YANMAR

Operation Manual

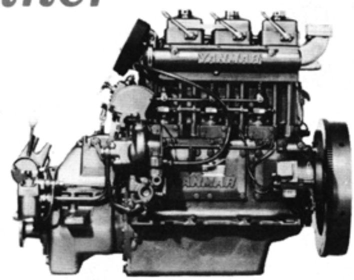
1SME
2SME
3SME

YANMAR

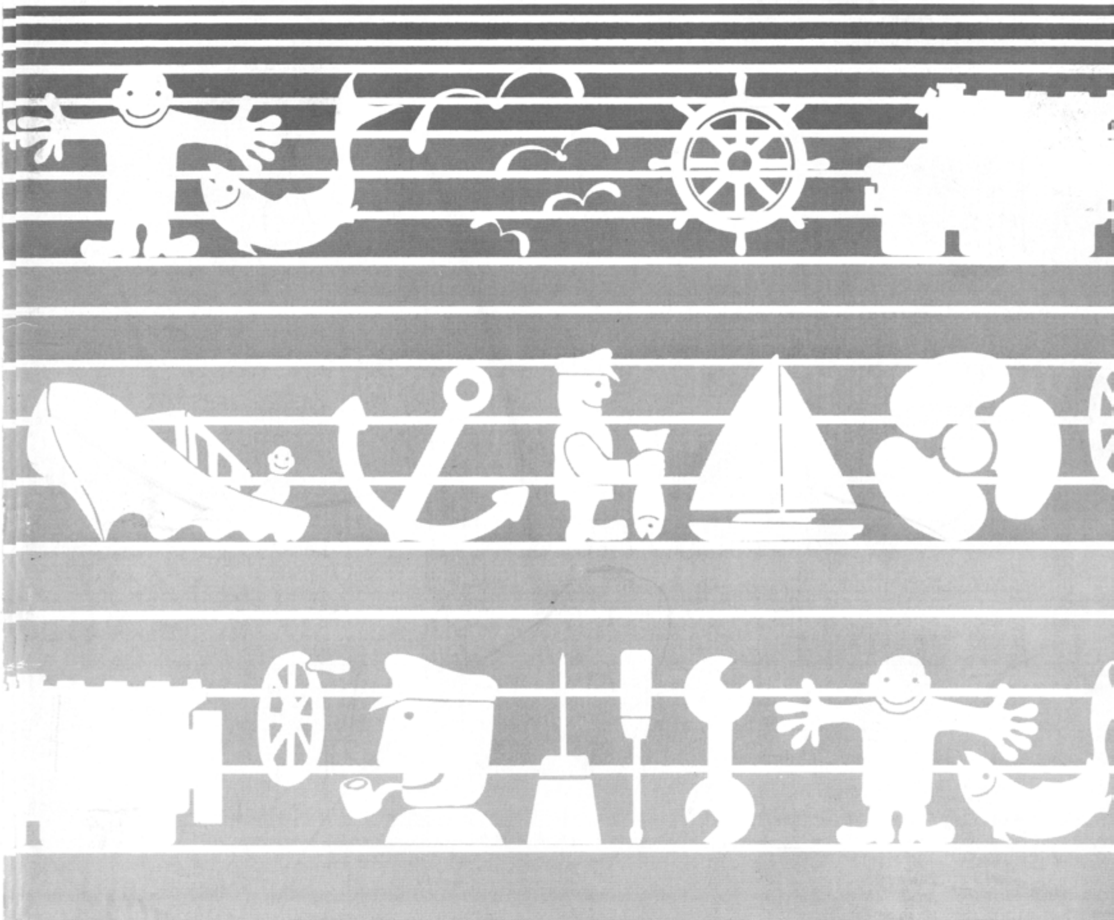
OPERATION MANUAL
MANUAL DE OPERACION

Your on-the-job Partner

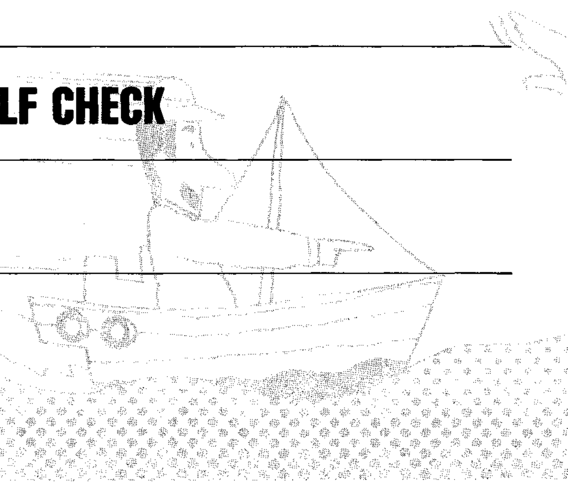
Su Compañero en el Trabajo



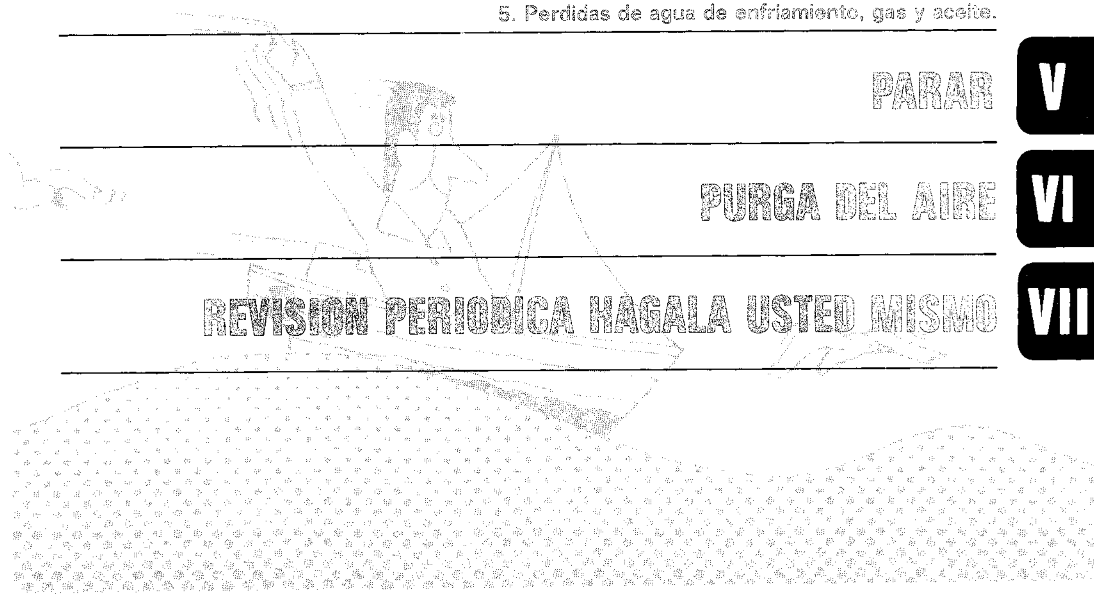
1SME
2SME
3SME
14~50HP



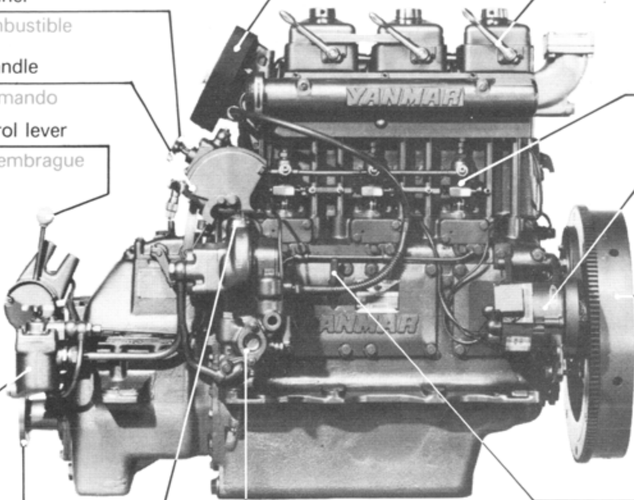
Contents

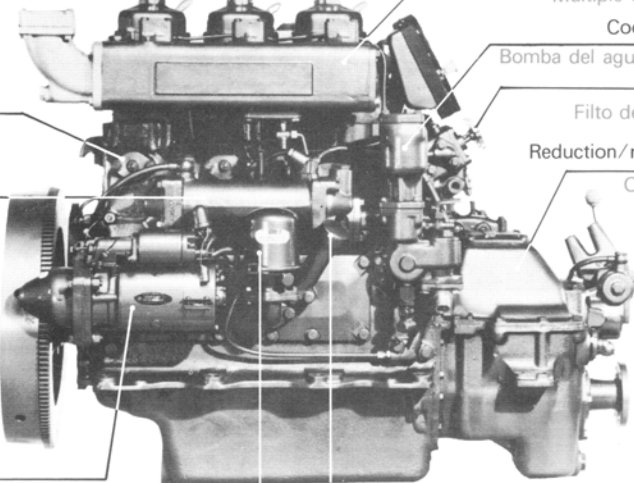


Contenidos



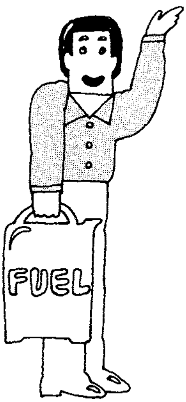
Name of Parts





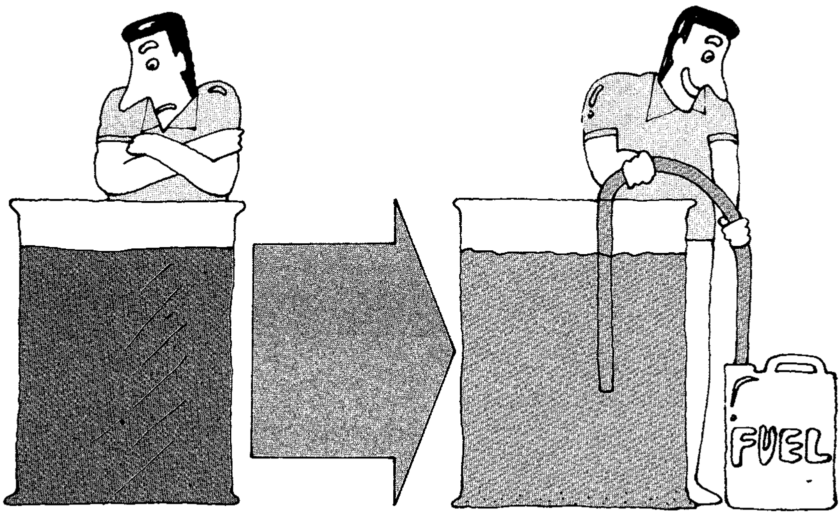
BEFORE USING THE ENGINE
ANTES DE USAR EL MOTOR

I. FUEL/COMBUSTIBLE



Recommended Brands of Fuel
Marcas recomendadas de combustible

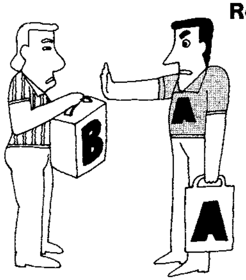
Supplier Proveedor	Brand Name Marca
SHELL	Shell diesoline or local equivalent Diesolina Shell o equivalente local
CALTEX	Caltex diesel oil Petróleo diesel Caltex
MOBIL	Mobil diesel oil Petróleo diesel Mobil
ESSO	Esso diesel oil Petróleo diesel Esso
B.P. (British Petroleum)	B.P. diesel oil Petróleo diesel B.P.



2. LUBRICATING OIL 2. ACEITES LUBRICANTES

Recommended Brands of Lubricating Oil Marcas recomendadas de aceites lubricantes

Supplier Proveedor	Brand Name Marca	SAE NO.			
		below 10°C menor	10~20°C	20~35°C	over 35°C mayor de
SHELL	Shell Rotella Oil	10W, 20/20W	20/20W	30 40	50
	Shell Talona Oil	10W	20	30 40	50
	Shell Rimula Oil	20/20W	20/20W	30 40	—
CALTEX	RPM Delo Marine Oil	10W	20	30 40	50
	RPM Delo Multi-Service Oil	20/20W, 10W	20	30	50
MOBIL	Delvac Special	10W	20	30	—
	Delvac 20W—40	20W—40	20W—40	—	—
	Delvac 1100 Series	10W, 20—20W	20—20W	30 40	50
	Delvac 1200 Series	10W, 20—20W	20—20W	30 40	50
ESSO	Estor HD	10W	20	30 40	—
	Esso Lube HD	—	20	30 40	50
	Stand Diesel Oil	10W	20	30 40	50
B.P. British Petroleum	B.P. Energol B.P. Vanellus * B.P. Diesel S3 B.P. Vanellus **	10W	20W	30	50



Remark: * **API grade CB** ** **API grade CD**

Nota: *API grado CB **API grado CD

- **Choose an oil with proper viscosity for the ambient temperature.**
- Seleccione un aceite con la viscosidad adecuada para la temperatura ambiente.

CAUTION:

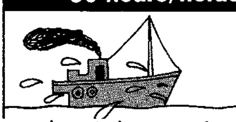
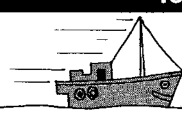
In adding Lub.oil, do not mix different kind of oil (brand or viscosity)!

PRECAUCIONES:

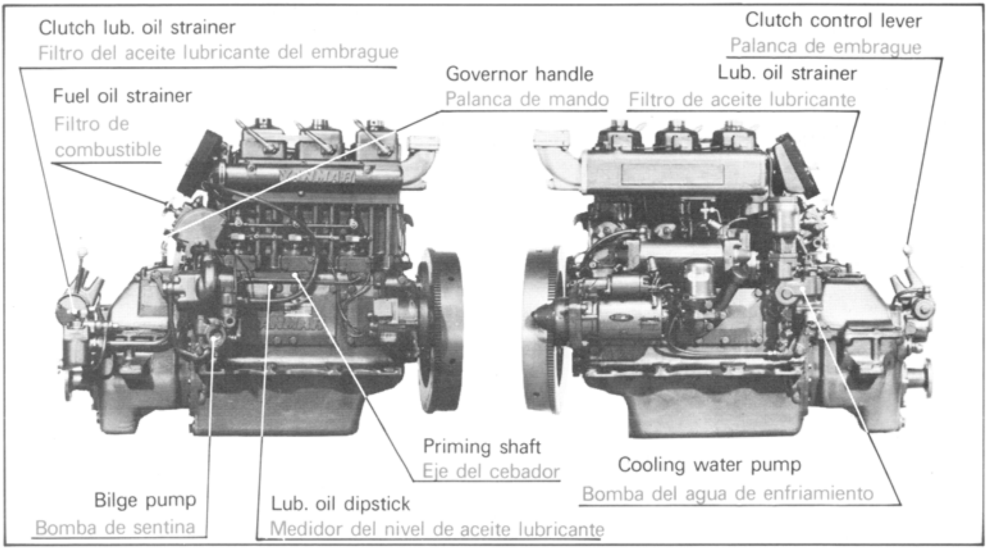
¡Al agregar aceite lubricante, no mezcle diferentes clases de aceite (marca o viscosidad)!

3. RUNNING IN
3. EN MARCHA

RUNNING IN TIME/TIEMPO DE MARCHA

	50 hours/horas	**150 hours/horas**
New engine motor nuevo		
	Do not impose undue strain on engine No imponga un esfuerzo indebido al motor	**Change lubricating oil and clean oil filter** Cambie el aceite lubricante y limpie el filtro de aceite

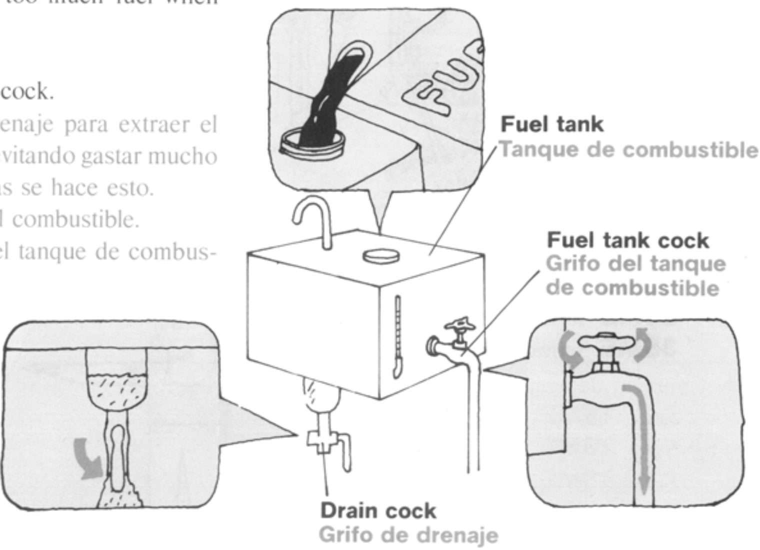
PREPARATION
PREPARACION



I. FUEL
I. COMBUSTIBLE

(1) Open the drain cock to remove water and dirt; avoid wasting too much fuel when doing this.
(2) Fill the fuel tank.
(3) Open the fuel tank cock.

(1) Abrir el grifo de drenaje para extraer el agua y la suciedad, evitando gastar mucho combustible mientras se hace esto.
(2) Llenar el tanque del combustible.
(3) Abrir la abertura del tanque de combustible.



2. LUBRICATING OIL (CRANKCASE AND MARINE GEARBOX)

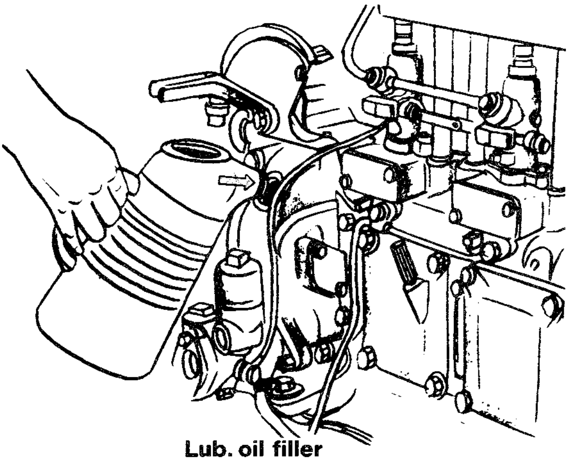
2. ACEITE LUBRICANTE (CARTER Y CAJA DE ENGRANAJES)

(1) Check the oil level with the lub. oil dipstick and add fresh oil until the level reaches the upper mark on the lub. oil dipstick.

(1) Controlar el nivel de aceite con el medidor del nivel de aceite lubricante y agregar aceite nuevo hasta que el nivel alcance la marca superior en el medidor.

CAUTION:
Avoid both overfilling and underfilling.

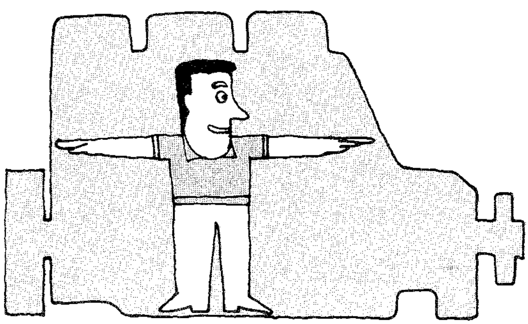
PRECAUCION:
Evitar poner de más como poner de menos.



(2) When checking the oil level, do not screw the lub. oil dipstick in. It is also important to see that the engine is in a horizontal position.

(2) Cuando controle el nivel de aceite no introduzca, girãn dolo, el medidor de nivel de aceite lubricante. También es importante verificar que el motor esté en posición horizontal.

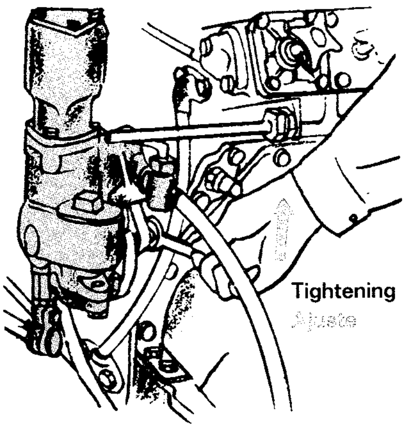
In the horizontal position
En la posición horizontal



(3) Amount of oil:
1SME Series, 4.3 liters
2SME Series, 10.9 liters
3SME Series, 16.9 liters

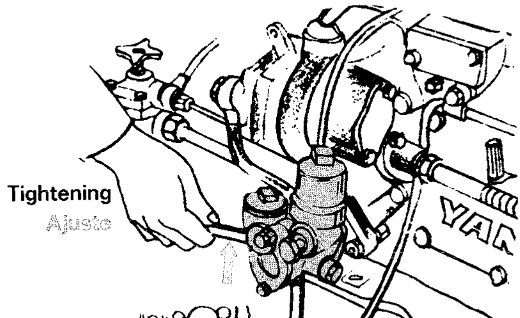
(3) Cantidad de aceite:
Serie **1SME**, 4.3 litros
Serie **2SME**, 10.9 litros
Serie **3SME**, 16.9 litros

3. COOLING WATER PUMP AND BILGE PUMP
3. BOMBA DE AGUA DE ENFRIAMIENTO Y BOMBA DE SENTINA



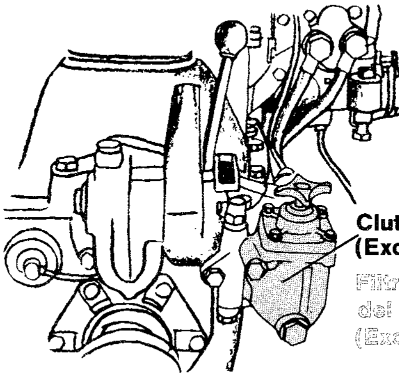
Cooling water pump
Bomba de agua de emfriamiento

(1) Retighten the gland packing nuts.
(1) Reajustar las tuercas de la empaquetadura del prensaestopas.
(2) Consult your dealer if there is water leakage.
(2) Consultar con su proveedor si hay pérdidas de agua.



Bilge pump
Bomba de sentina

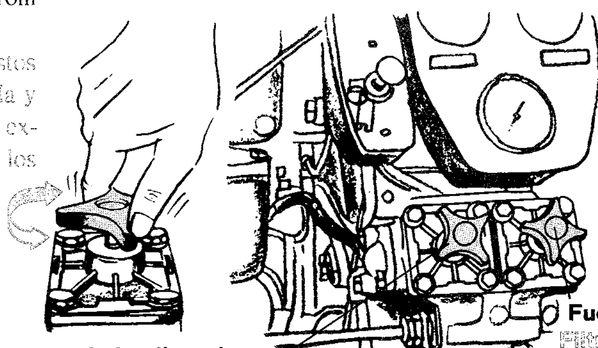
4. FUEL, LUBRICATING OIL STRAINERS
4. FILTROS DE COMBUSTIBLE DE ACEITE LUBRICANTE



Clutch lub. oil strainer (Except 1SME Series)
Filtro de aceite lubricante del embrague (Excepto la Serie 1SME)

(1) Turn the handles of these strainers to both left and right to remove dirt from the strainer elements.
(1) Girar las manijas de estos filtros hacia la izquierda y hacia la derecha para extraer la suciedad de los elementos filtrantes.

Turn to both left and right
Girar hacia la izquierda y hacia la derecha

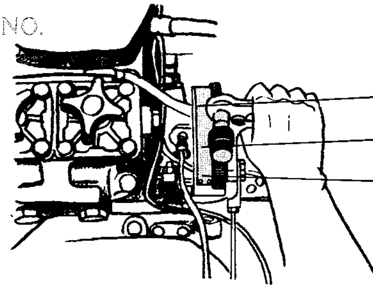


Lub. oil strainer
Filtro de aceite lubricante

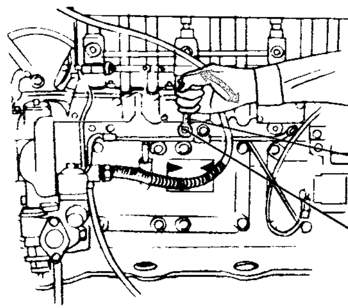
Fuel strainer
Filtro de combustible

5. PREPARING TO INJECT FUEL
5. PREPARACION PARA INYECTAR EL COMBUSTIBLE

(1) Set the governor handle to FULL.
(1) Colocar la palanca de mando en LIENO.



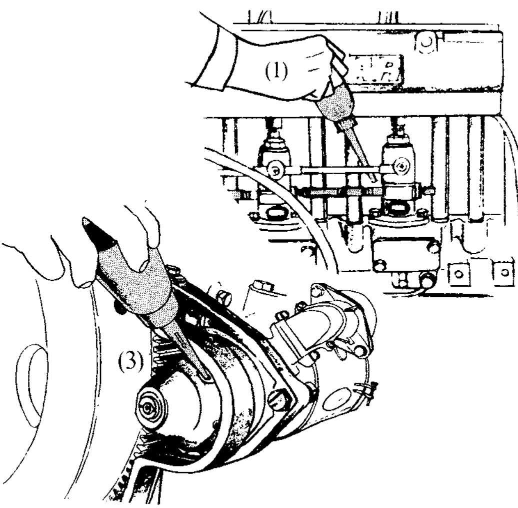
(2) Fit the priming handle to the priming shaft and prime the injection pump two or three times. When the sound of squiring fuel being injected is heard, the fuel system is ready for starting the engine.
(2) Colocar el cebador en su eje y cebar la bomba de inyección dos o tres veces. El sistema de combustible está listo para poner en marcha el motor, cuando se escuche el sonido del chorro de combustible que se está inyectando.



(3) If fuel injection cannot be heard, this indicates that there is air in the injection system.
See page (22) for the air venting procedure.
(3) Si no se puede escuchar la inyección de combustible, esto indica que hay aire en el sistema de inyección.
Ver la página (22) para el procedimiento de purga del aire.

6. OILING EACH PART
6. LUBRICACION DE CADA PARTE

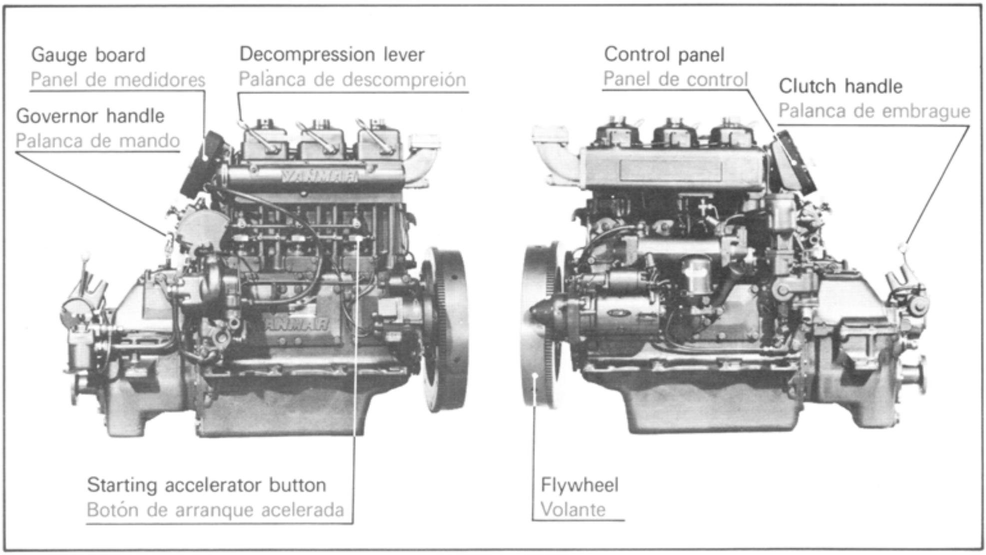
(1) Injection pump adjusting rack pin & linkage.
(1) El perno de la cremallera de ajuste y el acople de la bomba de inyección.
(2) Plunger of cooling water pump & bilge pump.
(2) El émbolo de la bomba del agua de enfriamiento y de la bomba de sentina.
(3) Pinion shaft of starting motor.
(3) El eje del piñõn del motor de arranque.
(4) Linkage of remote control handle.
(4) Acople de la palanca de control remoto.



7. FINAL CHECK
7. CONTROL FINAL

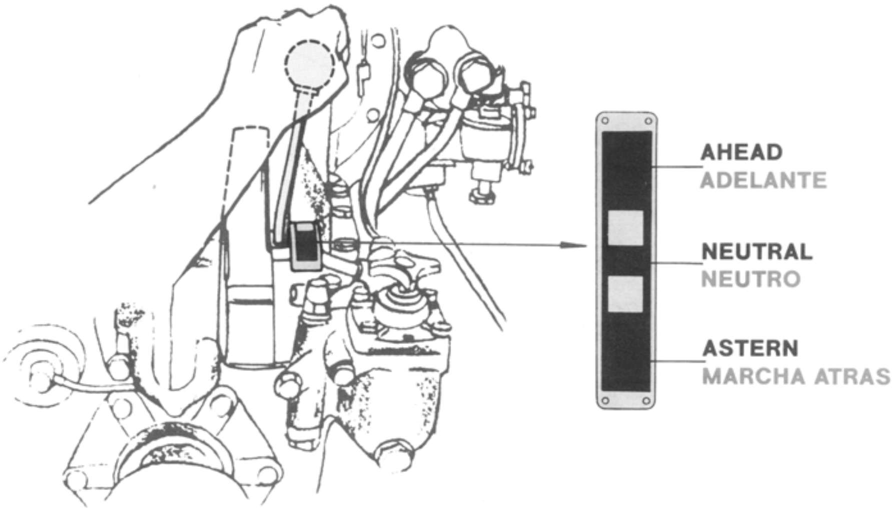
Check for loose nuts or bolts.
Controlar si existen tornillos o tuercas flojos.

STARTING
ARRANQUE



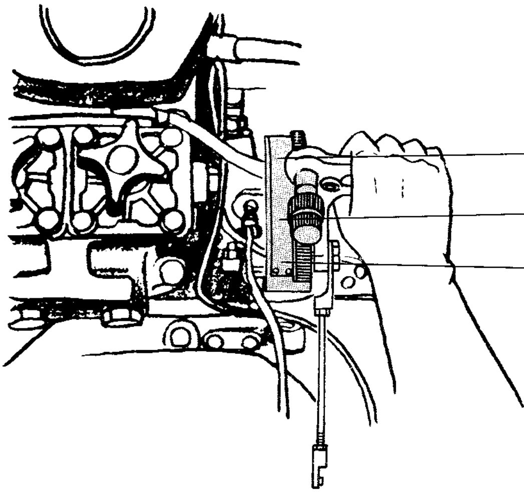
HAND STARTING
ARRANQUE MANUAL

(1) Set the clutch handle to NEUTRAL.
(1) Colocar la palanca de embrague en NEUTRO.



(2) Set the governor handle to FULL.

(2) Colocar la palanca de mando en LLENO.

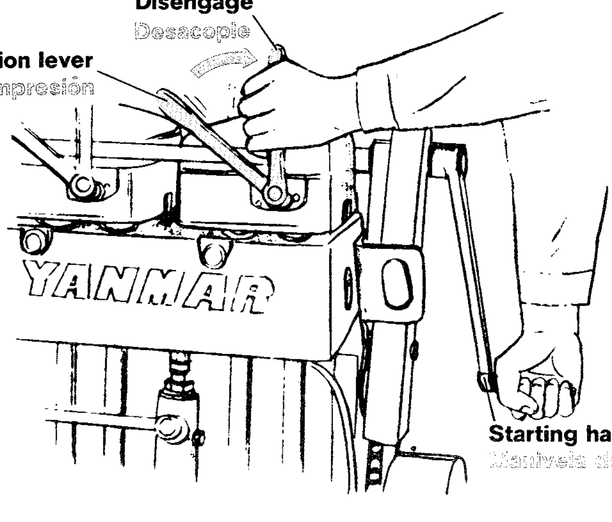


(3) Set the decompression lever to DISENGAGE position.

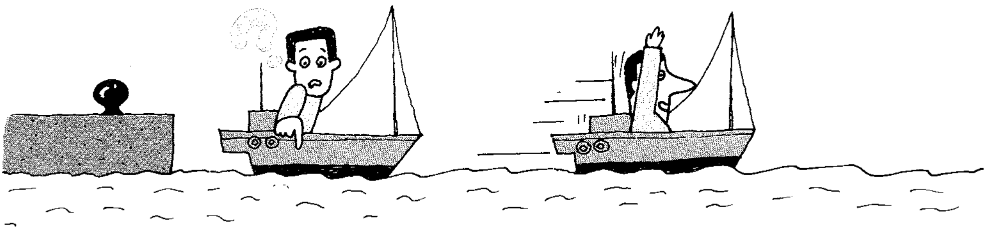
(4) Turn the starting handle clockwise five or six times.
As it has obtained sufficient momentum, release the decompression lever and turn the starting handle firmly.

(3) Colocar la palanca de descompresión en la posición de desacople (vertical).

(4) Girar la manivela de arranque en el sentido de rotación de las agujas del reloj 5 ó 6 veces. Cuando el volante está girando con suficiente impulso, soltar la palanca de descompresión y colocarlo en la posición de operación (inclinada), giraria 2 ó 3 más para ponerlo en marcha.

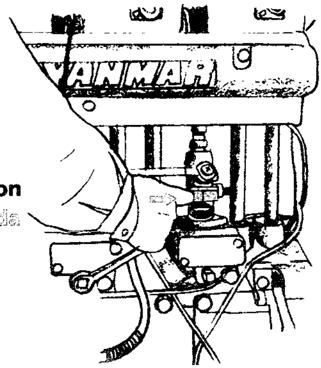


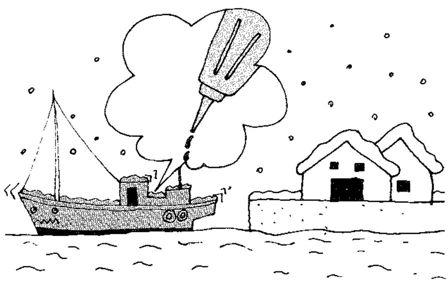
NOTE: FOR IMPROVED STARTING
NOTA: MEJORANDO EL ARRANQUE



(1) When the engine fails to start easily, push the starting button first.

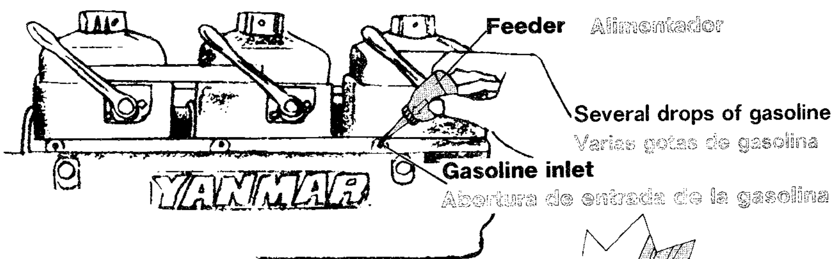
(1) Cuando el motor no arranca fácilmente, empujar primero el botón de arranque.





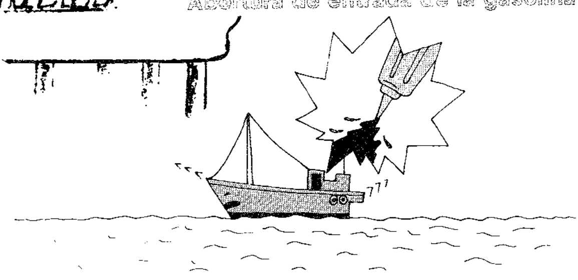
(2) In winter and in colder areas, when the engine fails to start easily, prime it by pouring a little gasoline in through the fuel intake.

(2) En invierno y en zonas más frías, cebar el motor vertiendo un poco de gasolina a través de la abertura de entrada, cuando no arranca rápidamente.



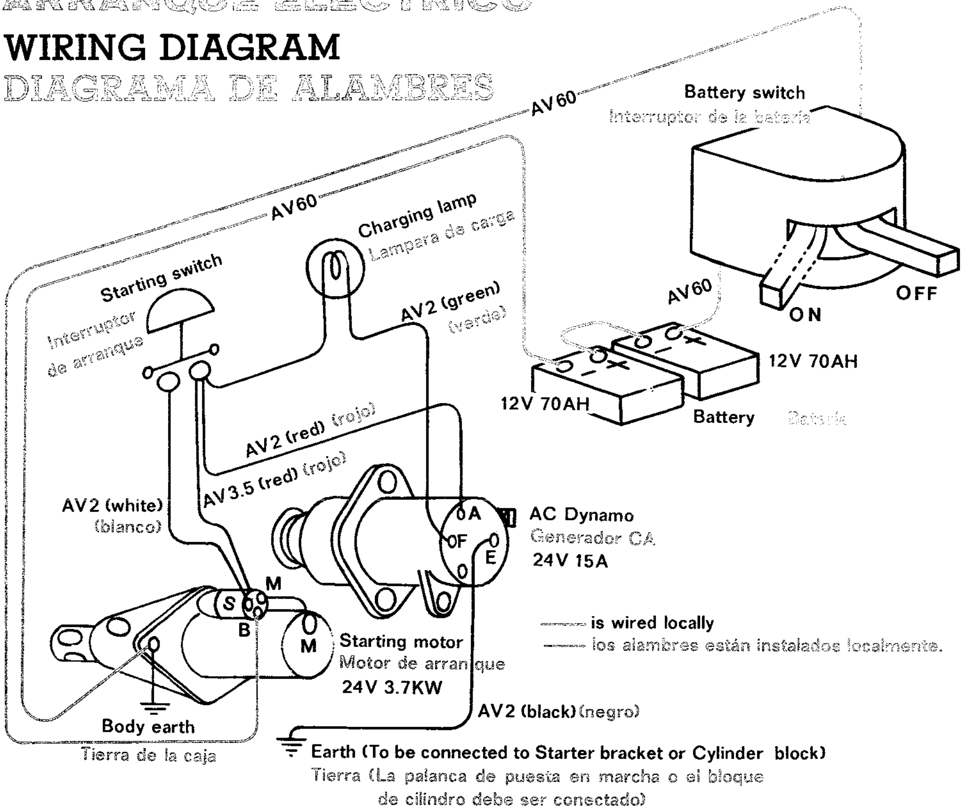
NOTE:
If too much gasoline is used in priming, it may cause knocking and loss of compression.

NOTA:
Si se usa demasiada gasolina para cebar el motor, hay posibilidad de golpes y pérdidas de compresión.

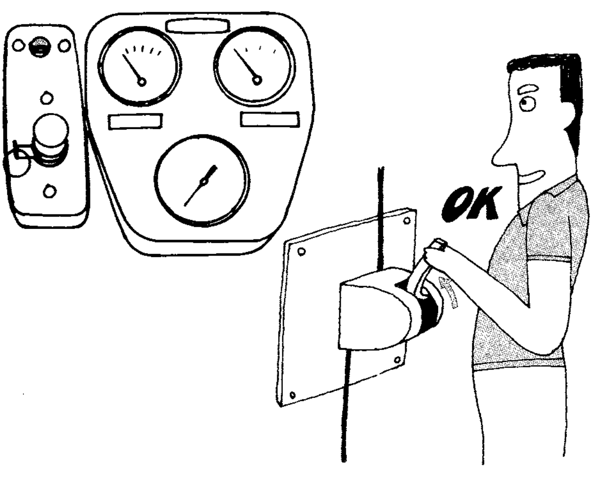


ELECTRICAL STARTING
ARRANQUE ELECTRICO

WIRING DIAGRAM
DIAGRAMA DE ALAMBRES



Red lamp
Lámpara roja



CAUTION:

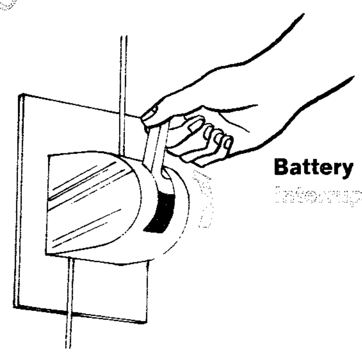
- When wiring is finished, turn on the battery switch. If then the red lamp on the control panel comes on, wiring has been correctly carried out.

PRECAUCIONES:

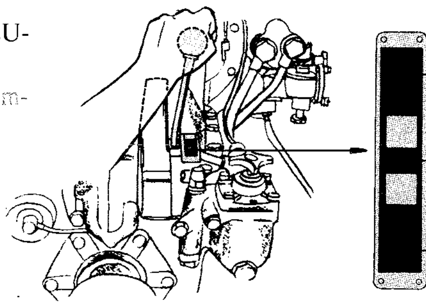
- Después de terminar de poner los alambres, conectar el interruptor de la batería. Si esto hace que se encienda la luz roja en el panel de control, significa que los alambres han sido colocados correctamente.

2. ELECTRICAL STARTING
2. ARRANQUE ELECTRICO

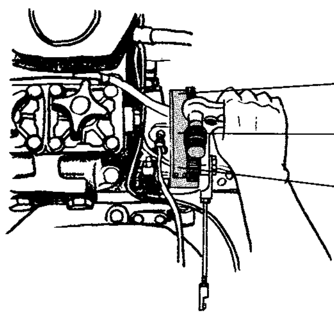
(1) Turn on the battery switch.
(1) Conectar el interruptor de la batería.



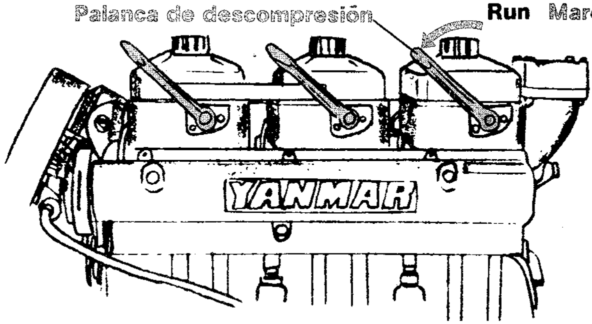
(2) Set the clutch handle to NEUTRAL.
(2) Colocar la palanca de embrague a NEUTRO.



(3) Set the governor handle to FULL.
(3) Colocar la palanca de mando en LLENO.

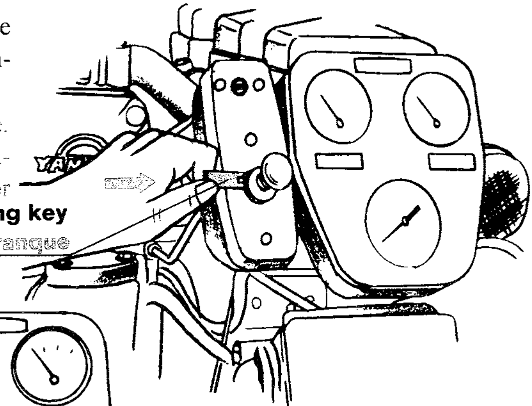


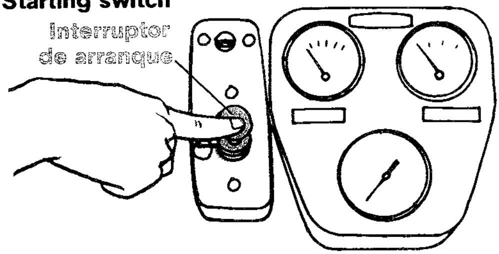
(4) Set the decompression handle to the operating position.
(4) Colocal la palanca de descompresión en la posición de operación.



(5) Insert the starting key. When the starting switch is pushed the engine should start immediately.

(5) Introducir la llave de arranque. El motor debe arrancar inmediatamente al oprimir el interruptor respectivo.





(6) Release the switch as soon as the engine starts.

(6) Soltar el interruptor cuando el motor se pone en marcha.

REMARKS:
OBSERVACIONES:

(1) Do not run the starter motor for more than 20 seconds at a time.
Should the engine fail to start wait for about 30 seconds before operating the starter motor again.

(1) No poner en marcha el motor de arranque durante más de 20 segundos cada vez.
Si el motor no arranca, esperar durante 30 segundos antes de accionar el motor de arranque nuevamente.

(2) When repeating the starting operation, make sure that the flywheel is stationary each time.

(2) Cuando se repita la operación de arranque, asegurarse cada vez que el volante no se ha movido.

(3) Do not switch the battery switch off while the engine is running.

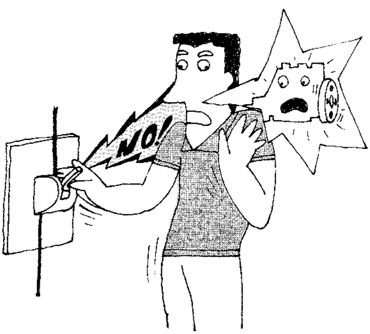
(3) No desconectar el interruptor de la batería mientras el motor está en marcha.

(4) Start up the engine and then release the starter key from the switch board.

(4) Desengancha la llave de arranque despues de haberse arrancado el motor.

(5) When recharging the battery from an external source, turn the battery switch off.

(5) Cuando esté recargando la batería con una fuente externa, desconectar la batería.



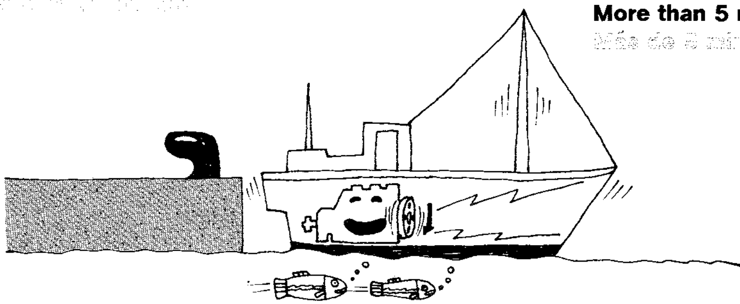
MOTE:
FOR IMPROVED STARTING
See page (12).

NOTA:
MEJORANDO EL ARRANQUE
Verpágina (12).

3. WARMING UP

(1) Run the engine without load for at least five minutes.

More than 5 minutes
Más de 5 minutos



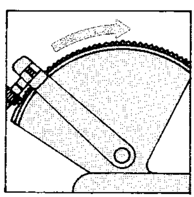
CHECK POINTS
PUNTOS DE CONTROL

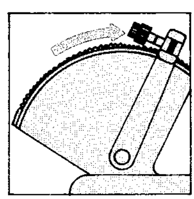
LUB. OIL PRESSURE
PRESION DEL ACEITE LUBRICANTE
OIL LEAKAGE
PERDIDA DE ACEITE
ABNORMAL SOUND
SONIDO ANORMAL
WATER LEAKAGE
PERDIDA DE AGUA
GAS LEAKAGE
PERDIDA DE GAS

(1) If the engine is running normally, engage low speed with the clutch and then gradually increase speed.

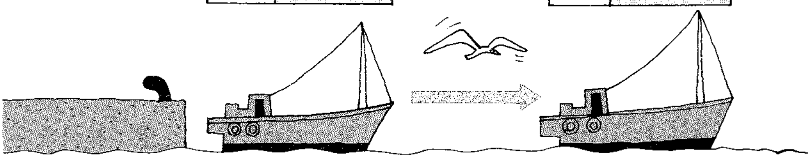
(1) Si el motor está andando normalmente, acoplar a baja velocidad con el embrague y aumentar, entonces, gradualmente la velocidad.

Low speed
Baja velocidad



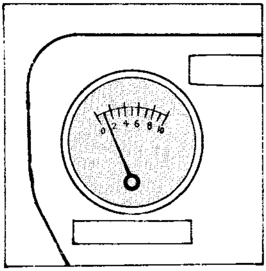


High speed
Alta velocidad

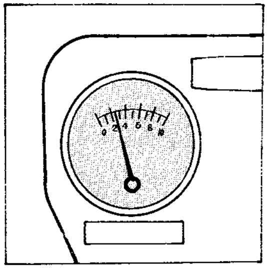


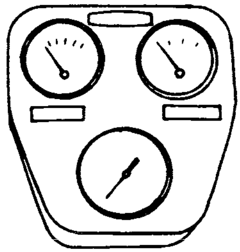
POINTS TO CHECK DURING OPERATION
PUNTOS QUE DEBEN REVISARSE DURANTE LA OPERACION

1. LUBRICATING OIL PRESSURE (ENGINE SIDE)
1. PRESION DEL ACEITE LUBRICANTE (LADO DEL MOTOR)

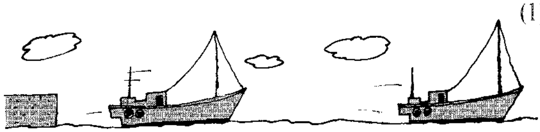


Normal speed: More than 0.5kg/cm
Velocidad normal: Mayor de 0.5kg/cm





Normal speed: 2~2.5kg/cm
Velocidad normal: 2~2.5kg/cm



(1) Pressure is normal if the reading is within the 2~2.5kg/cm^2 range marked in green. In cold weather the pressure will rise as high as 4kg/cm^2 immediately after starting the engine but there is no cause for alarm at this.

(1) La presión es normal si la lectura está dentro del rango de 2kg/cm^{2}a 2.5kg/cm^2 marcado en verde. En tiempo frío la presión se elevará a 4kg/cm^2 inmediatamente después de la puesta en marcha del motor, pero no hay razón para alarmarse por esto.

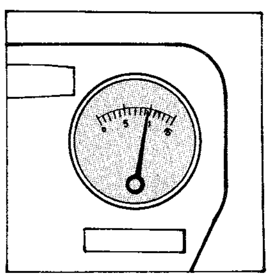
(2) Make sure that the oil pressure does not drop below 0.5kg/cm^2 when running without load.

(2) Asegurarse de que la presión de aceite no disminuye por debajo de 0.5kg/cm^2, cuando está marchando sin carga.

2. CLUTCH LUB. OIL PRESSURE
2. PRESION DEL ACEITE LUBRICANTE DEL EMBRAGUE DEL EMBRAGUE (Except 1SME) (Excepto 1SME)

(1) When the engine is in forward gear normal oil pressure is 9~9.5kg/cm^2, within the range marked in green on the gauge.

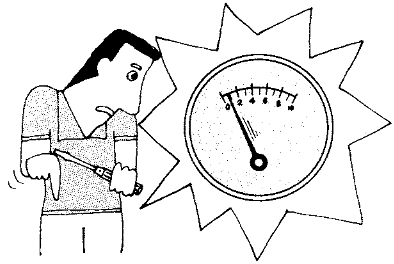
(1) Cuando el motor está en marcha hacia adelante, la presión normal de aceite es de 9kg/cm^2 a 9.5kg/cm^2, en el rango marcado en verde en el manómetro.

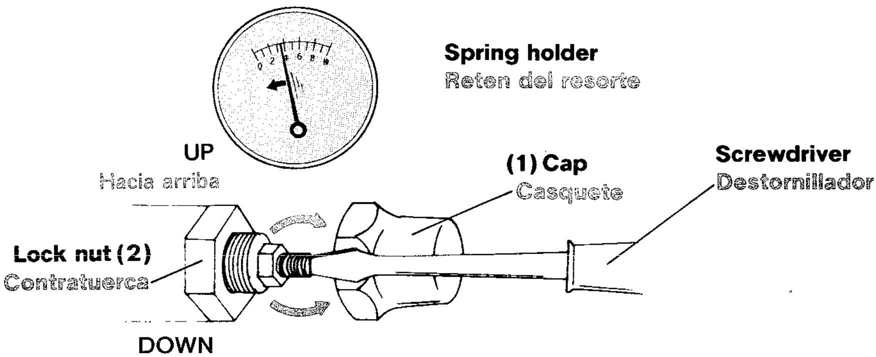


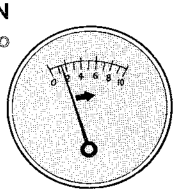
9~9.5kg/cm^2

If pressure is not in this range, adjust the pressure as shown in the illustration.

Si la presión no está dentro de este rango, ajustar la presión como se indica en la figura.

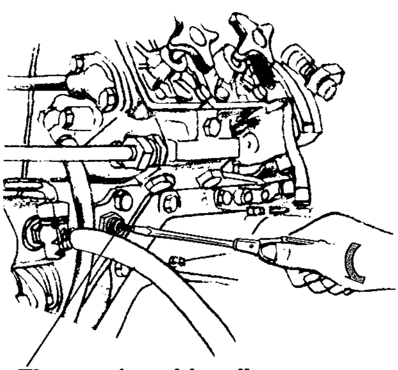




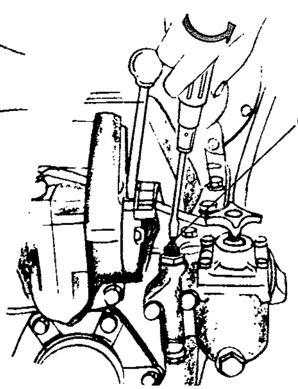


Remove cap (1) loosen lock nut (2) and then turn spring holder (3).
Turn to the right to increase the pressure.
Turn to the left to lower the pressure.

Retirar el casquete (1), aflojar la contratuerca (2) y girar entonces el retén del resorte (3).
Girar hacia la derecha para aumentar la presión.
Girar hacia la izquierda para bajar la presión.



The engine-side oil pressure adjusting screw.
Tornillo de ajuste de la presión de aceite en el lado del motor



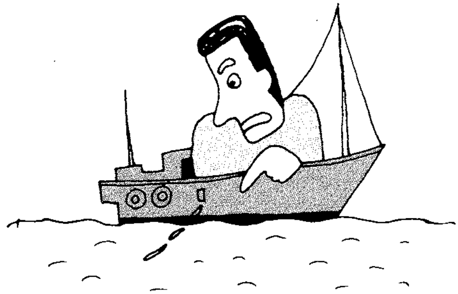
Clutch lub. oil pressure control screw
Tornillo de control de la presión del aceite lubricante del embrague

3. THE OUTFLOW OF COOLING WATER

3. FLUJO DEL AGUA DE ENFRIAMIENTO POR FUERA

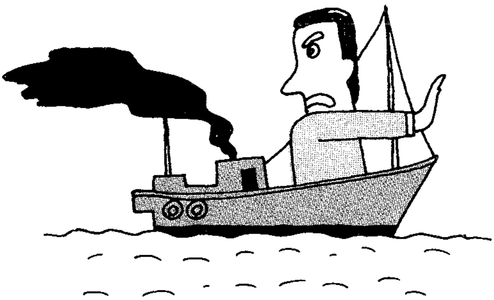
If the flow is intermittent, stop the engine and check the pump and the entire cooling water flow path.

Si el flujo es intermitente, detener el motor y revisar la bomba y todo el sistema de circulación del agua de enfriamiento.



4. EXHAUST GAS COLOUR

4. COLOR DE LOS GASES DE ESCAPE

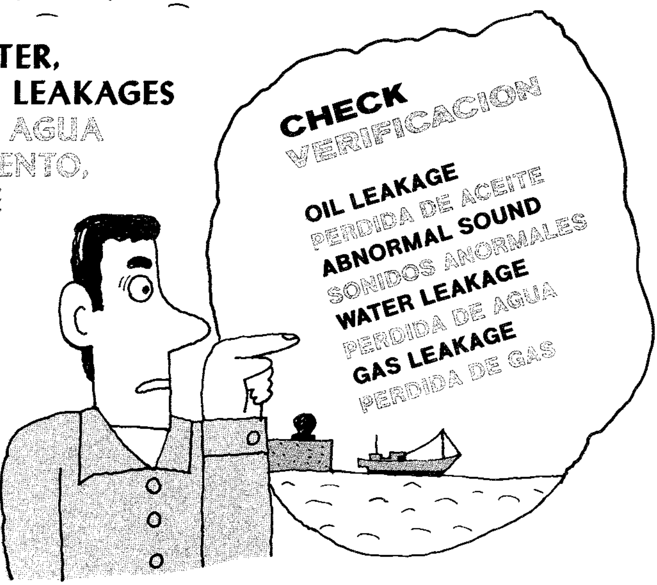


Black smoke indicates overloading of the engine. Reduce load load by dropping speed.

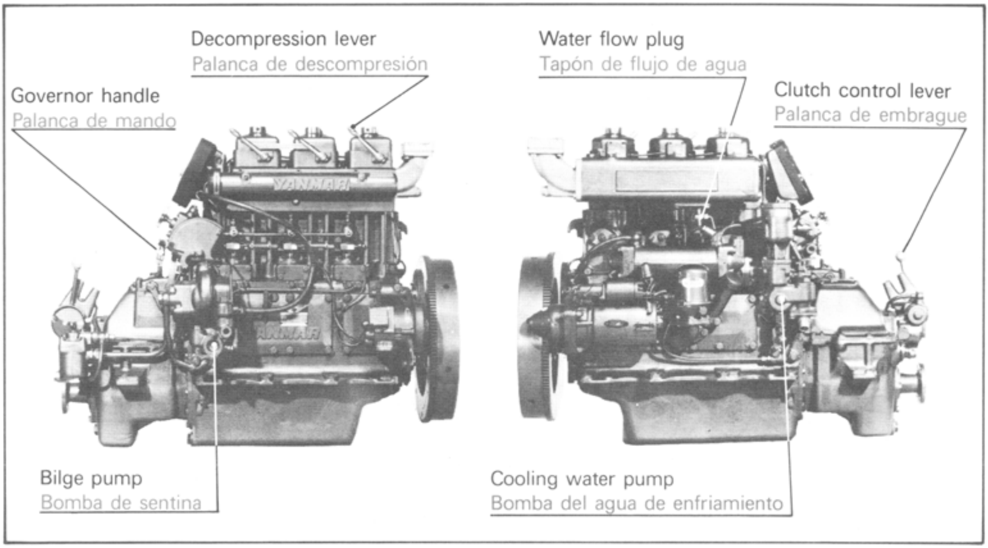
Humo negro indica que se ha sobrecargado el motor. Reducir la carga disminuyendo la velocidad.

5. COOLING WATER, GAS AND OIL LEAKAGES

5. PERDIDAS DE AGUA DE ENFRIAMIENTO, GAS Y ACEITE

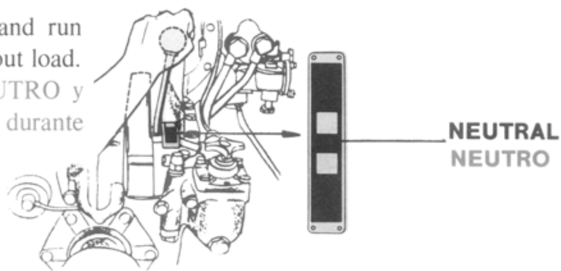


STOPPING PARAR



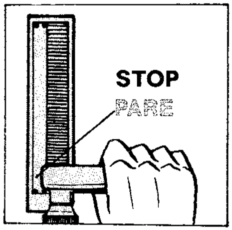
(1) Gradually reduce the speed to low.
(1) Reducir gradualmente la velocidad hasta un valor bajo.

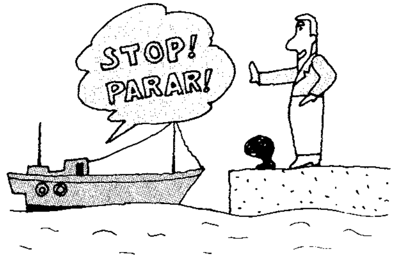
(2) Put the clutch to NEUTRAL and run the engine for a short time without load.
(2) Desacoplar el embrague a NEUTRO y dejar andando el motor sin carga durante un tiempo corto.



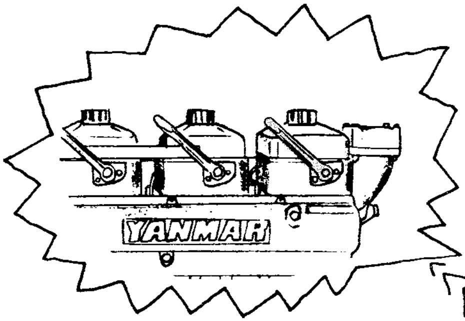
(3) Set the governor handle to STOP and the engine will stop.

(3) Poner la palanca de mando en PARE y el motor se parará.



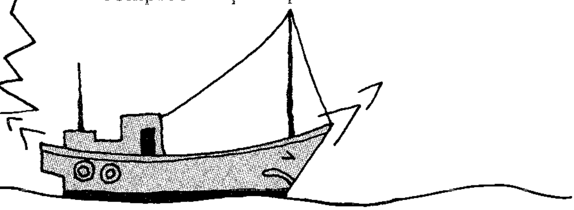


REMARKS:
OBSERVACIONES:



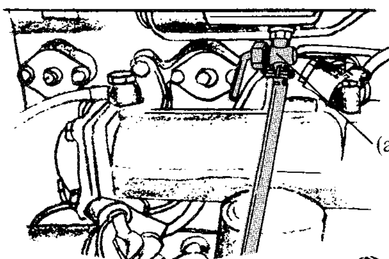
(1) Never use the decompression handle to stop the engine.

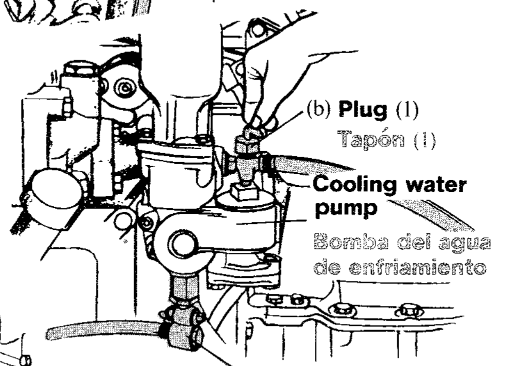
(1) Nunca usar la palanca de descompresión para parar el motor.

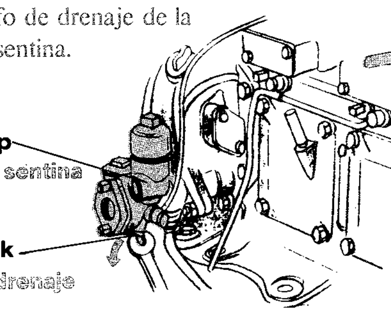


(2) If the cooling water is likely to freeze when the weather is cold, drain it out in the following way:
  (a) Open the water flow plug.
  (b) Open plugs (1) and (2) on the cooling water pump.
  (c) Open the drain cock on the bilge pump.

(2) Si parece que el agua de enfriamiento se va a congelar cuando el tiempo es frío, vaciarlo en la forma siguiente:
  (a) Abrir el tapón de flujo de agua.
  (b) Abrir los tapones (1) y (2) de la bomba del agua de enfriamiento.
  (c) Abrir el grifo de drenaje de la bomba de sentina.







(3) Continually keep in mind the need to care for the engine.

(3) Recordar continuamente que es necesario cuidar el motor.

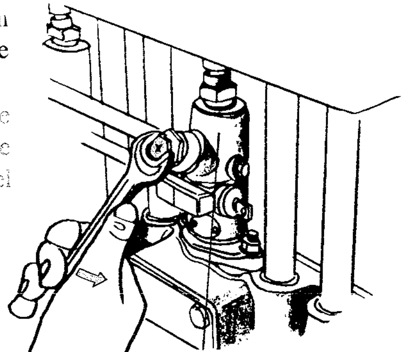
AIR VENTING PURGA DEL AIRE

(1) Open the fuel tank cock and loosen the air venting plug on the fuel strainer. After bubbles stop coming out with the fuel, tighten again.

(1) Abrir el grifo del tanque de combustible y aflojar el tapón de purga de aire del filtro de combustible. Ajustar nuevamente cuando dejan de salir burbujas con el combustible.

(2) Loosen the air venting plug on the fuel injection pump and after bubbles stop coming out with the fuel, tighten it again.

(2) Aflojar el tapón de purga del aire de la bomba de inyección del combustible y ajustar nuevamente después de que las burbujas dejen de salir con el combustible.

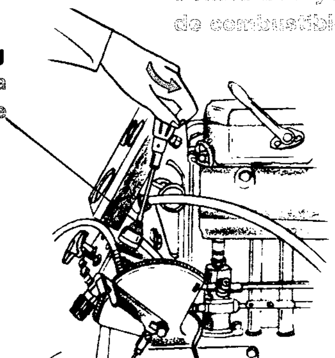


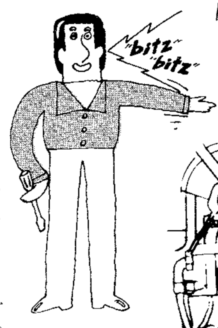
Fuel injection pump
Bomba de inyección de combustible

(3) After venting air from the fuel injection pump, prime with the priming handle and once it is possible to hear the sound of fuel being injected, that indicates that all the air in the injection system has been completely vented.

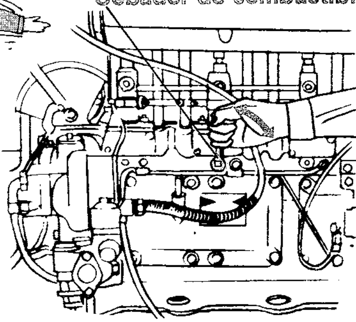
(3) Después de descargar el aire de la bomba de inyección de combustible, cebarla con el cebador y cuando es posible escuchar el sonido del combustible que se está inyectando, esto indica que todo el aire en el sistema de inyección ha sido purgado completamente.

Air venting plug
Tapón de purga del aire





Fuel oil priming handle
Cebador de combustible



NOTE:
Unless the fuel tank becomes empty or the parts are dismantled, it should not be necessary to repeat the air venting procedure.
NOTA:
No deberá ser necesario repetir el procedimiento de purga del aire, a menos que se vacíe el tanque de combustible o que se desmonten las piezas.

PERIODICAL DO-IT-YOURSELF CHECK

REVISION PERIODICA POR USTED MISMO

Item Puntos	Description Descripción
Fuel oil Aceite combustible	Checking and feeding Revisión y alimentación
	Fuel tank drain cock (before filling with oil) Grifo de drenaje del tanque de combustible (antes de la alimentación)
	Operation of fuel strainer handle Operación de la manija del filtro de combustible
	Fuel strainer draining Drenado del filtro del combustible
	Fuel strainer cleaning Limpieza del filtro del combustible
Lub. oil Aceite lubricante	Checking and feeding Revisión y alimentación
	Operation of lub. oil strainer handle (engine side & clutch side) Operación de la manija del filtro de aceite lubricante (lado del motor y lado del enbrague)
	Lub. oil strainer draining (engine side & clutch side) Drenado del filtro de aceite lubricante (lado del motor y lado del embrague)
	Lub. oil strainer cleaning (engine side & clutch side) Limpieza del filtro del aceite lubricante (lado del motor y lado del embrague)
	Centrifugal lub. oil strainer cleaning Limpieza del filtro centrífugo de aceite lubricante
	Replacement of lub. oil Sustitución del aceite lubricante
Cooling water & Bilge Agua de enfriamiento y de sentina	Checking of gland packing Revisión de empaquetadura del prensaestopas
	Inspection of cooling water circulation Inspección de la circulación del agua de enfriamiento
Inspection of anti-corrosive zinc Inspección del zinc anti-corrosión	
Battery (at electrical starting) Batería (en arranque eléctrico)	Inspection of electrolyte level Inspección del nivel del electrolito
	Inspection of specific gravity of electrolyte and charging Inspección de la desidad relativa del electrolico y carga

In order to keep the engine in top running condition, carry out a regular maintenance check.
In this way small malfunction can be detected and corrected before they lead to a serious engine failure.

Con el objeto de mantener el motor en las mejores condiciones para trabajar, efectúe una revisión regular de mantenimiento. De este modo sepueden detectar y corregir pequenos desperfectos, antes de qur provoque una falla seria del motor.

	Daily Diariamente	Every hrs. 50 Caba hs.	Every hrs. 250 Cada hs.	Every hrs. 300 Cada hs.	Every hrs. 500 Cada hs.	Note Nota
	○					
	○					
	○					
		○				(Fig. 1)
			○			(Fig. 3)
	○					
	○					
		○				(Fig. 1) (Fig. 2)
			○			(Fig. 3)
			○			(Fig. 4)
			○			(Fig. 5)
	○					
	○					
					○	(Fig. 6) (Fig. 7)
	○					
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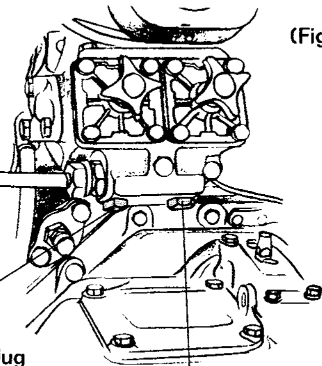
PERIODIC CHECK REVISION PERIODICA

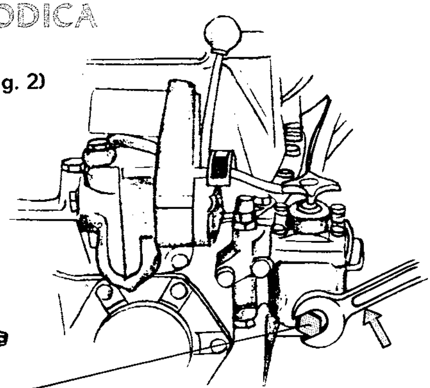
(Fig. 1)



Lub. oil strainer drain plug (engine side)
Tapón de drenaje de filtro del aceite lubricante (lado del motor)

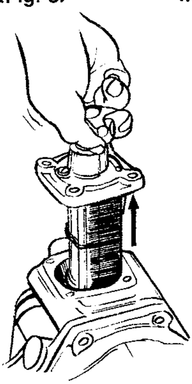
Fuel oil strainer drain plug
Tapón de drenaje de filtro del combustible

(Fig. 2)



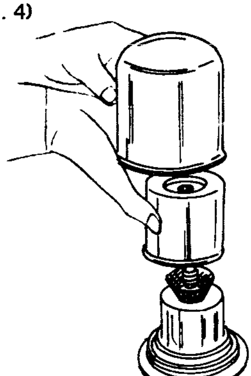
Lub. oil strainer drain plug (clutch side)
Tapón de drenaje de filtro del aceite lubricante (lado del embrague)

(Fig. 3)



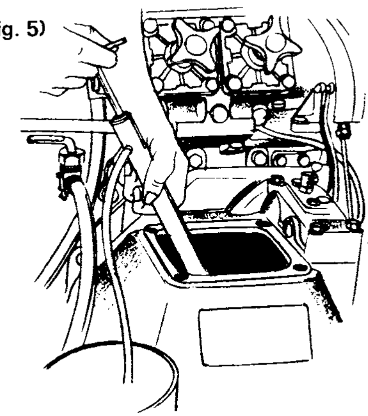
Strainer cleaning
Limpieza del filtro

(Fig. 4)



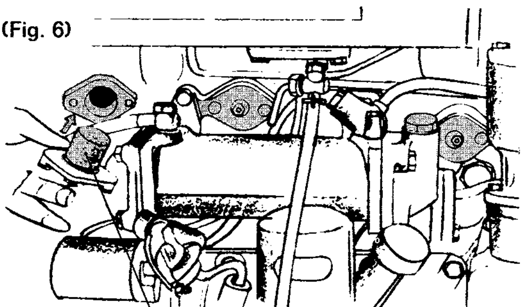
Centrifugal lub. oil strainer cleaning
Limpieza del filtro centrífugo de aceite lubricante

(Fig. 5)

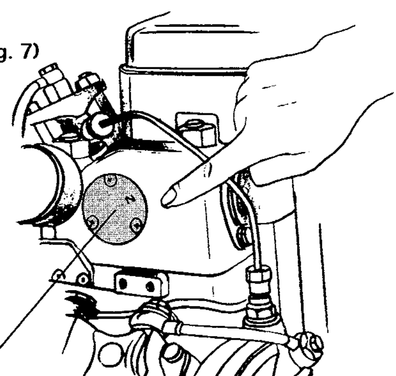


Replacement of lub. oil
Sustitución del aceite lubricante

(Fig. 6)

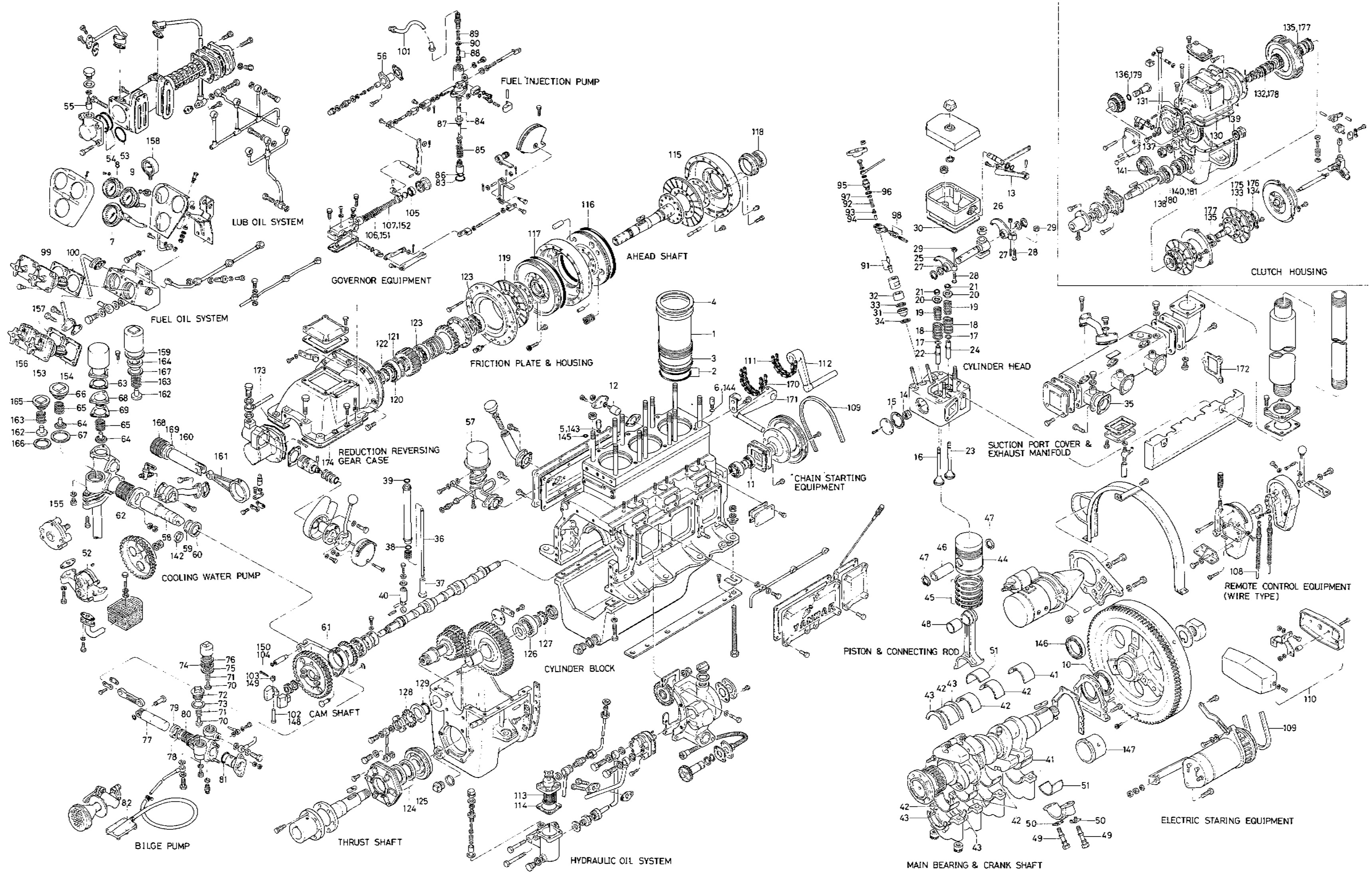


(Fig. 7)



Inspection of anti-corrosive zinc
Inspección del zinc anti-corrosión

FAST MOVING PARTS



NAME OF FAST MOVING PARTS

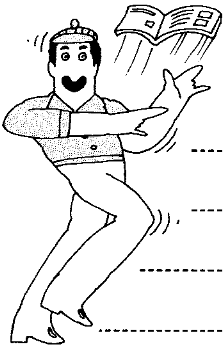
No	Name of Part
1	Cylinder liner
2	Rubber packing, cylinder liner
3	Packing, cylinder liner
4	Packing, cylinder head
5	O-rng, P12
6	O-ring
7	Tachometer (2. 3SME)
8	Pressure gauge (crankcase) (2. 3SME)
9	Pressure gauge (clutch case) (2. 3SME)
10	Oil seal, crankshaft
11	Oil seal SB30458
12	Anticorrosive zinc, cylinder body
13	Decompresion lever
14	Anticorrosive zinc, cylinder head
15	Packing, anticorrosive zinc
16	Intake valve
17	Valve circlip
18	Valve spring, outor side
19	Valve spring, inner side
20	Valve spring holder
21	Collar, valve spring holder
22	Valve guide, intake valve
23	Exhaust valve
24	Valve guide, exhaust valve
25	Rocker arm, intake valve
26	Rocker arm, exhaust valve
27	Bush, rocker arm
28	Adjusting screw
29	Lock nut
30	Packing, rocker arm chamber
31	Precombustion chamber, front side

No	Name of Part
32	Precombustion chamber, rear side
33	Packing, precombustion chamber
34	Packing, precombustion chamber
35	Gasket packing
36	Push rod
37	Tappet
38	O-ring
39	O-ring
40	Roller guide
41	Main bearing metal
42	Main bearing metal
43	Thrust metal
44	Piston
45	Piston ring set (1-cylinder)
46	Piston pin
47	Circlip 38
48	Piston pin netal
49	Conncting rod bolt
50	Lock washer, connecting rod
51	Crank pin metal
52	Lub. oil pump
53	O-ring G40 (2SME)
54	O-ring G75 (3SME)
55	Anticorrosive zinc
56	Adjusting valve, lub. oil
57	Oil strainer
58	Plunger, C. W. pump
59	Plunger water-cut rubber
60	Oil seal
61	Connecting rod, C. W. pump
62	Gland packing
63	Packing, air chanber
64	Suction & delivery valve
65	Valve spring
66	Suction valve, spring holder
67	Packing
68	Delivery valve spring holder
69	Packing
70	Suction & delivery valve, bilge pump
71	Suction & delivery valve spring

No	Name of part
72	Control piece, suction valve lift
73	Packing
74	Control piece, delivery valve lift
75	Packing, control piece, lower
76	Packing, control piece, upper
77	Plunger
78	Plunger w ater-out rubber
79	Oil seal
80	Gland packing
81	O-ring
82	Bilge strainer
83	O-ring G35
84	Plunger
85	Plunger, spring
86	Circlip, plunger guide
87	Washer, plunger barrel
88	Fuel delivery valve
89	Spring, fuel delivery valve
90	Washer, delivery valve spring holder
91	Nozzle & case
92	Needle valve spring
93	Supporter, needlve valve spring
94	Inter-spindle
95	Spring holder, fuel valve
96	Packing, spring holder
97	Spring adjusting plate
98	Fuel oil strainer
99	Fuel oil strainer
100	Packing, fuel oil strainer
101	High pressure pipe
102	Pin, governor weight
103	Washer
104	Split pin
105	Ball bearing 6202
106	Governor spring
107	Governor spring (10w speed)
108	Wire
109	V-belt
110	Regulator
111	Chain

No	Name of Part
112	Starting handle
113	Element, hydraulic oil strainer
114	Packing, element
115	Friction plate, ahead
116	O-ring
117	O-ring
118	Ball bearing 6206
119	Friction plate, astern
120	Roller bearing
121	Circlip
122	Washer
123	Bell bearing 6008
124	Oil seal TC69789
125	Ball bearing
126	Ball bearing 6307
127	Washer
128	Washer
129	O-ring
130	Packing, reduction reversing case
131	Packing, reduction reversing case
132	Cylindrical roller bearing N306
133	Friction plate
134	Ball bearing 6206
135	Ball bearing 6007
136	O-ring P30
137	Washer
138	Oil seal TC557212
139	Washer
140	Ball bearing 6306
141	Ball bearing 6408NR
142	Oil seal
143	O-ring
144	O-ring P12
145	O-ring
146	Oil seal, crankshaft
147	Main bearing metal
148	Pin, governor weight
149	Washer
150	Split pin 2.3$\phi\times$25
151	Governor spring

No	Name of Part
152	Governor spring (low speed)
153	Fuel oil strainer
154	Packing
155	Lub. oil pump
156	Lub. oil strainer
157	Packing
158	Pressure gauge AVT60 (1SME)
159	Packing, air chamber
160	Plunger, C. W. pump
161	Connecting rod, C. W. pump
162	Suction & exhaust valve
163	Spring, suction & exhaust valve
164	Valve guide (A)
165	Valve guide (B)
166	Packing
167	Packing, valve guide
168	Gland packing
169	Plunger water-cut rubber
170	Chain
171	Starting handle
172	Gasket packing, exhaust pipe bend
173	Housing packing
174	Packing, clutch housing
175	Friction plate
176	Ball bearing DD6205
177	Ball bearing 6006
178	Cylindrical roller bearing
179	O-ring P20
180	Ball bearing 6307
181	Ball bearing 6207



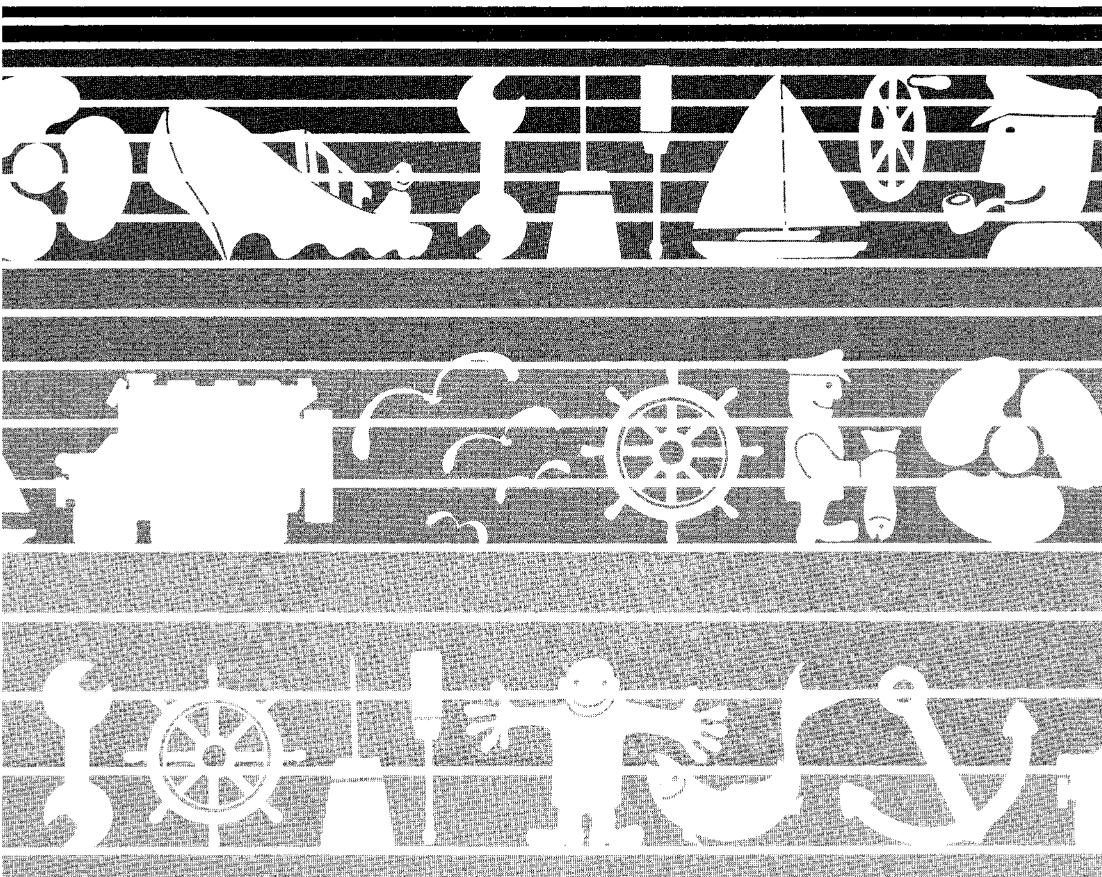
MEMO

For repair service and or doubtful points, please call on our agency from which you bought it.

Para los servicios de reparación o cualquier duda, consúltenos en la agencia donde Ud. hizo su compra.

YANMAR DIESEL ENGINE CO.,LTD.

1-1, Yaesu 2-chome, Chuo-ku, Tokyo 104, Japan
Cable: YANMAR TOKYO
Telex: 0222-2310, 0222-4733



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