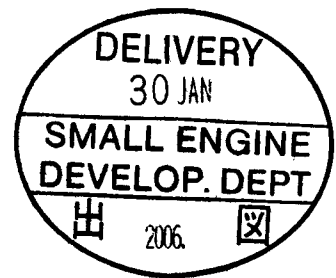


Messrs:

**3TNV88-DS**

**SPECIFICATIONS & DRAWINGS FOR MASS PRODUCTION**

23.Jan.2006



**YANMAR CO.,LTD.**

## Contents

G3-29005-0100

Drawing No.	Part No.	Name	Qty.	Remarks
B3-29005-0130		Out line		
E3-29247-0010		Wiring Diagram		Standard
Z3-19822-0450		Detail of Flywheel		
E3-29247-0020		Wiring Diagram		Option
		LOOSE PARTS		
	129004-13200	Gasket	1	
	119225-52102	Pump,Fuel Feed	1	
	119802-55700	Separator Assy	1	
	119643-66900	Diode	1	
	119650-77910	Relay	1	
	129211-77920	Timer(1s	1	
	933110-00100	Key Switch	1	
Option(Speed Controller)	119888-66161	Speed Controller	1	Option
	129247-66120	Link, Speed Controller	1	Option
Option(Panel)	119888-91102	Controll Panel	1	Option
	119888-91120	Bracket	2	Option
	119888-91026	Wire Harness	1	Option
	129150-91400	Gear Unit	1	Option
	124737-91420	Cable, Tacho	1	Option
	119946-91010	Wire Harness(Extension)	1	Option

**Note:** ①Since 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.  
 ②Electric 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.

Engine Development Dept.	
Manager	
<i>Z. Goto</i>	
Sec. Manager	
<i>K. Yamada</i>	
Checked	Drawn
<i>H. Yohara</i>	<i>M. Aket</i>

	QTY			
Customer				
Branch				
Exp. Dept.				
Copy				
Total				

Messrs:	W.No.	3TNV88-DS
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# ENGINE SPECIFICATIONS

G3-29005-0100

No	Model name	3TNV88-DSAP		Remarks	
1	Type	4 cycle, Inline, Water-cooled Diesel			
2	No. of cylinders-Bore×Stroke	mm	3-φ88×90		
3	Combustion system	Direct Injection			
4	Compression ratio	19.1			
5	Displacement	litter	1.642		
6	Rated output	kW(PS)	26.8(36.4)		
		min <sup>-1</sup>	3000		
7	Gross output	kW(PS)	28.2(38.3)		
		min <sup>-1</sup>	3000		
8	Intermediate torque	N·m	98.6~107.4		
		min <sup>-1</sup>	1800(+100/-100)		
9	Specific fuel consumption	g/kW-h(g/PS-h)	273(201)	at rated output	
10	Ambient condition	25°C, 750mmHg, 30%			
11	Engine speed at no load	Max.	min <sup>-1</sup> 3210	+25/-25	
		Min.	min <sup>-1</sup> 1000	+25/-25	
12	Governorability	Governor type	centrifugal-all speed governor		
		Temporary	%	max.12	load 100% ↓ 0%
		Permanent	%	max.7	
		Recovery time	sec	max.6	
		Stability	min <sup>-1</sup>	max.22	
Gradients	Longitudinal	deg	30(25)	intermitted	
		Lateral	deg	30(25)	( ) : continuous
14	Firing order	1-3-2-1		order from F.W.	
15	Direction of rotation	counterclockwise		viewed from F.W.	
16	Engine dry weight	kg	approx.155		
17	Fuel injection timing	deg	FIT17(+1/-1)	b.T.D.C	
18	Fuel system	Fuel type	Diesel oil		
		Fuel injection pump	Distributor type(YPD-MP2), Yanmar made		
		Fuel injection nozzle	hole type		
		Fuel filter	paper element		
19	Lubrication system	System	forced feed		
		Oil grade	SAE class CD, IPE grade 10W30		
		Oil pump	trochoid pump		
		Oil filter	paper element		
		Oil capacity	litter	6.7	max.
			litter	2.8	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-φ360		
		Coolant capacity	litter	2	

3TNV88-DS

# ENGINE SPECIFICATIONS

G3-29005-0100

No	Model name	3TNV88-DS	Remarks
21	Air cleaner	install	
22	Breather system	closed	
23	Muffler	install	
24	Starting system	Starter	12V-1.7KW
		Battery	75D31
		Starting aid	air heater 400W
25	Generator	12V-40A	
26	Engine color	Silver	
27	Applied regulation	EPA, ARB-OR, EC	

< Career >

Messrs:	W.No.	3TNV88-DS
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3TNV88-DS

## NV2 Series Power Pack Spec(Standard/Option)

### 3TNV88

Model Name	Standard/Option	Radiator	Engine Foot	Air Cleaner	Silencer	Speed Controller	Panel	Electric
3TNV88-GA	Standard	○	○	○	○			○
3TNV88-GAC	Option 1	○	○	○	○	○		○
3TNV88-GAP	Option 2	○	○	○	○		○	
3TNV88-GACP	Option 3	○	○	○	○	○	○	

Model Name	Standard/Option	Radiator	Engine Foot	Air Cleaner (FW)	Silencer	Speed Controller	Panel	Electric
3TNV88-GB	Standard	○	○	○				○
3TNV88-GBS	Option 1	○	○	○	○			○
3TNV88-GBSC	Option 2	○	○	○	○	○		○
3TNV88-GBSP	Option 3	○	○	○	○		○	
3TNV88-GBSCP	Option 4	○	○	○	○	○	○	
3TNV88-GBC	Option 5	○	○	○		○		○
3TNV88-GBCP	Option 6	○	○	○		○	○	
3TNV88-GBP	Option 7	○	○	○			○	

Model Name	Standard/Option	Radiator	Engine Foot	Air Cleaner	Silencer	Speed Controller	Panel	Electric
3TNV88-DS	Standard	○	○	○	○			○
3TNV88-DSC	Option 1	○	○	○	○	○		○
3TNV88-DSP	Option 2	○	○	○	○		○	
3TNV88-DSCP	Option 3	○	○	○	○	○	○	

-GA .....Open type Generator -GB .....Silent type Generator -DS ..... Indust Pack

Model Name

Example: 3TNV88-GB S C P

Silencer      Speed Controller      Panel

# NV2 Series Power Pack Parts List

○ : Standard    △ : Option

※ : Loose Parts

Parts name	Parts Code	Qty	3TNV88			4TNV88		
			GENE-A	GENE-B	INDUS-P	GENE-A	GENE-B	INDUS-P
Radiator ASSY A			○	○	○			
Radiator ASSY B						○	○	
Radiator ASSY C								○
Radiator	129044-44500	1	○	○	○			
Radiator	129601-44500	1				○	○	
Radiator	129508-44501	1						○
Fan Guard	129601-44560	1	○	○	○	○	○	○
Rubber Bush	119255-44660	2	○	○	○	○	○	○
Bracket A (Radiator	129247-44950	2	○	○	○	○	○	○
Bracket B (Radiator	129247-44960	1	○	○	○	○	○	○
Bracket C (Radiator	129247-44970	1	○	○	○	○	○	○
Bracket D (Radiator	129247-44980	1	○	○	○	○	○	○
Bracket E (Radiator	129247-44990	1	○	○	○	○	○	○
Stay A (Radiator	129247-44910	1	○	○	○	○	○	○
Stay B (Radiator	129247-44920	1	○	○	○	○	○	○
Stay C (Radiator	129247-44930	2	○	○	○	○	○	○
CW-T(A	129602-49010	1	○	○	○	○	○	○
CW-T(B	129612-49040	1	○	○	○	○	○	○
Sub Tank	124450-44510	1	○	○	○	○	○	○
Bracket(Sub Tank	121256-44600	1	○	○	○	○	○	○
Band(Sub Tank	124450-44550	1	○	○	○	○	○	○
Screen(Radiator	129247-44800	1	○	○	○	○	○	○
Cover(V-Belt	129247-42800	1	○	○	○	○	○	○
Pipe (Sub Tank	170004-49160	1	○	○	○	○	○	○
Drain Pipe	121520-49160	1	○	○	○	○	○	○
Hose Clip	124766-59050	3	○	○	○	○	○	○
Label(Yanmar	129247-07000	1	○	○	○	○	○	○

Air Cleaner ASSY			○		○			
Air Cleaner ASSY (FW side				○				
Air Cleaner ASSY						○		○
Air Cleaner ASSY (FW side							○	
Air Cleaner 5inch	119802-12500	1	○		○			
Air Cleaner 5inch	129247-12500	1		○				
Air Cleaner 6inch	129601-12500	1				○		○
Air Cleaner 6inch	129647-12500	1					○	
Intake Hose 5inch	119910-12210	1	○		○			
Intake Hose 5inch	129247-12600	1		○				
Intake Hose 6inch	129642-12550	1				○		○
Intake Hose 6inch	129647-12600	1					○	
Braket (Air Cleaner	119802-12560	1	○		○			
Braket (Air Cleaner	129647-12550	1		○			○	
Braket (Air Cleaner	129508-12560	1				○		○
Air intake bend	171340-77520	1	○	○	○	○	○	○

Silencer ASSY (Low			○	※△				
Silencer ASSY (High					○			
Silencer ASSY (Low						○	※△	
Silencer ASSY (High								○
Silencer	129004-13550	1	○	△				
Silencer	129004-13500	1			○			
Silencer	129601-13550	1				○	△	
Silencer	129601-13500	1						○
Tail Pipe (3cyl	129005-13600	1	○	△	○			
Tail Pipe (4cyl	123925-13600	1				○	△	○
Gasket	129004-13200	2	○	△	○			
Gasket	129930-13201	2				○	△	○

Engine Foot ASSY			○	○	○	○	○	○
Engine Foot A	129188-08100	2	○	○	○	○	○	○
Engine Foot B	119888-08110	2	○	○	○	○	○	○

# NV2 Series Power Pack Parts List

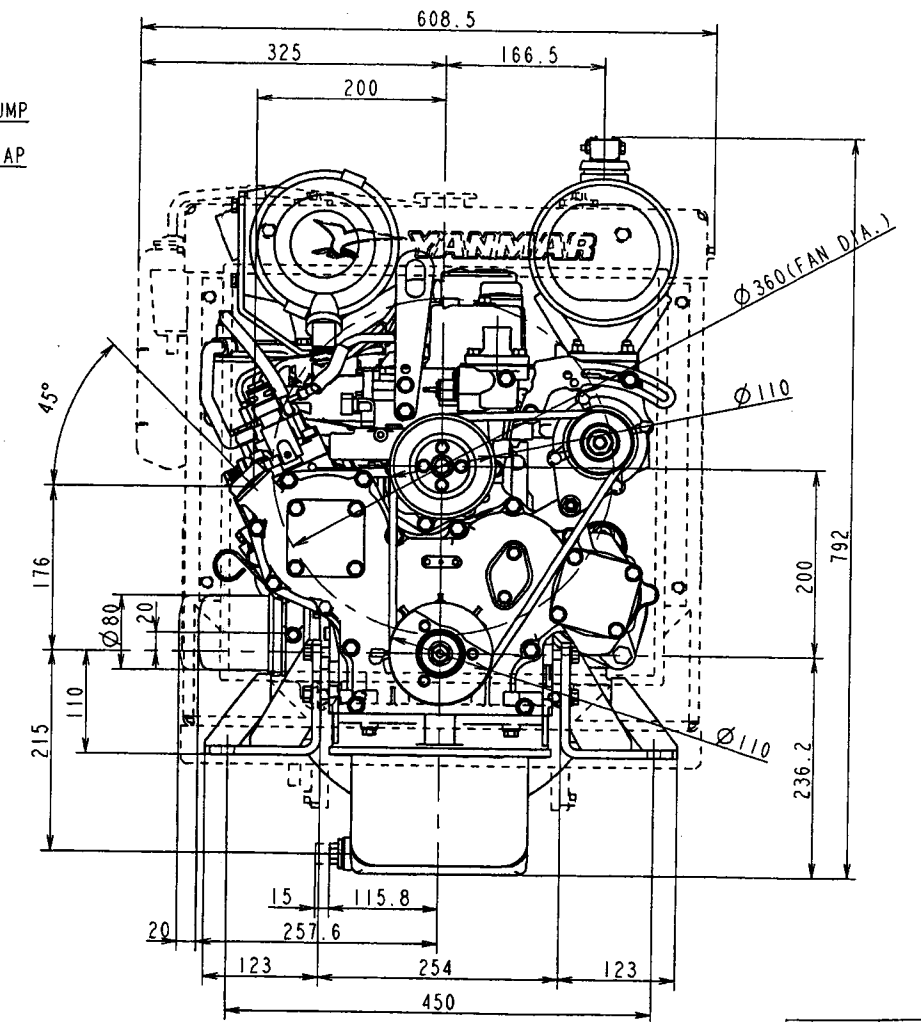
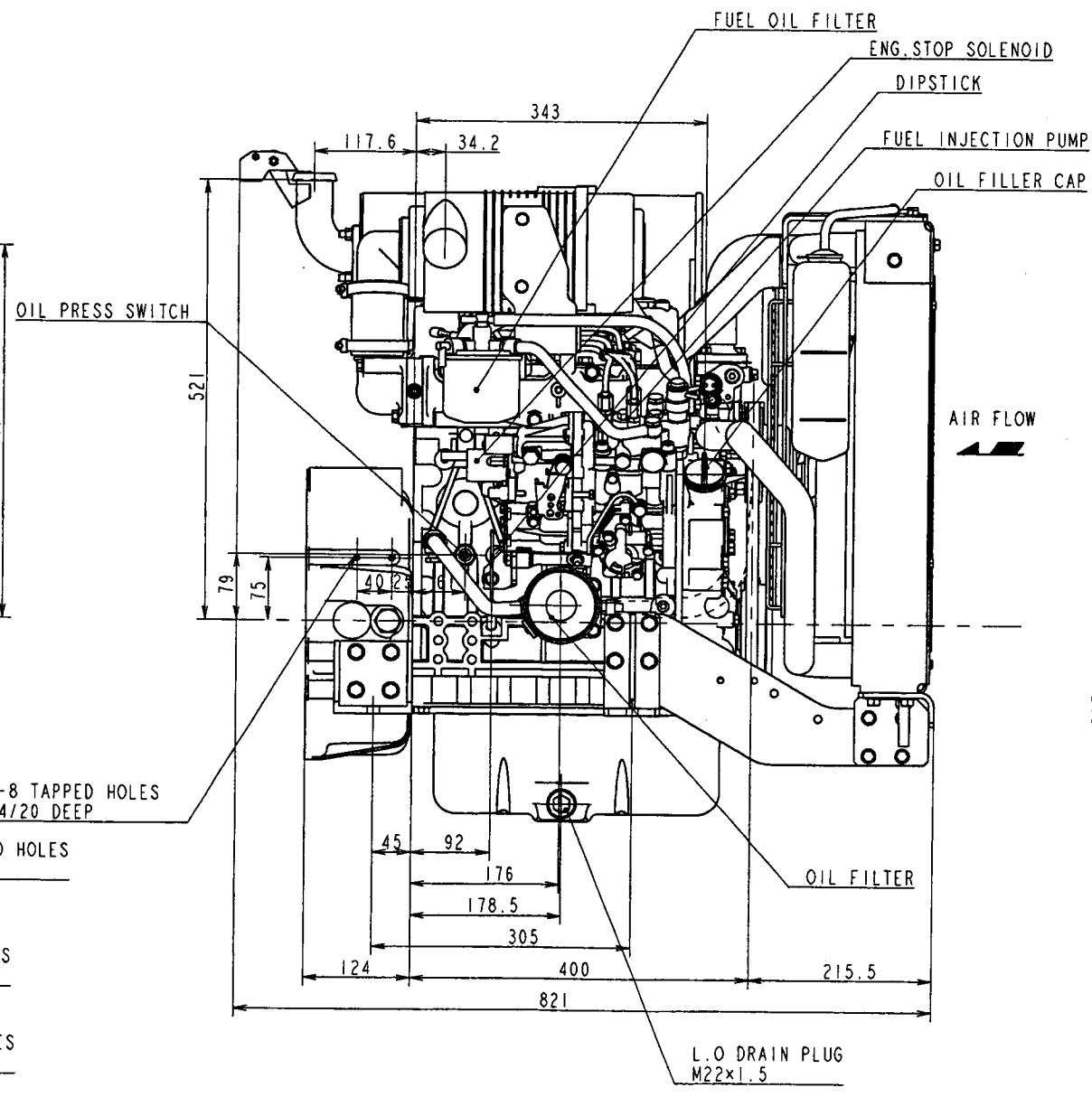
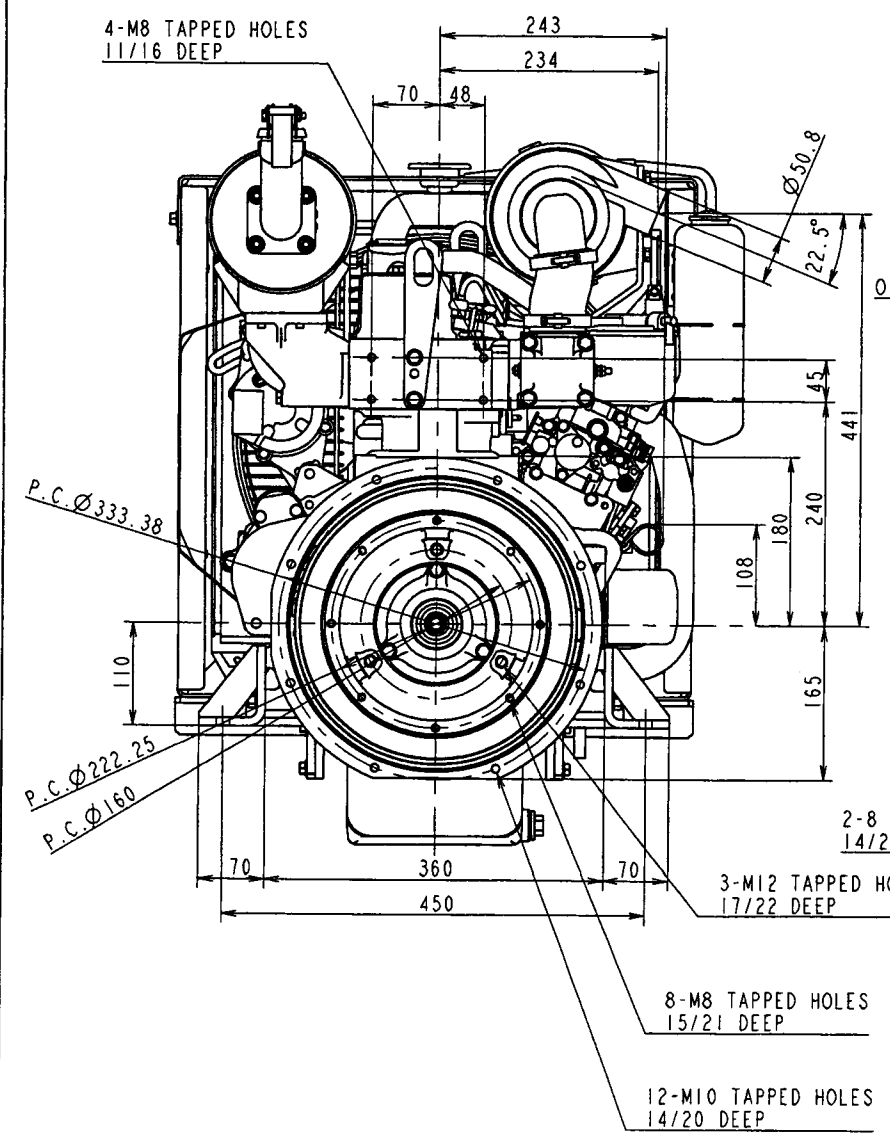
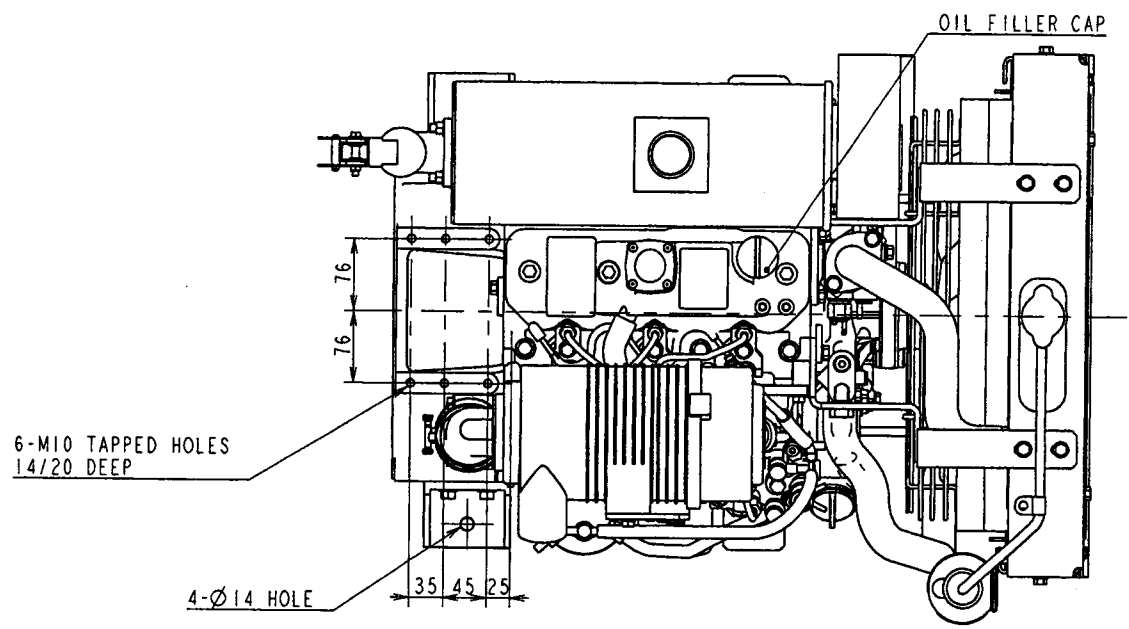
○:Standard    △:Option

※:Loose Parts

Parts name	Parts Code	Qty	3TNV88			4TNV88		
			GENE-A	GENE-B	INDUS-P	GENE-A	GENE-B	INDUS-P
Speed Controller ASSY			△	△	△			
Speed Controller ASSY						△	△	△
Speed Controller	119888-66161	1	△	△	△	△	△	△
Link, Speed Controller	129247-66120	1	△	△	△			
Link, Speed Controller	129647-66120	1				△	△	△

Electric ASSY			※○	※○	※○	※○	※○	※○
Diode	119643-66900	1	○	○	○	○	○	○
Relay	119650-77910	1	○	○	○	○	○	○
Timer(1s	129211-77920	1	○	○	○	○	○	○
Key Switch	933110-00100	1	○	○	○	○	○	○

Panel ASSY			※△	※△		※△	※△	
Panel ASSY					※△			※△
Controll Panel	119888-91302	1	△	△		△	△	
Controll Panel	119888-91102	1			△			△
Bracket	119888-91120	2	△	△	△	△	△	△
Wire Harness	119888-91026	1	△	△	△	△	△	△
Gear Unit	129150-91400	1	△	△	△	△	△	△
Cable, Tacho	124737-91420	1	△	△	△	△	△	△
Wire Harness(Extension)	119946-91010	1	△	△	△	△	△	△



3D-CAD

NOTICE

REVISIONS

DATE

DESCRIPTION

BY

CHECKED

DATE

DESCRIPTION

BY

CHECKED

DATE

DESCRIPTION

BY

CHECKED

DATE

DESCRIPTION

BY

CHECKED

DATE

DESCRIPTION

WEIGHT (RAW)	kg (± 2)	SEC. MANAGER	MODEL	3TNV	SCALE	1:4	
WEIGHT (CALC.)	kg (± 2)	<i>R. yoko</i>	88-DS		MATERIAL		
CHECKED	SPECIALIST	QTY	1				
DESIGNED	明井	DATE: Y.M.D	2006.1.23				
<b>YANMAR</b>				CODE	B3-29005-0130	DRW. SIZE	A1
YANMAR CO., LTD. ENGINE PRODUCT OPERATIONS DIV.							



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

PRE-HEATING	○	○	○	○
OFF	○	○	○	○
ON	○	○	○	○
START	○	○	○	○

KEY SW. DIAGRAM

形状寸法コード \_\_\_\_\_ G.T.CODE \_\_\_\_\_  
真円度・円筒度八、半径法

面来歴 CAREER  
(2006.1.23) NEW RELEASE OF DRAWING (YDSTX-06006)

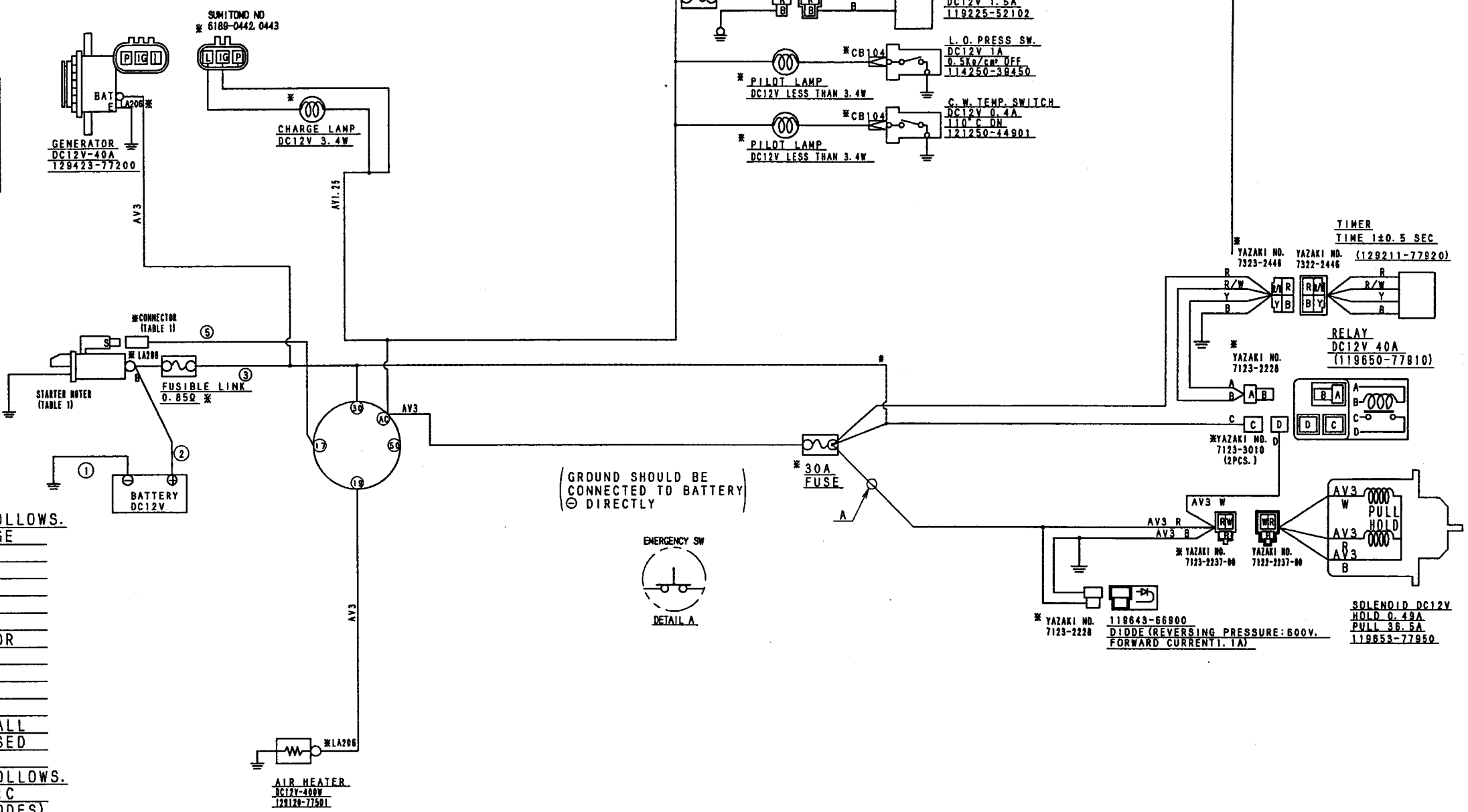
TABLE 1

MODEL	STARTER	STARTER S TERMINAL CONNECTOR
3TNV88	DC12V-1.2kW -GA, GB	129129-77010 YAZAKI 7116-3060 (TERMINAL) 7123-3215-60 (TERMINAL HOUSING)
4TNV88	DC12V-1.4kW -GA, GB	129407-77010 YAZAKI 7116-2033 (TERMINAL) 7123-2010 (TERMINAL HOUSING) or AMP 170234 (TERMINAL) 171809-2 (TERMINAL HOUSING)
3TNV88	DC12V-1.7kW -DS	129242-77010 LA204
4TNV88	DC12V-2.3kW -DS	129136-77011 LA204

NOTES

- WIRING OF STARTER MUST BE OBSERVED AS FOLLOWS. OTHERWISE IT CAUSES MIS-STARTING OR DAMAGE OF STARTER MOTOR.
  - 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 (③-⑤) SHOULD BE LESS THAN 5/1000Ω. REFERENCE OF TERMINAL RESISTANCE: 15/1000Ω PER COUPLER, 0Ω PER SCREW SETTING
  - 1-3. BATTERY EARTH CABLE (①) CONNECTION SHALL BE ENSURED. PAINTED SURFACE MAY NOT BE USED (FOR EARTHING) AVOIDING THE MISS CONTACT.
- 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.
- 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.
- 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".

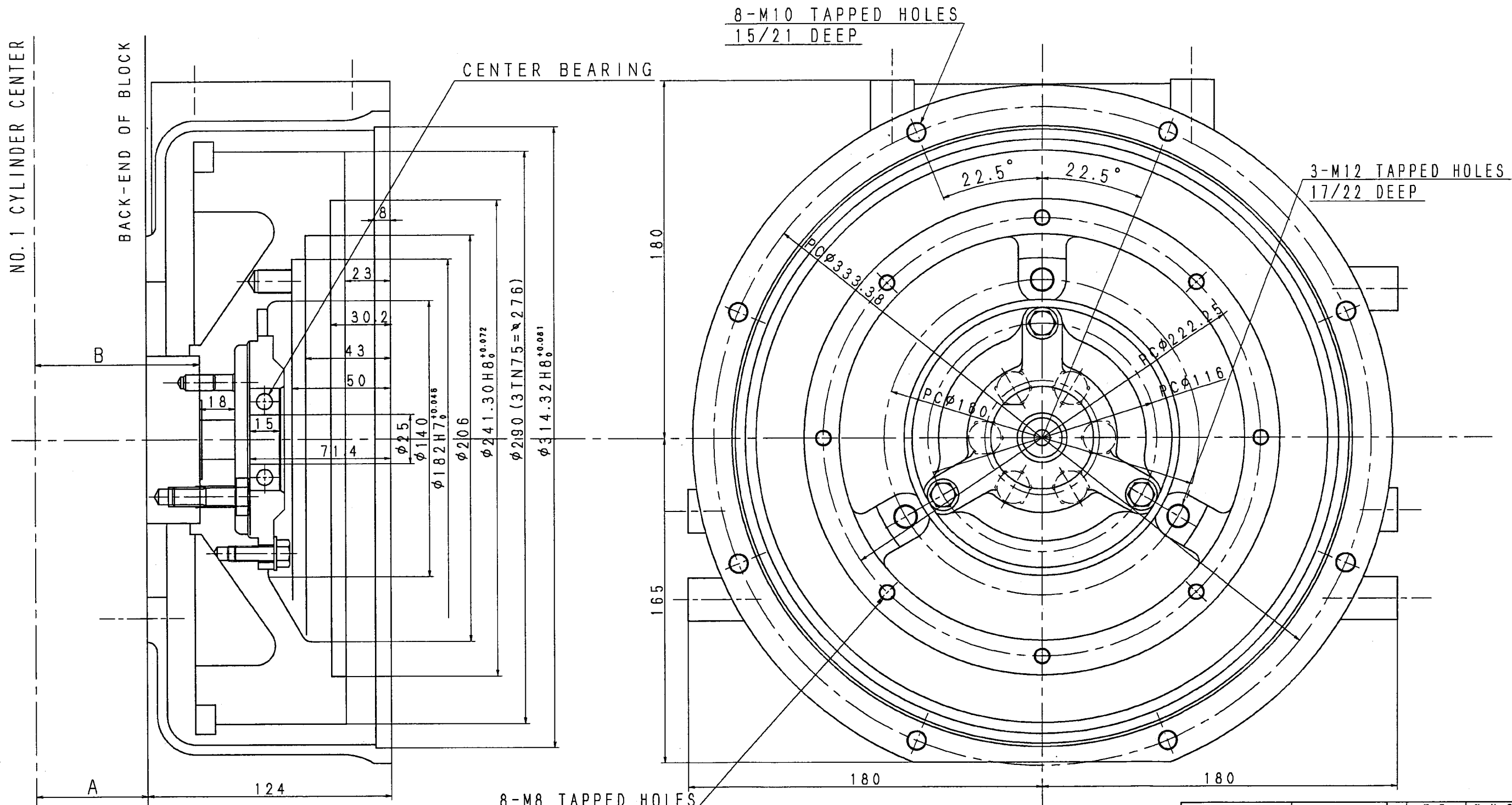
REMARKS  
1. \* MARKED PARTS ARE NOT PROVIDED BY YANMAR.



NOTES FOR ENGINE STOP SOLENOID

- 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 #
- 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℃)
- INSTALL FUSE TO PROTECT THE HARNESS AGAINST TROUBLES SUCH AS SHORT CIRCUIT OR CONTINUOUS DRIVE OF PULL-COIL.
- 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.)
- IN CASE OF WATERPROOF CONNECT OR APPLICATION, CONNECTOR SHOULD BE FIXED BY FITTING TO PREVENT LEAD WIRE BREAK.
- IN CASE OF EMERGENCY STOP OF MACHINE FOR SAFETY WILL BE APPLIED, SWITCH LOCATION SHOULD BE SHOWN AS A.
- IN CASE OF THE SOLENOID CIRCUIT RESISTANCE WOULD BE LIMIT, # WIRING IS APPLICABLE.

素材質量 WEIGHT (RAW) (±%)	(±%)	水圧試験 HYDRAULIC TEST (MPa)	MPa	小形工閉発部	部長 G. MANAGER	技部長 MANAGER	J. Seto
完成質量 WEIGHT (組立後) (±%)	(±%)	空圧試験 PNEUMATIC TEST (MPa)	MPa	機種 MODEL	3TNV 88-GA, GB	4TNV 88-GA, GB	4TNV 88-DS
主部	長. MANAGER S. Yamada	個数 DTY.	1 1 1 1	尺 度 SCALE	SCALE OUT		
検 査 CHECKED	機能担当者 SPECIALIST H. Yokoi	材 質 MATERIAL		WIRING DIAGRAM			
設 計 DESIGNED	製 図 DRAWN	年 月 日 DATE	2006.1.23	WIRING DIAGRAM			
M. Akei   I. Kondo				YANMAR CO., LTD.			
				ENGINE PRODUCT OPERATIONS DIV.			
				コード CODE	E3-29247-0010 (C)		



重要度	○
種類	記号
真直度	—
真円度	○
線形	—
平面度	□
円筒度	○
圓形	—
平行度	//
直角度	⊥
傾斜度	∠
位置度	⊕
同軸度	◎
対称度	≡
円筒歪み	∩
全幅公差	∕

MODEL	DIMENSION A	DIMENSION B	FLYWHEEL HOUSING	FLYWHEEL	RING GEAR
3TNE68	49	71	119280-01600	119688-21400	119865-21600
3TNE74	43	75	↑	↑	↑
3TNE78A, 82A	56	83.5	119888-01600	119888-21400	↑
3TNE84, 88	61	88	↑	129188-21400	↑
4TNE84 (T), 88	61	88	↑	129488-21400	↑
3TNV82A	56	83.5	↑	129488-21400	↑
3TNV84T, 88	61	88	↑	129188-21400	↑
4TNV84 (T), 88	61	88	↑	129488-21400	↑

8-M8 TAPPED HOLES  
14/20 DEEP

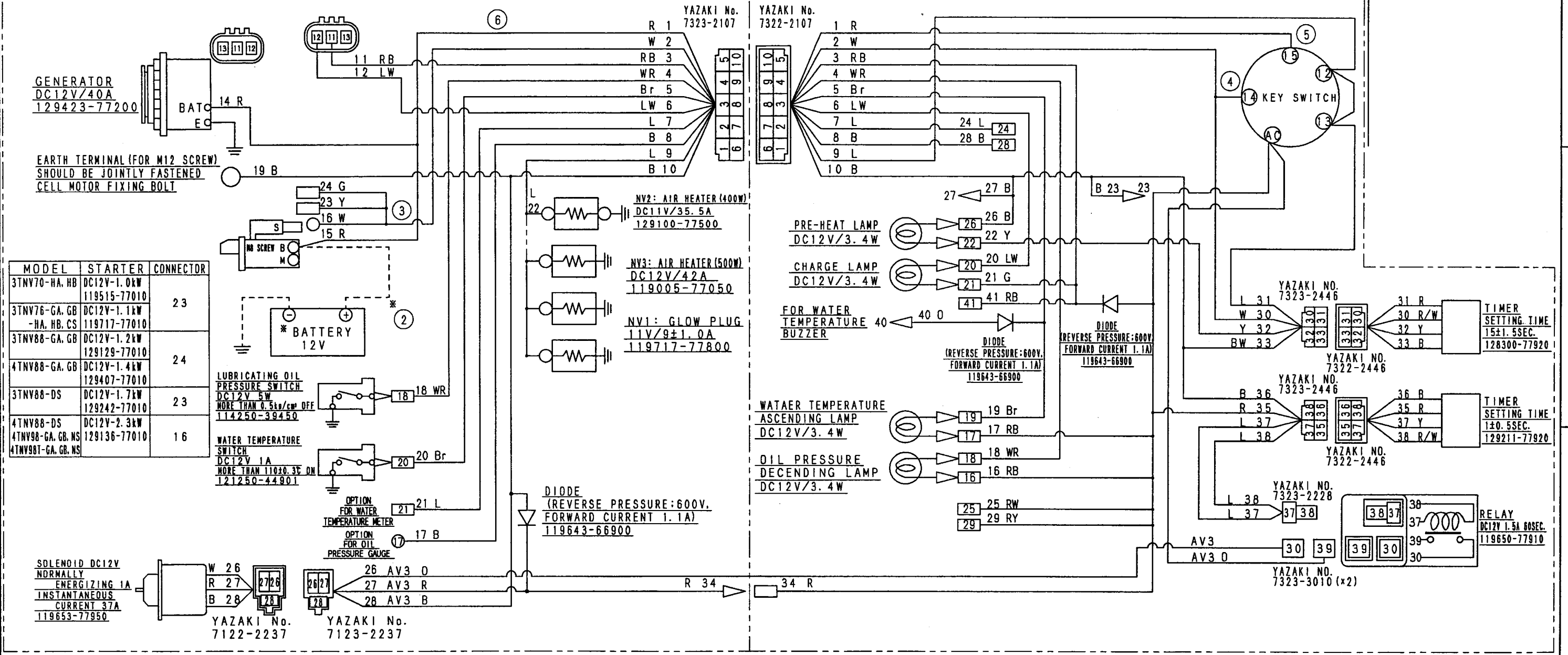
素材質量 WEIGHT (RAW)	(注 別)
完成質量 WEIGHT (組立時)	(注 別)
承認 SEC. MANAGER <i>R. Honda</i>	承認 CAREER Rev. 1 (Feb. 20. 2004) Add TNV DI
検閲 CHECKED <i>K. Yokoi</i>	機能担当者 SPECIALIST
設計 DESIGNED <i>T. Saeki</i>	製図 DRAWN <i>S. Matsuda</i>
年月日 DATE 2004 2. 20	YANMAR DIESEL ENGINE CO., LTD. ENGINE DEVELOPMENT DEPT.

水圧試験 HYDRAULIC TEST ( MPa ) ( kg/cm <sup>2</sup> )	MPa	エンジン開発部	部長 G. MANAGER	部長 MANAGER <i>T. Maki</i>
空圧試験 PNEUMATIC TEST ( MPa ) ( kg/cm <sup>2</sup> )	MPa	数量 QTY.	スケール SCALE	1/2
機種 MODEL	TNE DI 1	TNE DI 1	TNV DI 1	材質 MATERIAL
名称 NAME	DIMENSIONS OF COUPLING 直結部詳細部			
コード CODE	Rev. 1	23-19822-0450	図面サイズ A3 (B)	

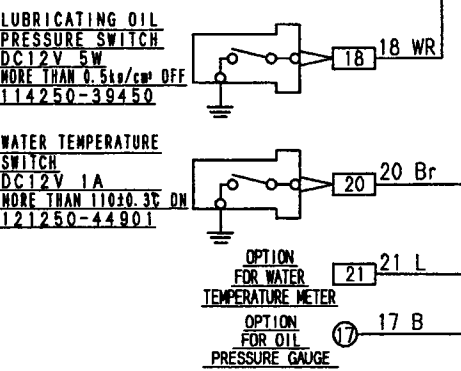
(WIRE HARNESS 119888-91026)

INSTRUMENT PANEL ASSY (WIRE HARNESS 119888-91032)

☆119946-91010

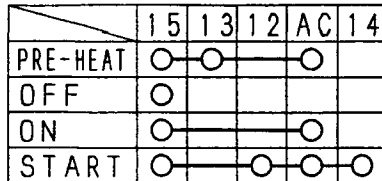


MODEL	STARTER	CONNECTOR
3TNV70-HA, HB	DC12V-1.0kW	23
3TNV76-GA, GB -HA, HB, CS	DC12V-1.1kW	
3TNV86-GA, GB	DC12V-1.2kW	24
4TNV88-GA, GB	DC12V-1.4kW	
3TNV88-DS	DC12V-1.7kW	23
4TNV88-DS	DC12V-2.3kW	
4TNV98-GA, GB, NS	DC12V-2.3kW	16
4TNV98T-GA, GB, NS	DC12V-2.3kW	



L	BLUE	Y	YELLOW
R	RED	W	WHITE
Br	BROWN	G	GREEN
B	BLACK	O	ORANGE

WIRE COLOR



KEY SWITCH CONNECTION TABLE

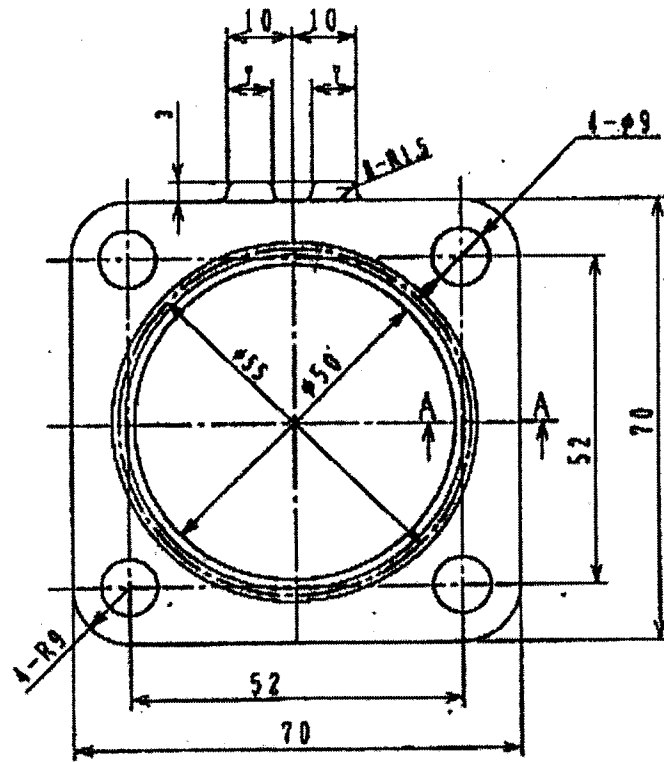
REMARKS

- \* MARKED INSTRUMENTS, WIRING AND TERMINAL FOR WIRING ARE NOT PROVIDED BY YANMAR.
- TOTAL RESISTANCE OF BATTERY CABLE ①, ② SHOULD BE LESS THAN 2/1000Ω.  
REFERENCE VALUE AV15: LESS THAN 1.6m  
AV20: LESS THAN 2.2m  
AV30: LESS THAN 3.3m  
AV38: LESS THAN 4.2m
- TOTAL RESISTANCE OF STARTER CABLE ③ - ⑥ SHOULD BE LESS THAN 5/100Ω.
- TERMINAL RESISTANCE SHOULD BE 15/1000Ω PER A COUPLER. SCREW LOCK SHOULD BE 0Ω.
- TOTAL RESISTANCE OF SOLENOID CIRCUIT SHOULD BE LESS THAN 5/100Ω.

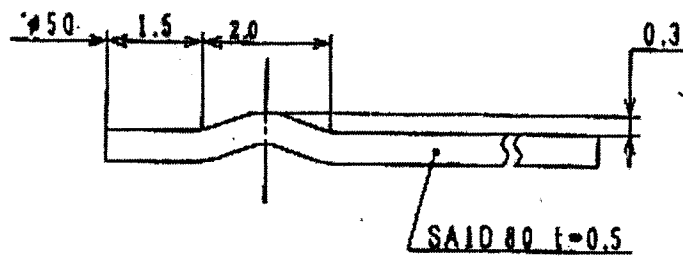
NOTES

- BE CAREFUL TO ERRONEOUS OPERATIONS ON POWER SUPPLY SIDE BECAUSE THIS ELECTRICAL UNIT WIRING & HARNESS DOES NOT INCLUDE PROTECTIVE CIRCUIT AGAINST THE FOLLOWING ERRONEOUS OPERATION ON POWER SUPPLY SIDE.  
(a). REVERSE CONNECTION OF BATTERY.  
(b). REMOVING BATTERY WHILE OPERATING  
(c). CUTTING BATTERY SWITCH OFF WHILE OPERATING (IN CASE OF BATTERY SWITCH ON)
- IN EACH ELECTRICAL UNIT, IT SHOULD BE PREPARED FLYWHEEL DIODE FOR COIL LOAD COMPONENT AND REVERSE PREVENTIVE DIODE FOR CAPACITOR LOAD COMPONENT.
- CHECK ANY SURGE CURRENT OR VOLTAGE OCCURED UNDER NORMAL OPERATIONS AND EXPECTIVE ERRONEOUS OPERATIONS, AND CONFIRM THE CIRCUIT NO SURGE OCCURS.
- BATTERY EARTH SHOULD BE SURELY ENFORCED. (PLEASE AVOID EARTH ON PAINTED SURFACE BECAUSE IT CAUSES DEFECT OF PASSAGE.)
- UNUSED TERMINAL SHOULD BE INSULATED BY VINYL TAPE etc.
- \* MARKED PART. USE IT IF NECESSARY.

素材質量 WEIGHT (RAW)	(± %)	水圧試験 HYDRAULIC TEST	MPa	小形工 MANAGER	技部長 MANAGER
完成質量 WEIGHT (組立)	(± %)	空圧試験 PNEUMATIC TEST	MPa	7. Seto	
主席 CHECKED	長 SEC. MANAGER H. Yokoi	機種 MODEL	TNV	尺度 SCALE	1/1
設計 DESIGNED	製図 DRAWN	年月日 DATE	名称 NAME	WIRING DIAGRAM	
M. AKEI	I. KONDO	2006 1.23	WIRING DIAGRAM	WIRING DIAGRAM	
YANMAR CO., LTD.			ENGINE PRODUCT OPERATIONS DIV.		
			コード CODE	E3-29247-0020	



A-A 10:1



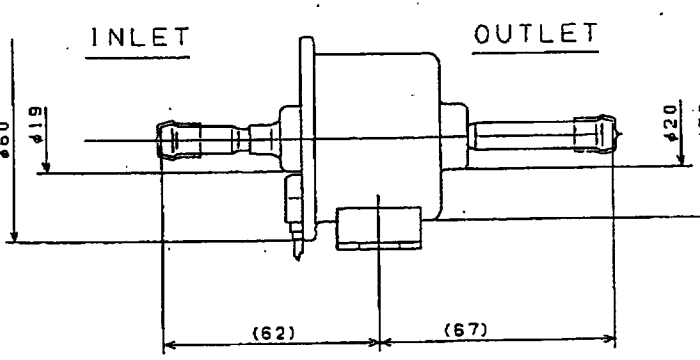
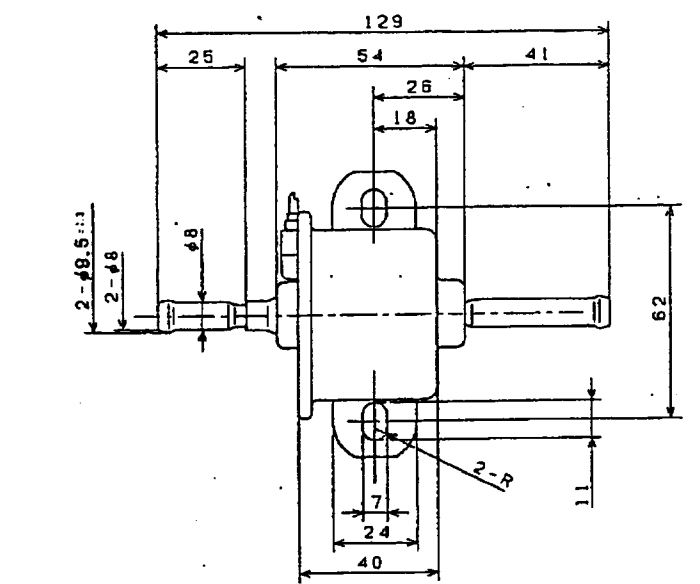
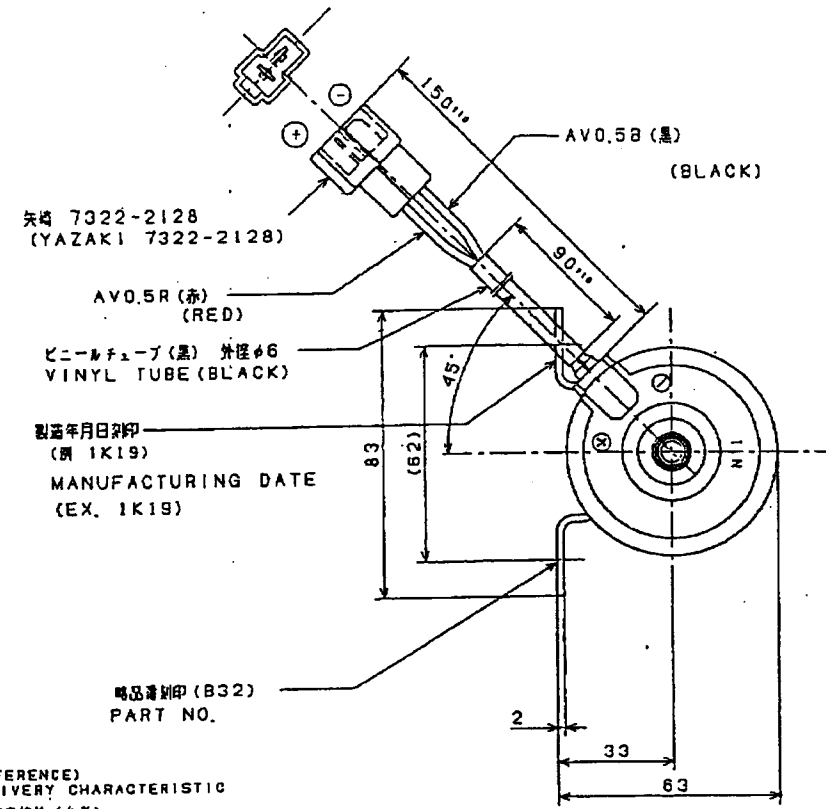
YANMAR CO., LTD	
部品名称 PART	Gasket,Silencer
PART No.	129004-13200

3D-CAD

- NOTES FOR OPERATING FUEL PUMP
- 1 USE A 25μM 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
  - 5 CLAMP THE LEAD WIRE FIXEOLY

- 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 DC
  - 3 OPERATING CURRENT: MAX 1.5A
  - 4 DELIVERY: MIN 400cm<sup>3</sup>/min AT FREE FLOW (9.8kPa TOTAL PRESSURE)
  - 5 TOTAL PRESSURE (DELIVERY + SUCTION)  
: 21.5~37.3kPa AT ZERO DELIVERY
  - 6 SUCTION PRESSURE AT DRY CONDITION  
: MAX -4.0kPa  
(REFERENCE AT WET CONDITION: MAX -8kPa)
  - 7 AIR TIGHTNESS: SHOULD HAVE NO LEAKAGE UNDER A PRESSURE OF 98kPa APPLIED TO INLET AND OUTLET FOR 15 SECONDS
  - 8 OPERATING TEMP. RANGE: -30~70C
  - 9 TEST FUEL: JIS K2203 OR K2201
  - 10 FIXING DIRECTION FOR TEST: INLET & OUTLET PIPES HORIZONTALLY
  - 11 MASS: 305g
  - 12 SURFACE TREATMENT: ZINCIFICATION

- AFTER EACH TEST (NO. 13~23) AS FOLLOWS, PUMP MUST OPERATE NORMALLY
- 13 VIBRATION: JIS D1601 5.3(1) STEP110  
ACCELERATION: 110m/s<sup>2</sup>  
FREQUENCY: 87Hz  
OPERATING TIME: 4h (VERTICAL)  
2h (LATERAL)  
2h (LONGITUDINAL)
  - 14 WATER PROOF: JIS D0203 D1  
SHOULD BE NO WATER INSIDE OF PUMP
  - 15 THERMAL SHOCK:  
a) PATTERN: SEE FIG 1  
b) CYCLES: 4
  - 16 THERMAL RESISTANCE:  
PATTERN: 70°C 240h AND -20°C 240h
  - 17 HIGH TEMP. PERFORMANCE:  
a) VOLTAGE: 14V DC  
b) FUEL TEMP.: 50C  
c) ENVIRONMENT TEMP.: 70C  
d) OPERATING TIME: 96h
  - 18 FALLING TOUGHNESS:  
FALL FROM 300mm HEIGHT TO THE CONCRETE
  - 19 SURGE VOLTAGE: JASO D001<sup>22</sup> A-1, 2 B-1, 2 ALL
  - 20 REVERSALY VOLTAGE APPLYING:  
JASO D001<sup>22</sup>, 13V DC FOR 1min
  - 21 DURABILITY TEST: AFTER TEST AS FOLLOWS, DROP OF DELIVERY SHOULD BE LESS THAN 10%  
a) VOLTAGE: 12V DC  
b) THERMAL ENVIRONMENT: ROOM TEMPERATURE  
c) OPERATING TIME: 1000h
  - 22 DRY PUMPING DURABILITY:  
a) VOLTAGE: 14V DC  
b) PATTERN: 5min ON-OFF  
c) CYCLES: 10
  - 23 WATER PROOF DURABILITY TEST  
a) OPERATING IN THE AIR: 1h  
b) STOPPING IN THE WATER: 1h } 1 CYCLE  
c) CYCLES: 350
  - 24 THIS PART IS EQUIVALENT BOSCH No. 376-02000



(REFERENCE) DELIVERY CHARACTERISTIC  
② 流量特性 (参考)

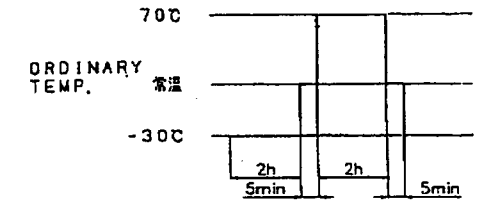
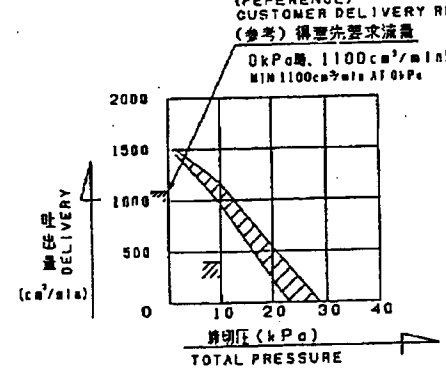
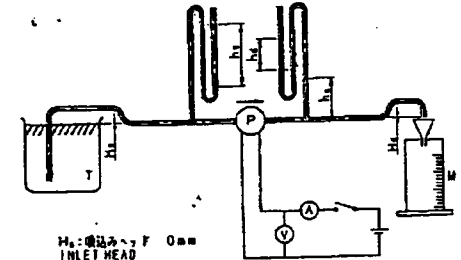


図 1 (FIG 1)

MEASUREMENT PIPING OF MINIMUM TOTAL PRESSURE  
③ 最低全圧測定配管図

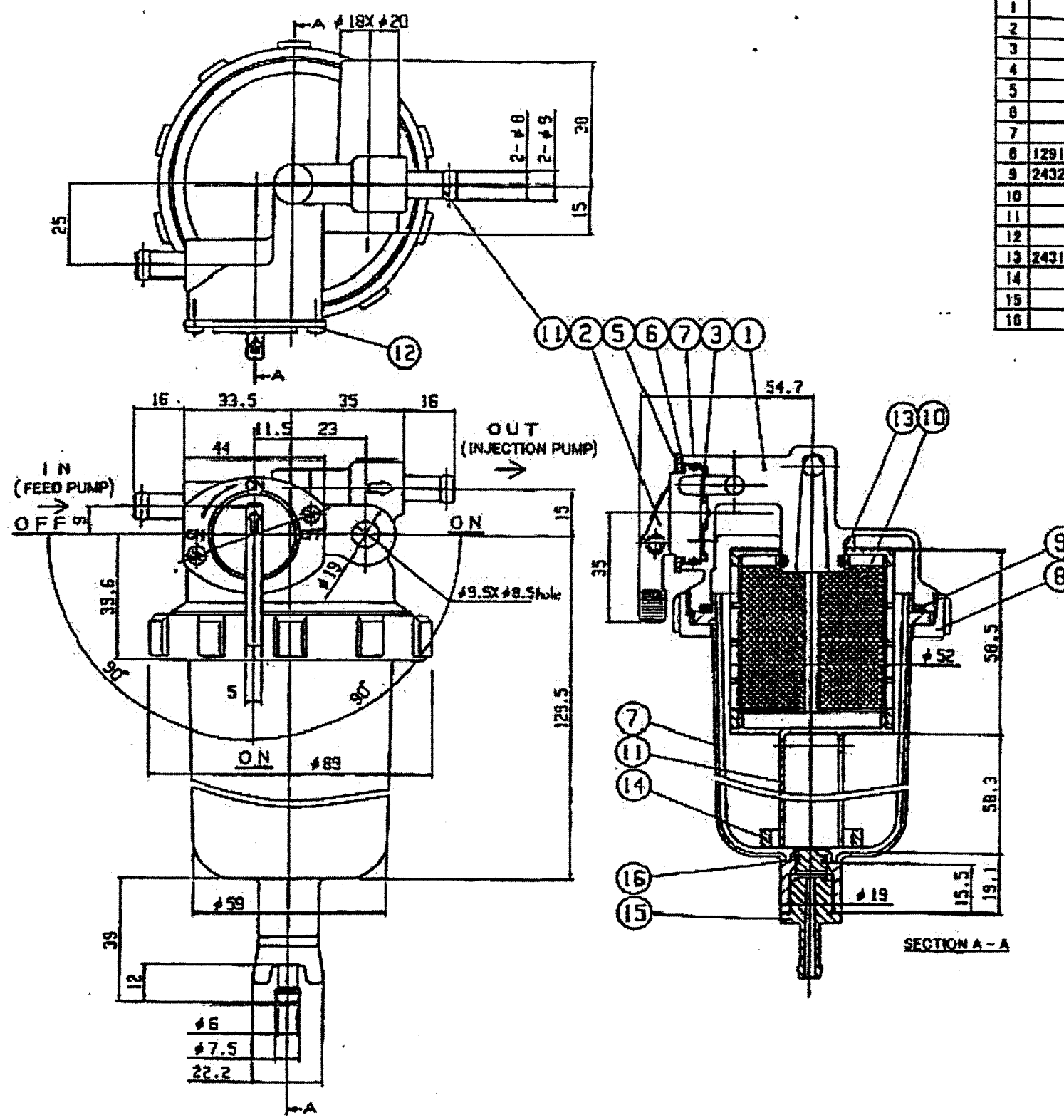


- H<sub>1</sub>: 吸込ヘッド INLET HEAD
- H<sub>2</sub>: 吐出ヘッド OUTLET HEAD
- 吸込管径 150mm INLET PIPE
- 吐出管径 15mm OUTLET PIPE
- 管内径: 8mm PIPE INSIDE DIAMETER
- h<sub>1</sub>: 吸込圧力 INLET PRESSURE
- h<sub>2</sub>: 吐出圧力 OUTLET PRESSURE
- h<sub>3</sub>: 吐出圧力修正値 OUTLET PRESSURE MODIFY
- P: 燃料ポンプ FUEL PUMP
- T: 燃料タンク FUEL TANK
- M: 計量器 METER
- S: 吸込圧力計 INLET MANOMETER
- V: 吐出圧力計 OUTLET MANOMETER

FUEL FEED PUMP  
フィードポンプ

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

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	24321-000850	IA-9	O RING	NBR	1	G85
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-5-8	O RING	NBR	1	P18
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

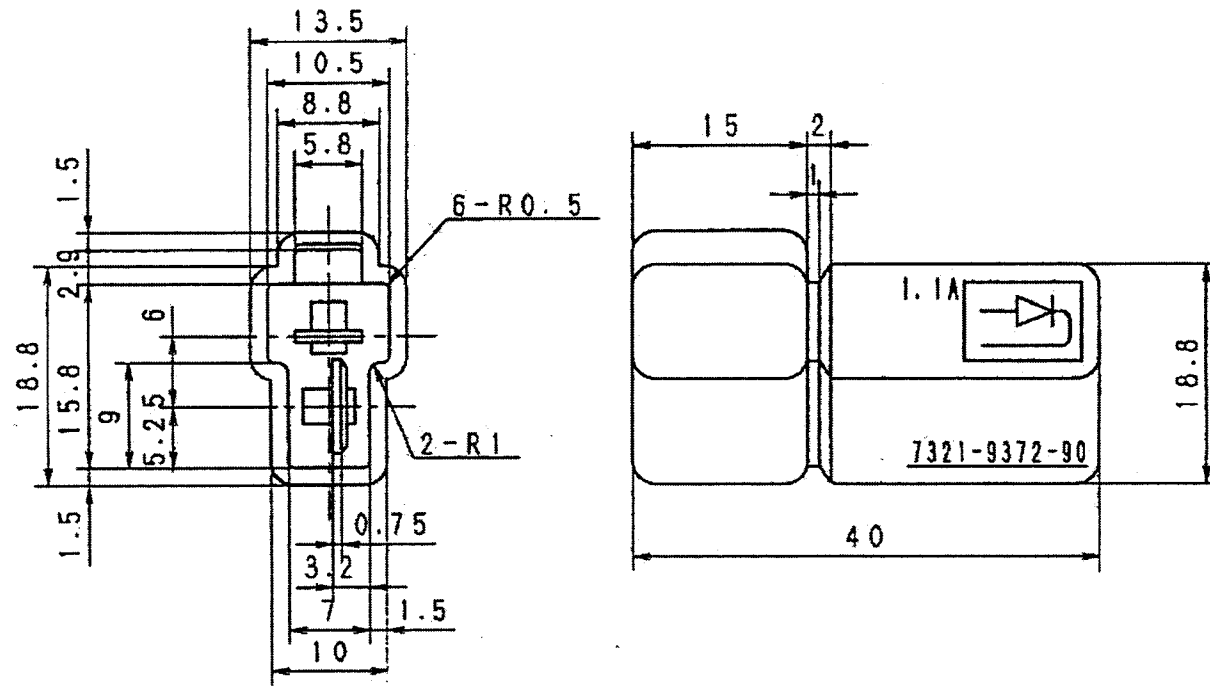
SPECIFICATION		
ITEM	CONDITION	STANDARD
AIR TIGHTNESS	AIR PRESSURE (100MPa X 1.0kg/cm <sup>2</sup> )	NO LEAKAGE
FLOW RATE		
LEVER OPERATION TORQUE	AFTER OPERATING A FEW TIMES	LESS THAN 0.7N·m (7kg·cm)
ADAPTIVE FUEL		LIGHT OIL, YANMAR HEAVY OIL
ADAPTIVE TEMPERATURE RANGE		-20°C ~ 80°C
LEVER OPERATION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

**NOTE**

- ASSEMBLE AND APPLY DIAMOND GREASE TO RING NUT SCREW.  
TIGHTNING TORQUE: 15 N·m (150±50 kg·cm)
- FORGE FIT AFTER APPLYING ADHESIVE (THREE BOND 1300) TO JOINT.  
DRAFT LOAD: MORE THAN 4 N·m (40kg)
- ELEMENT SPECIFICATIONS  
FILTRATION AREA: MORE THAN 57cm<sup>2</sup>  
OPENING: 152μ
- COUNTER VIBRATION: 8G: 50Hz
- CAPACITY OF WATER-OIL SEPARATOR: MORE THAN 150cc
- TO BE FREE FROM FOREIGN MATTERS AND GARBIS IN FUEL LINE.
- INDICATED DETAIL OF DATE OF MANUFACTURE (ex.) 2001.5.14 (M15)

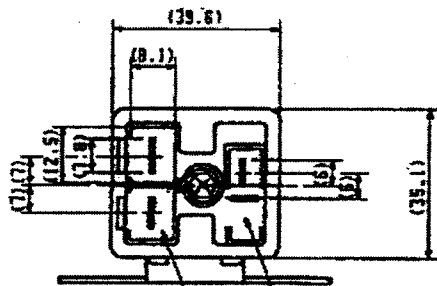
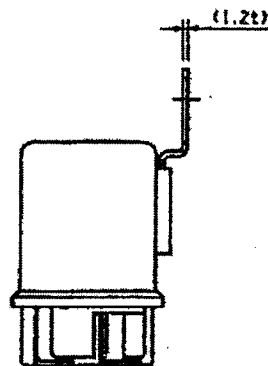
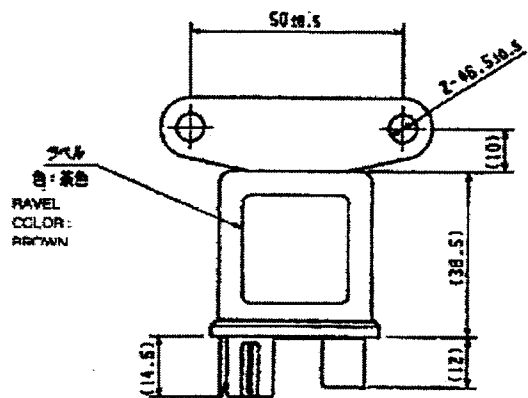
DAY 1-28, 27, 28, 29, 30, 31 YEAR 0-9 MONTH 1-9, 10, 11, 12  
(A-Z) (a) (b) (c) (d) (e) THE END OF NUMBER OF THE YEAR (1~9) (0) (N) (D)

YANMAR CO., LTD	
部品名称 PART NAME	WATER SEPARATOR
PART No.	119802-55700



Mate coupler : 7123-2228  
Mate terminal : 7116-2090

YANMAR CO., LTD	
部品名称 PART	DIODE
PART No.	119643-66900



継手コネクタ: 7323-2228 (矢崎)  
CONNECTOR: YAZAKI 7323-2228

継手コネクタ: 7325-3010 (矢崎)  
CONNECTOR: YAZAKI 7325-3010

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 : 6.6mH (at 1kHz)

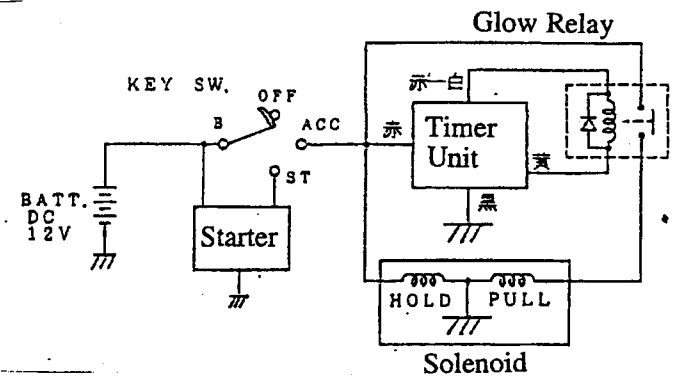
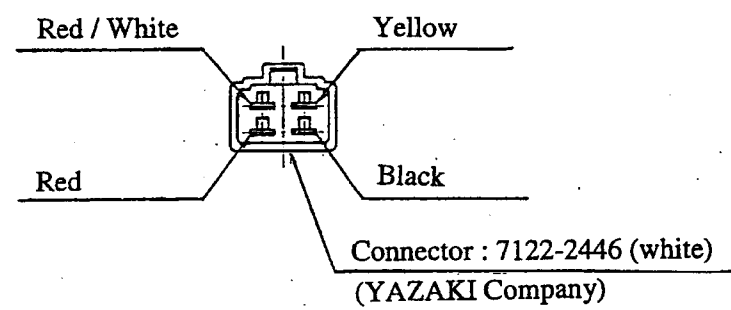
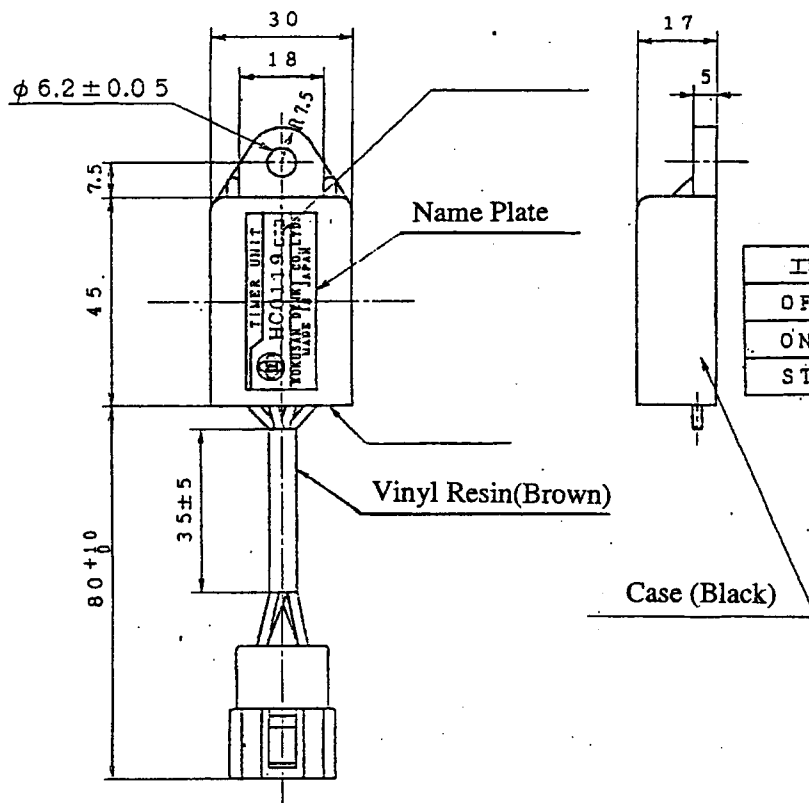
SPECIFICATIONS

1. RATED VOLTAGE : DC12V
2. MAXMUM OPERATING TIME : 10 MIN.
3. COILE RESISTANCE : 37 ohm
4. INDUCTANCE : 6.6mH (at 1kHz)

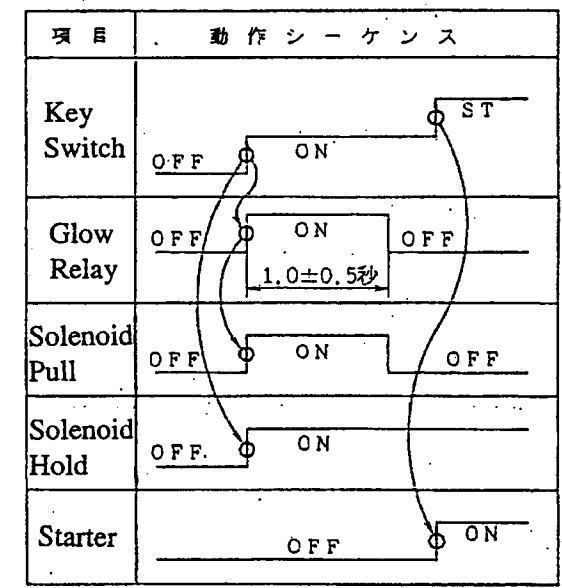
YANMAR CO., LTD	
部品名称 PART	RELAY
PART No.	119650-77910



3D-CAD



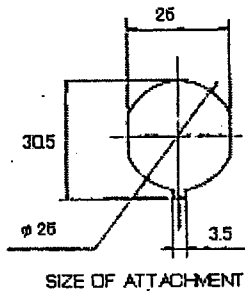
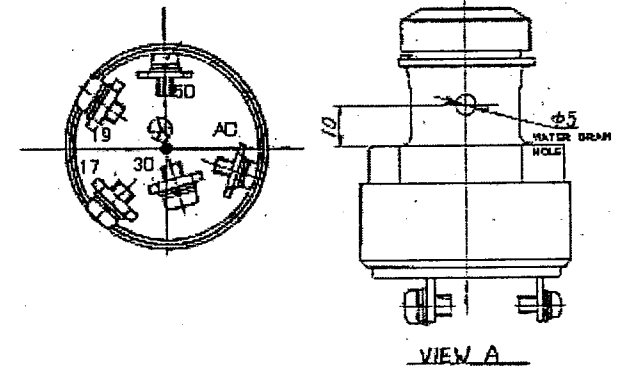
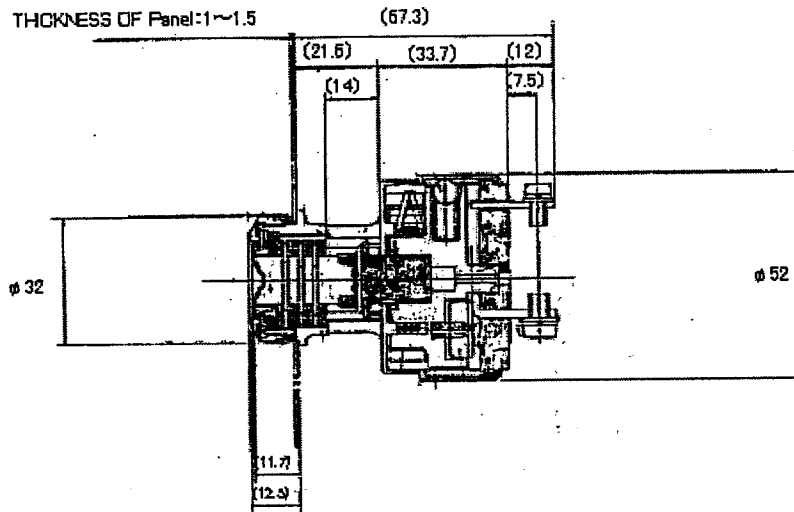
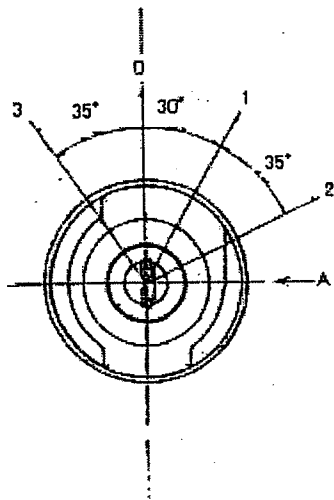
工程	B	ACC	ST
OFF			
ON	○	○	
ST	○	○	○



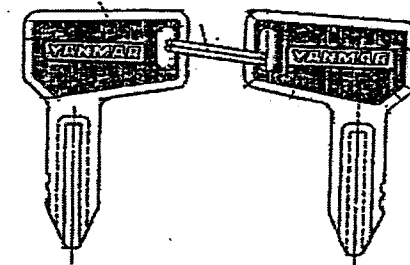
TIMER (1sec)  
 タイマ (1sec)

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

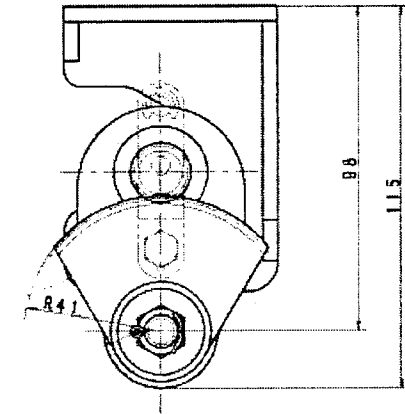
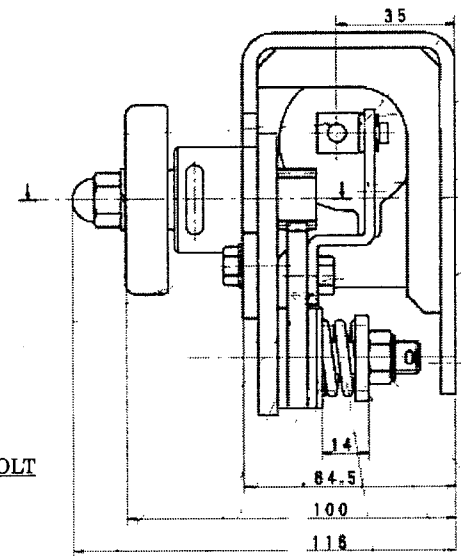
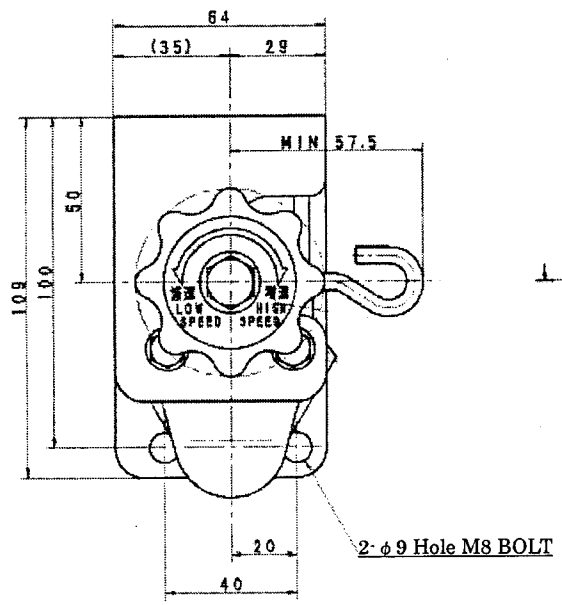
CODE	129211-77920
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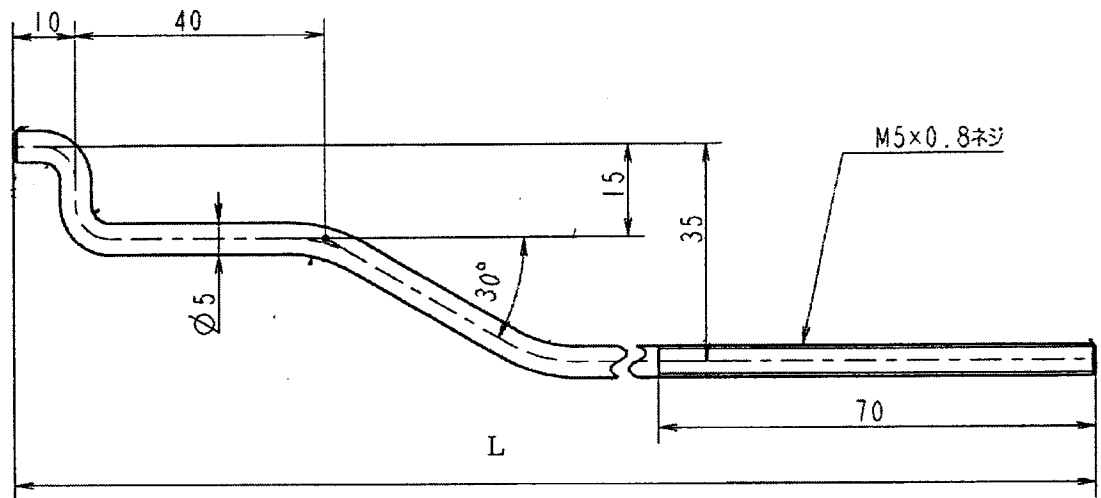
POSITION		TERMINAL MARK				
		19	30	17	50	AC
3		○	○	○	○	○
0						
1		○	○	○	○	○
2		○	○	○	○	○



YANMAR CO., LTD	
部品名称 PART	KEY SWITCH
PART No.	933110-00100

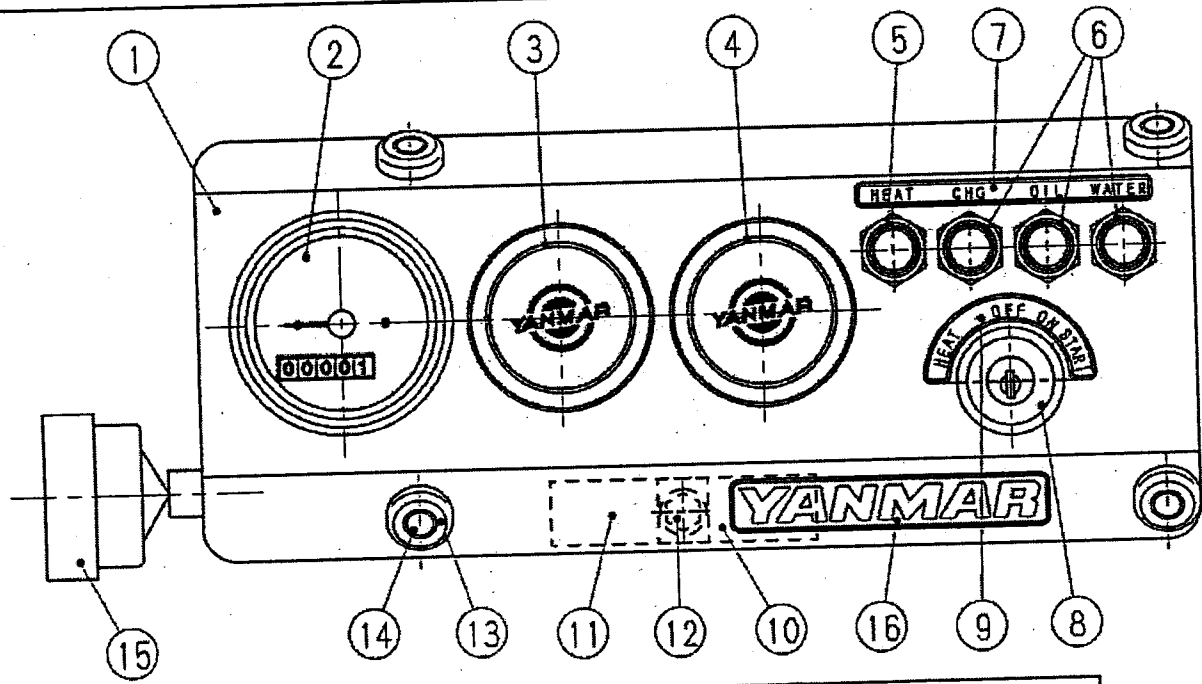


YANMAR CO., LTD	
部品名称 PART	SPEED CONTROLLER
PART No.	119888-66161



PARTS CODE	L
129247-66120	250
129647-66120	345

YANMAR CO., LTD	
部品名称 PART	LINK, SPEED CONTROLLER
PART No.	129247-66120, 129647-66120



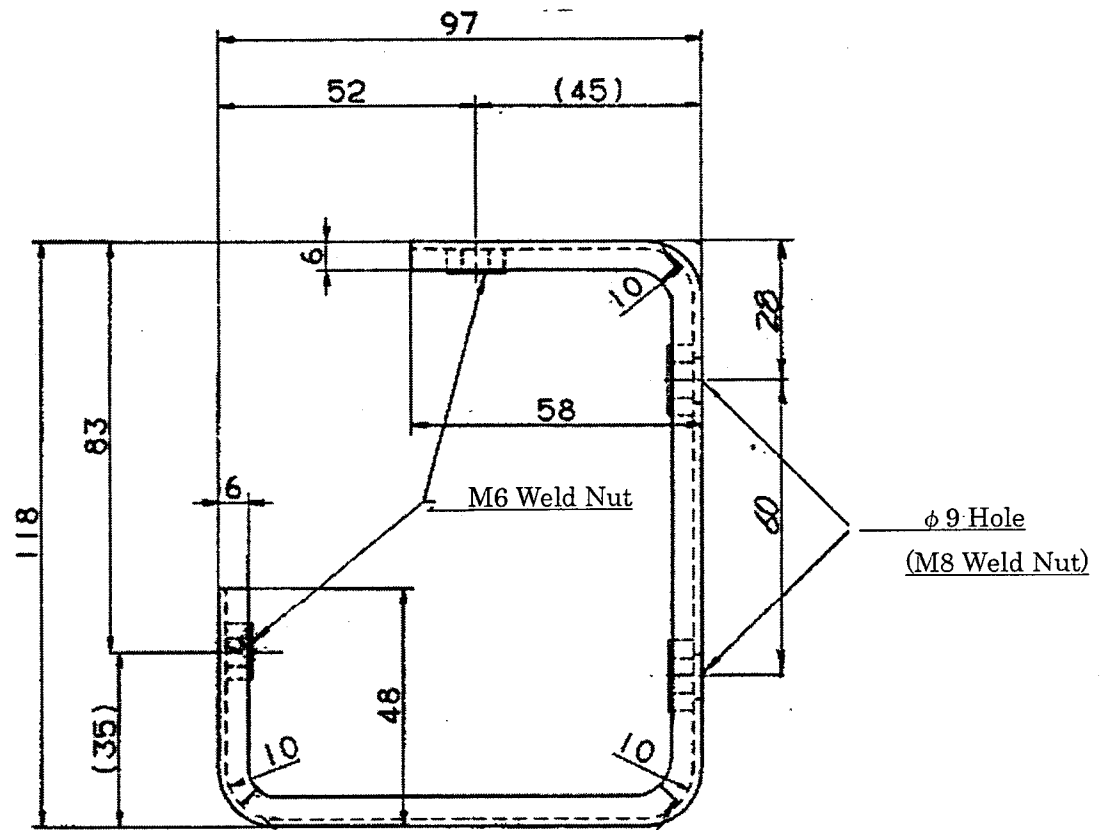
		119888-91102		119888-91302			
⑬	LABEL YANMAR	104507-07190	1	104507-07190	1		
⑮	WIRE HARNESS B	119888-91032	1	119888-91032	1		
⑭	SPACER	121400-91530	4	121400-91530	4		
⑬	CUSHION RUBBER	121400-91520	4	121400-91520	4 BLACK		
⑫	BOLT	26106-060162	1	26106-060162	1 16x10 FOR TIMER		
⑪	TIMER, AIR HEATER	128300-77920	1	128300-77920	1		
⑩	TIMER, SOLENOID	129211-77920	1	129211-77920	1		
⑨	LABEL, KEY SWITCH	119888-91620	1	119888-91620	1		
⑧	STARTER SWITCH	933110-00100	1	933110-00100	1		
⑦	LABEL, ALARM LAMP	119888-91610	1	119888-91610	1		
⑥	PILOT LAMP	124732-77720	3	124732-77720	3 LENS RED		
⑤	PILOT LAMP	124558-77971	1	124558-77971	1 LENS BLUE		
④	COVER	124770-91220	1	124770-91220	1		
③	COVER	124770-91220	1	124770-91220	1		
②	TACHOMETER	171080-91101	1	171082-91100	1 MAX 5000rpm		
①	BODY, PANEL	119888-91110	1	119888-91110	1		
	PART NAME	PART CODE	QTY	REMARKS	PART CODE	QTY	REMARKS

YANMAR CO., LTD.	
PARTS NAME	PANEL ASSY
PARTS CODE	119888-91102
	119888-91302

**YANMAR CO., LTD.**

$\lambda=1.6$

2- $\phi 7$  Hole



YANMAR CO., LTD

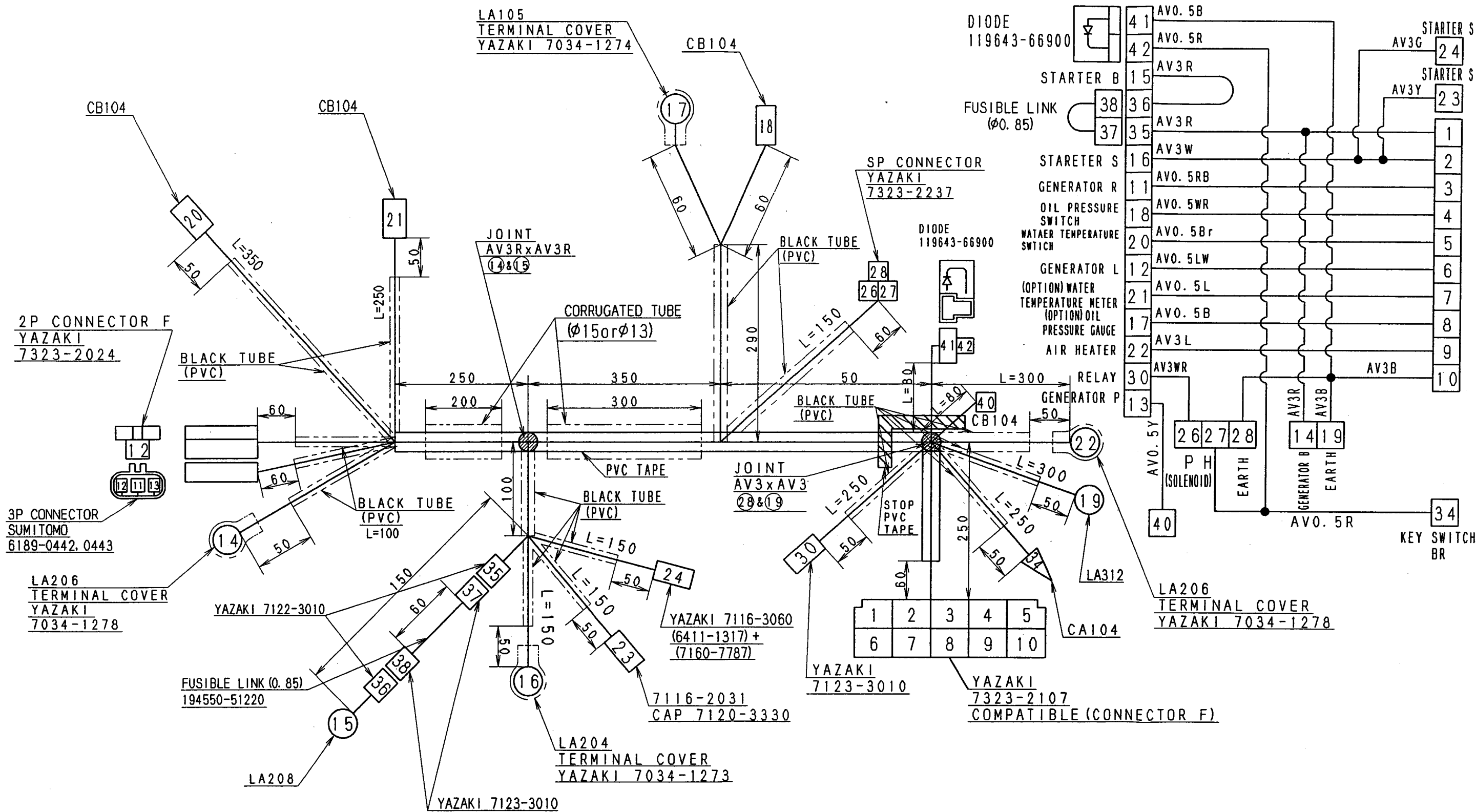
部品名称

Support, Panel

PART

PART No.

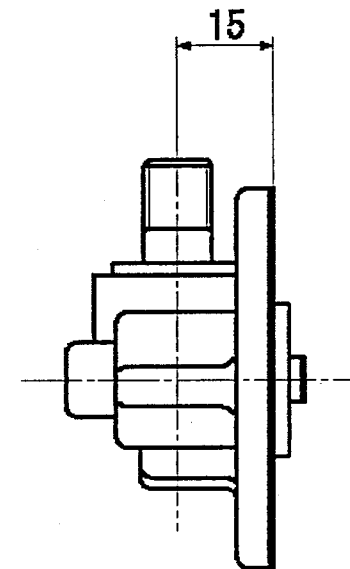
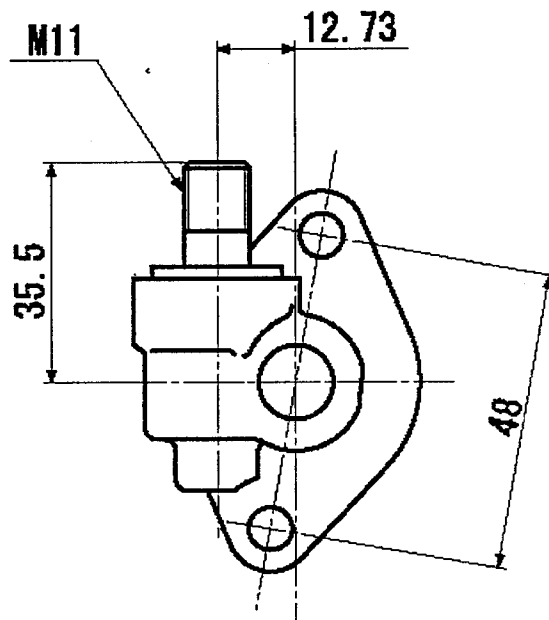
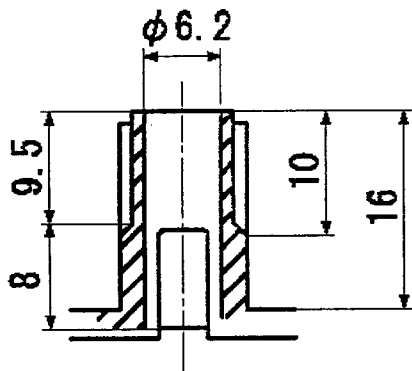
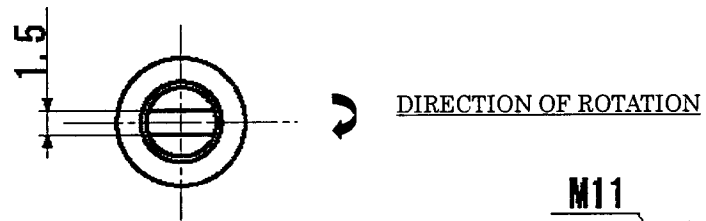
119888-91120



**REMARKS**

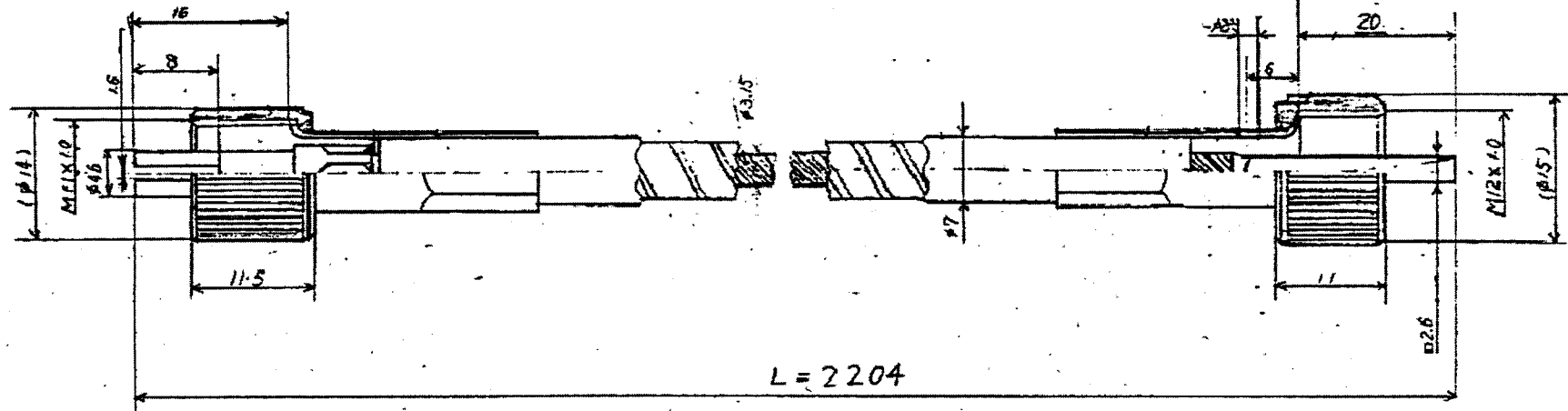
1. THIS PART IS USED FOR THE ENGINE SIDE.
2. THIS PART IS NOT POSSIBLE TO APPLY SOLENOIDE OF SHIN DENMOTO.
3. ALL COUPLERS ARE SCHEMATIC DRAWING WHICH VIEWED FROM FITTING SIDE.

YANMAR CO., LTD	
PARTS NAME	WIRE HARNESS, A
PARTS CODE	119888-91026



YANMAR CO., LTD	
部品名称 PART	GEAR UNIT
PART No.	129150-91400





Drive Side

Panel Side

YANMAR CO., LTD	
部品名称 PART	Cable, Tachometer
PART No.	124737-91420

YAZAKI

7123-3010

CA104

30

34

80

80

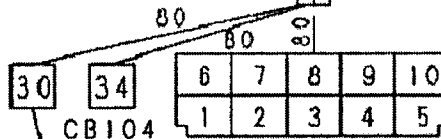
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6	7	8	9	10

YAZAKI

7323-2107

L=2000

012	34	1.25	R
011	30	3	W. R
010	10	1.25	L. R
009	9	1.25	O
008	8	3	B
007	7	3	L
006	6	1.25	LW
005	5	1.25	Br
004	4	1.25	W. R
003	3	1.25	R. B
002	2	3	R
001	1	3	W
No.	MARK	DIA.	COLOR



CB104

YAZAKI

7122-3010

YAZAKI

7322-2107

NOTE

1.ALL COUPLERS ARE SCHEMATIC DRAWING WHICH VIEWED FROM FITTING SIDE.

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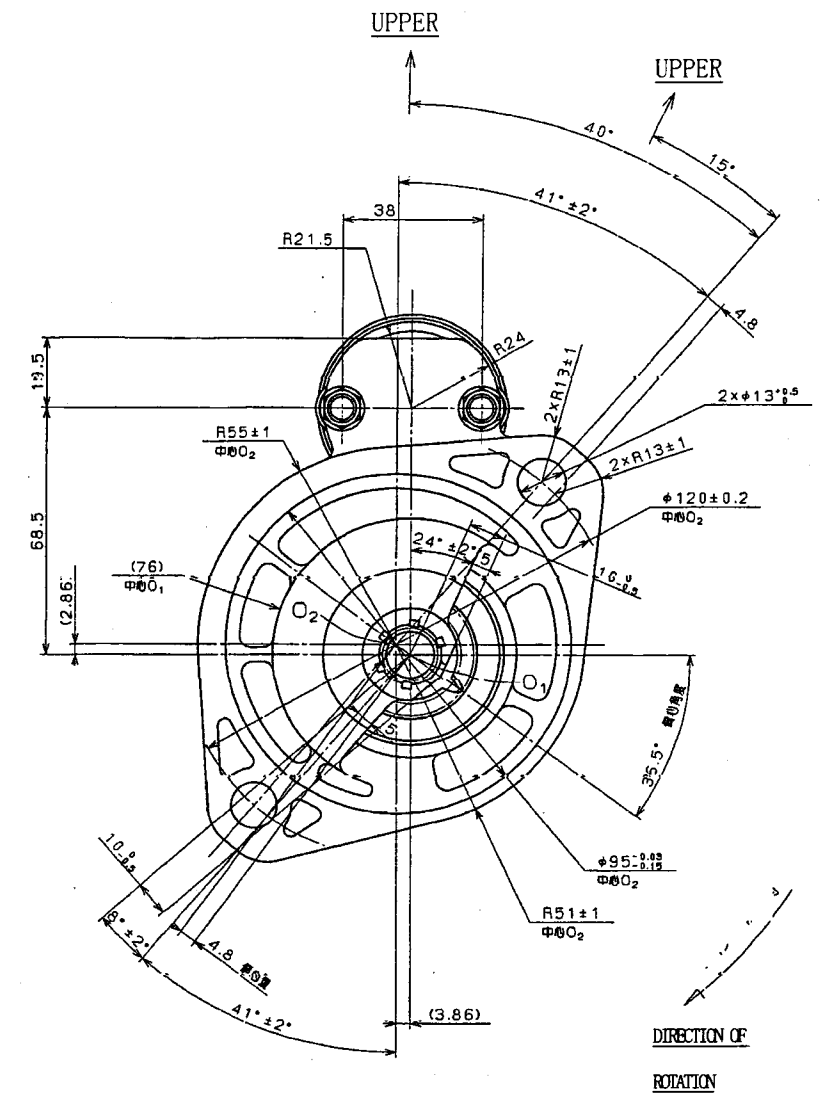
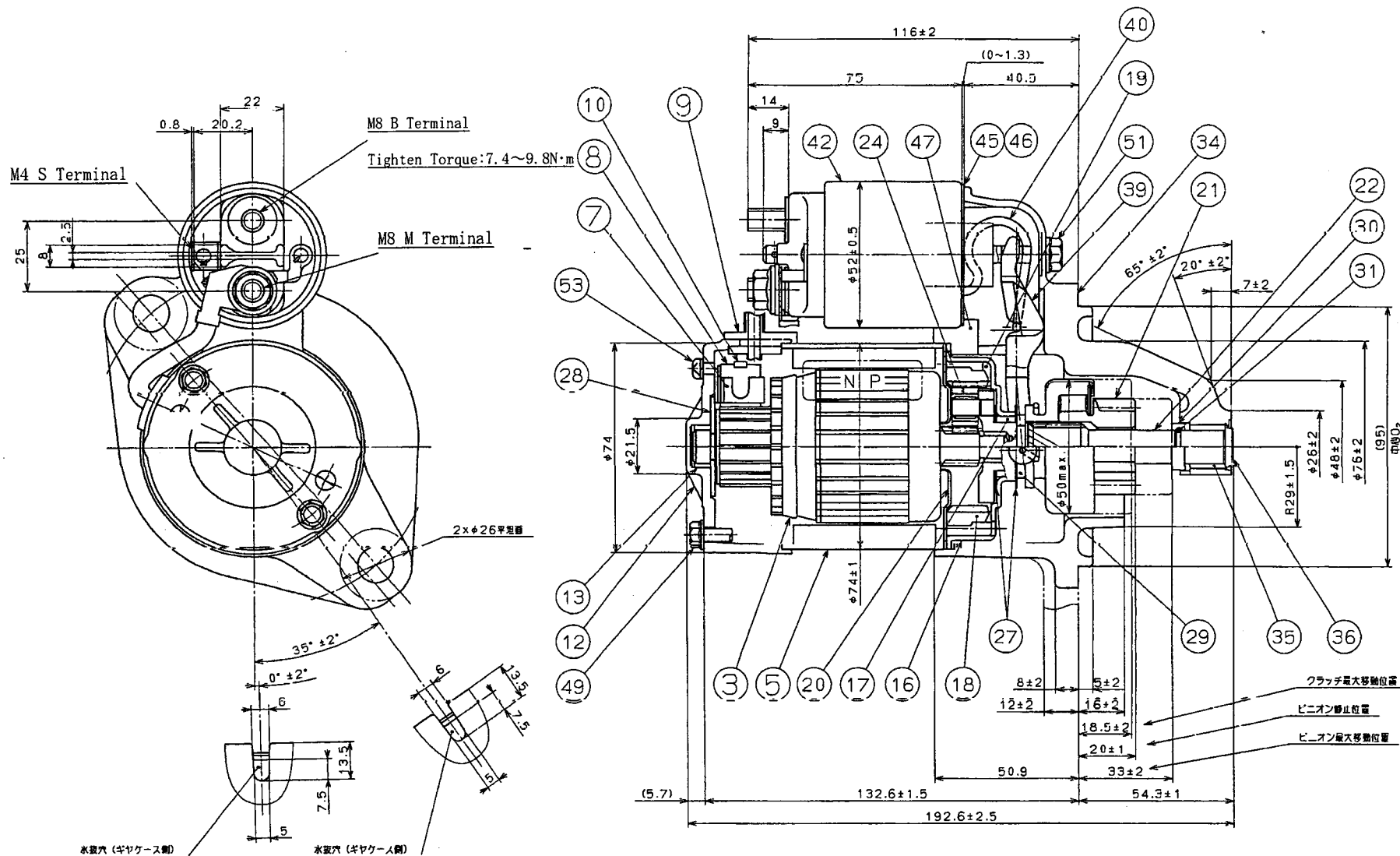
部品名称

Cord, Extension

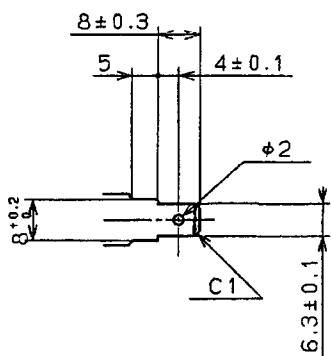
PART

PART No.

119946-91010



水取穴 (ギヤケース側)      水取穴 (ギヤケー側)



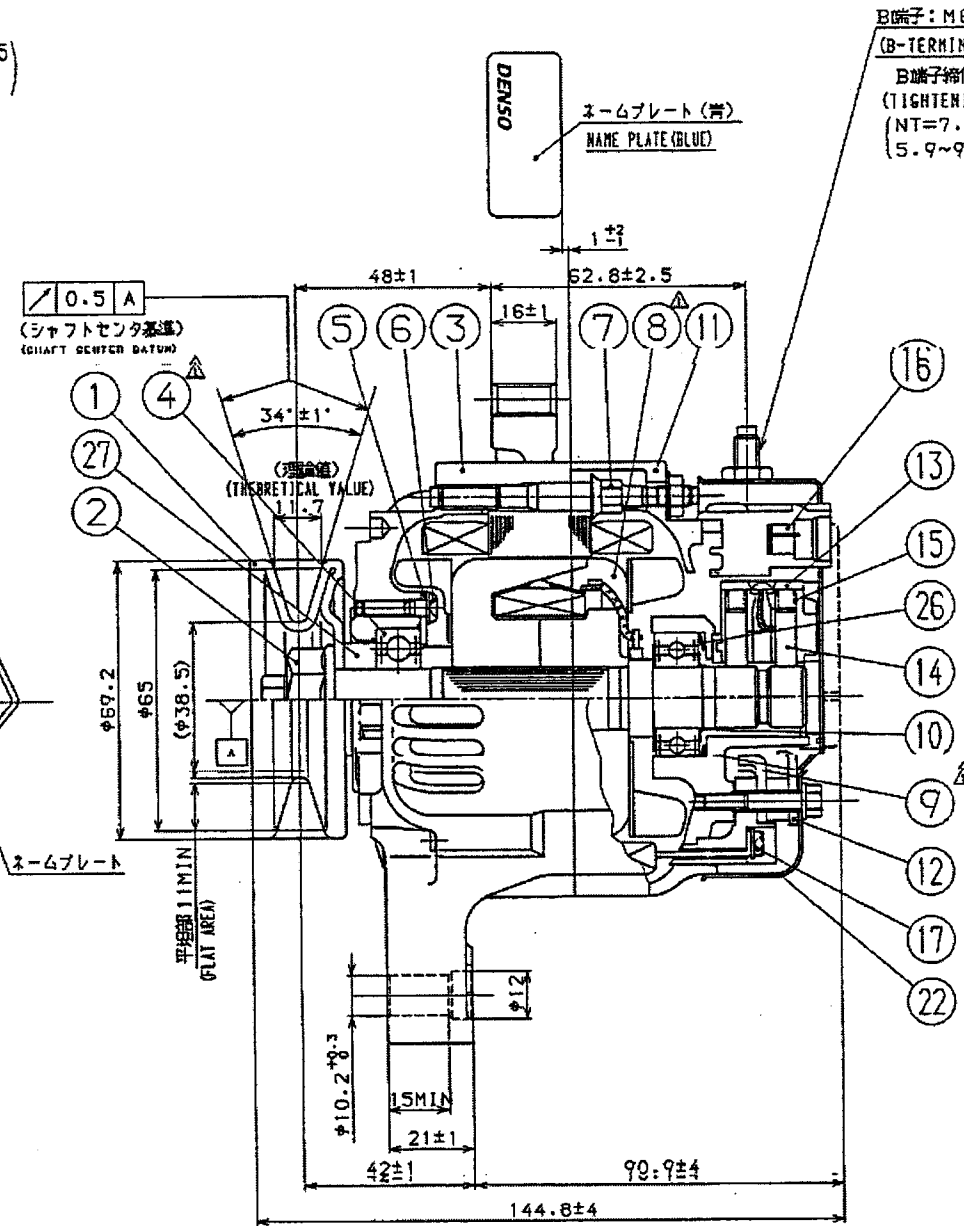
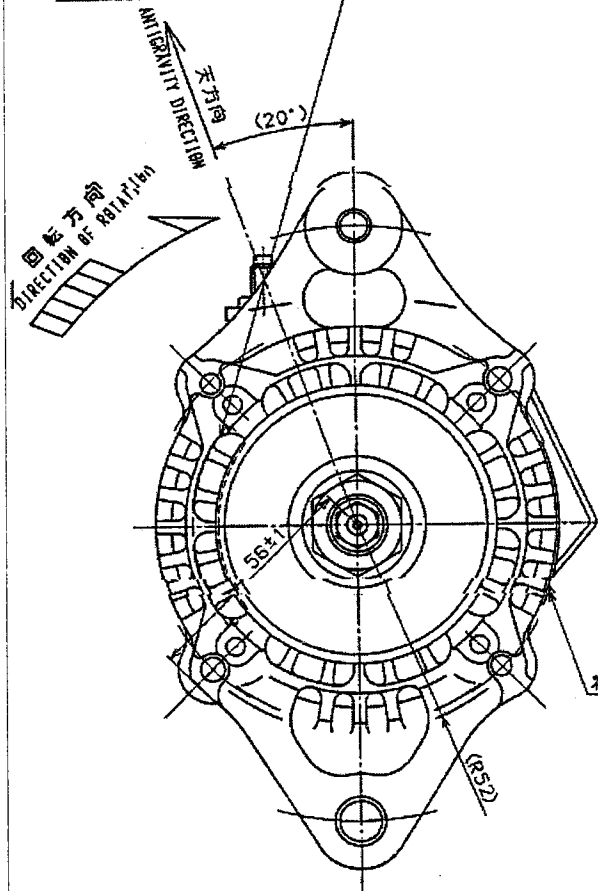
DETAIL OF S TERMINAL

RATED VOLTAGE	12V
RATED OUTPUT	1.7kW
RATED TIME	30 sec.
DIRECTION OF ROTATION	CLOCKWISE VIEW FROM PINION END
POLARITY	NEGATIVE GROUNDING
MASS	3.5kg

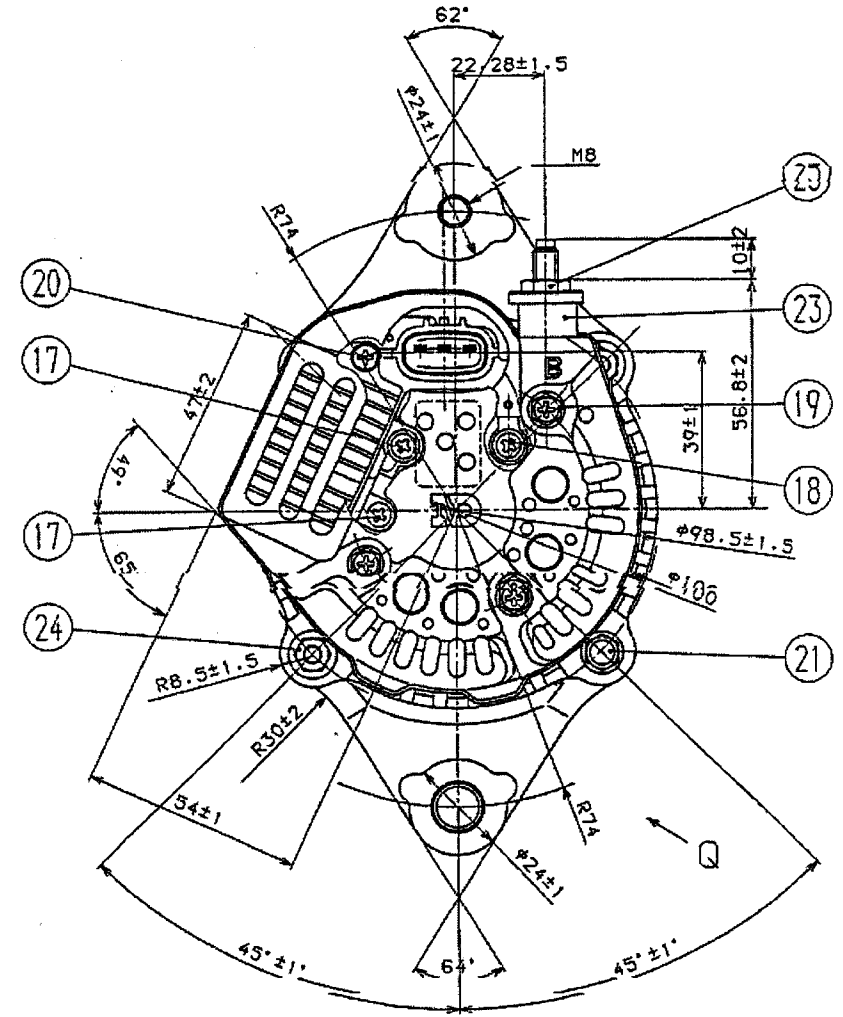
YANMAR CO., LTD	
部品名称 PART NAME	Starter (12V-1.7kw)
PART No.	129242-77010

一般公差: ±0.5  
±2°  
(GENERAL TOLERANCE: ±0.5  
±2°)

フレーム識別指定範囲  
AREA FOR IDENTIFICATION  
PROJECTIONS OF FRAME TYPE

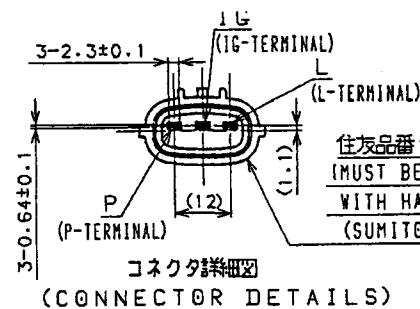


B端子: M6  
(B-TERMINAL: M6)  
B端子締付用ナットの締付トルク:  
(TIGHTENING TORQUE FOR B-TERMINAL)  
(NT=7.8N·m (80kgf·cm)  
(5.9~9.80N·m (60~100kgf·cm))



**SPECIFICATIONS**

1. RATED VOLTAGE : 12V
2. RATED OUTPUT (13.5V AT HOT) : 40A (5000rpm)
3. MINIMUM SPEED OF CHARGE (13.5V AT HOT) : 1350 rpm
4. PERMISSIBLE MAXIMUM SPEED : 18000 rpm
5. PERMISSIBLE AMBIENT TEMPERATURE : -30°C TO +90°C
6. DIRECTION OF ROTATION : CLOCKWISE (VIEWED FROM PULLEY SIDE)
7. POLARITY : NEGATIVE GROUNDING



住友品番 6189-0442, 04  
MUST BE IN FULLY ASSURED  
WITH HARNESS SIDE CONNECT  
(SUMITOMO PART NO. 6189-04)

YANMAR CO., LTD	
部品名称 PART NAME	ALTERNATOR
PART No.	129423-77200