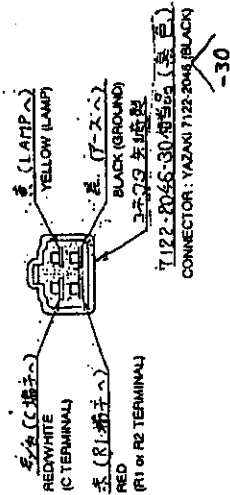
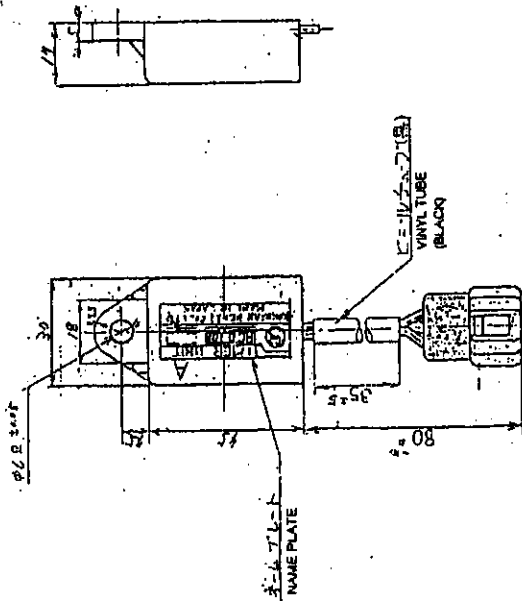
CODE  
129211-77920

**仕様**

1. リレ-ON時間 : 15±3 (sec.)
2. 使用温度範囲 : -25℃~+80℃
3. 保存温度範囲 : -25℃~+80℃
4. 使用電源電圧範囲 : 8V~15V
5. 適用リレ-仕様 : 12V 励磁電流 : 1 A
6. 耐水性 : 清水中10cmノ所ニ24時間保持シタ後、水分ヲ拭キ取り自然乾燥後、性能ニ異常ナキコト。  
但シ、カブラ及ピコネクタ部分ハ浸水ガ無イヨウニ行ウコト。
7. 耐振性 : 20G一定ニテ100~1000Hz60secスイ-ブニテX, Y, Z方向各2 Hr 振動ヲ与工性能ニ異常ナキコト。  
但シ、ワイヤ-ハーネスハ共振ナキヨウ取リ付ケルコト。
8. 耐久性 : 30000サイクル動作セタ後性能ニ異常ナキコト。

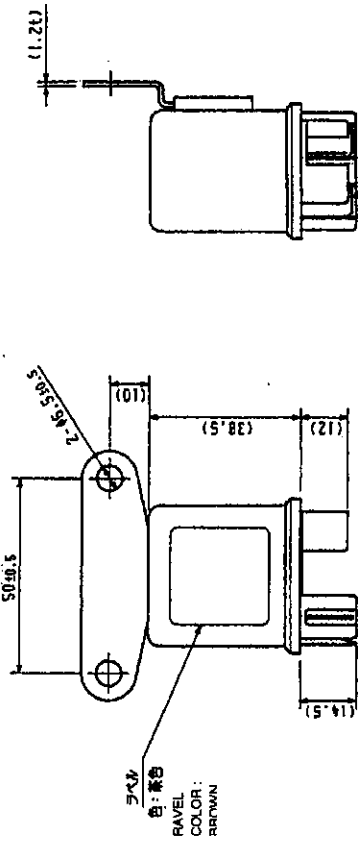
**SPECIFICATIONS**

1. OPERATION TIME : ON AFTER 15 sec.
2. USABLE TEMPERATURE RANGE : -25°C~+80°C
3. PRESERVE TEMPERATURE RANGE : -25°C~+80°C
4. USABLE VOLTAGE RANGE: 8V~15V
5. APPLICABLE RELAY : 12V
6. WATERPROOFING : DO NOT EXPOSED TO THE RAIN ON CONNECTOR AND TERMINAL.
7. VIBLEATION RESISTANCE : 20G
8. DUABILITY : 30000 cycle



経線図  
WIRING  
DIAGRAM

MODEL	TNE SERIESE
部品名称	ランプタイム
NAME	TIMER,GLOW PLUG
PART No.	128300-77920

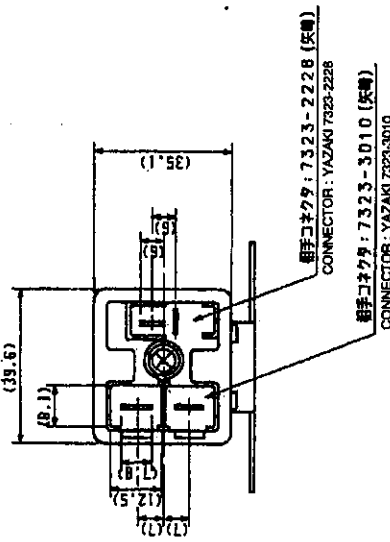


仕様

1. 定格電圧 : DC12V
2. 連続定格 : 10 MIN.
3. コイル抵抗値 : 37Ω
4. インダクタンス : 66mH (at 1kHz)

SPECIFICATIONS

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



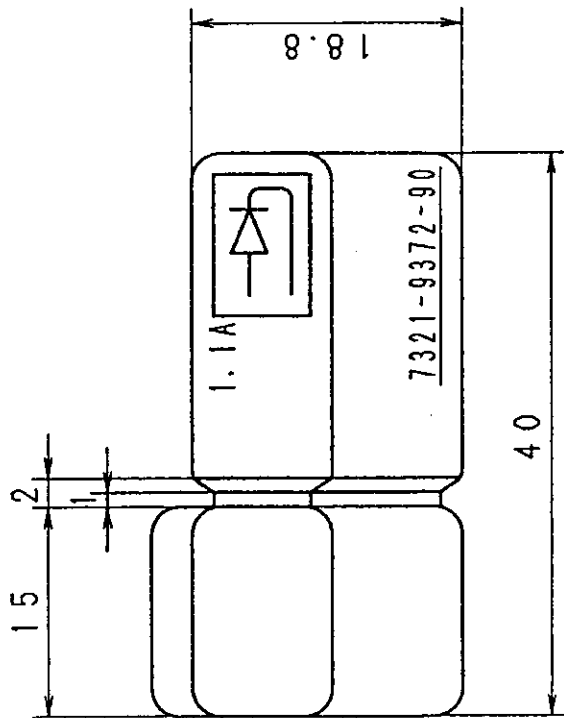
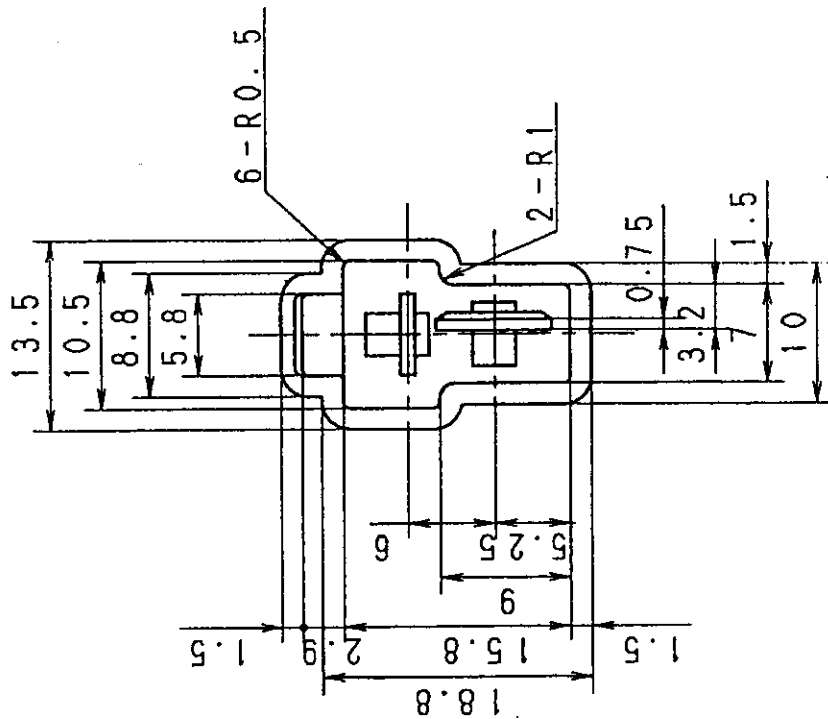
YANMAR DIESEL ENGINE CO., LTD.  
ENGINE DEVELOPMENT DEPT.

MODEL TNE SERIESE

部品名称 グローリレー

NAME GLOW RELAY

PART No. 119650-77910



DIODE

Mate coupler : 7123-2228

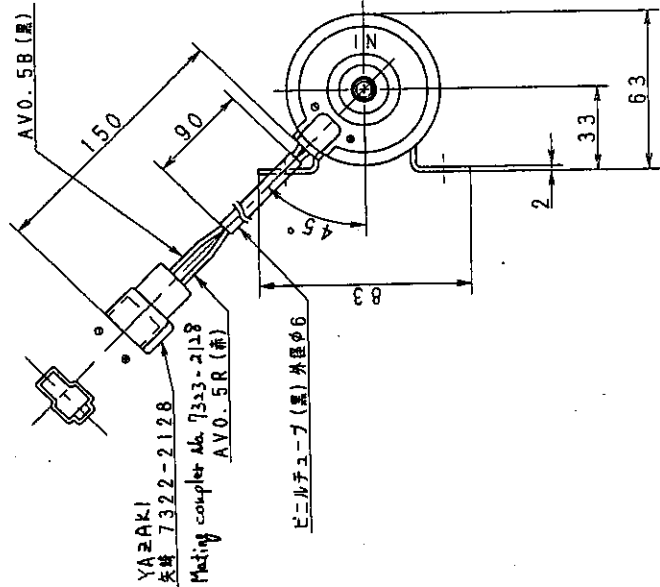
Mate terminal : 7116-2090

DWG. NO. \_\_\_\_\_

YANMAR DIESEL ENGINE CO., LTD.

119643-66900





**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 400cc/min AT FREE FLOW (0.1kgf/cm<sup>2</sup> TOTAL PRESSURE)
5. TOTAL PRESSURE (DELIVERY + SUCTION)  
: MAX 0.38kgf/cm<sup>2</sup> AT ZERO DELIVERY  
: MAX -30mmHg
7. AIR TIGHTNESS: SHOULD HAVE NO LEAKAGE UNDER A PRESSURE OF 1kgf/cm<sup>2</sup> 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. WEIGHT: 600g
12. SURFACE TREATMENT: SEE BELOW
13. FUEL TIGHTNESS OF CHECK VALVE  
THE AMOUNT OF LEAK TO OUT SIDE SHALL BE MAX 5cc/min WHEN PRESSURIZED 0.06kgf/cm<sup>2</sup> FROM IN PORT WITH GASOLINE

AFTER EACH TEST (NO. 14-24) AS FOLLOWS.

14. VIBRATION: JIS D1601 5.3(1) STEP4
15. WATER PROOF: JIS D0203 DI SHOULD BE NO WATER INSIDE OF PUMP
16. THERMAL SHOCK:  
a) PATTERN: SEE FIG 1  
b) CYCLES: 4
17. THERMAL RESISTANCE:  
PATTERN: 70°C 240hrs AND -20°C 240hrs
18. HIGH TEMP. PERFORMANCE:  
a) VOLTAGE: 14V DC  
b) FUEL TEMP.: 50°C  
c) ENVIRONMENT TEMP.: 70°C  
d) OPERATING TIME: 96hrs
19. FALLING TOUGHNESS:  
FALL FROM 300mm HEIGHT TO THE CONCRETE
20. SURGE VOLTAGE: JASO D001-22 A-1.2 B-1,2 ALL
21. REVERSAL VOLTAGE APPLYING:  
JASO D001-22 13V FOR 1min
22. DURABILITY TEST: AFTER TEST AS FOLLOWS DROP OF DELIVERY SHOULD BE LESS THAN 10%  
a) VOLTAGE: 14V  
b) THERMAL ENVIRONMENT:  
ROOM TEMPERATURE  
c) OPERATING TIME: 1000hrs

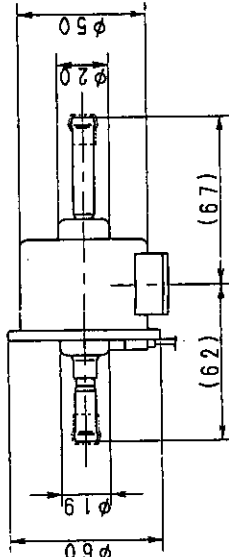
23. DRY PUMPING DURABILITY:

- a) VOLTAGE: 14V DC
- b) PATTERN: 5min ON-OFF
- c) CYCLES: 10

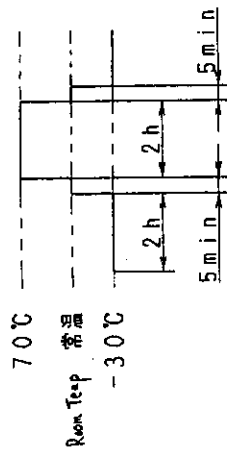
24. WATER PROOF DURABILITY TEST

- a) OPERATING IN THE AIR: 1hr } 1 CYCLE
- b) STOPPING IN THE WATER: 1hr }
- c) CYCLES: 350

**INLET**



**OUTLET**



1

NOTES FOR OPERATING FUEL PUMP

1. USE A 100 MESH FILTER (PAPER TYPE) BETWEEN PUMP AND FUEL TANK
2. FIX A PUMP INLET & OUTLET PIPES HORIZONTALLY OR VERTICALLY (OUTLET IS UP SIDE)
3. PUT A CLIP AT HOSE INSERTING PLACE
4. DON'T OPERATE WITHOUT FUEL

**YANMAR DIESEL**

PARTS NAME	FUEL FEED PUMP
PARTS CODE	119225-52102

**YANMAR DIESEL ENGINE CO., LTD.**