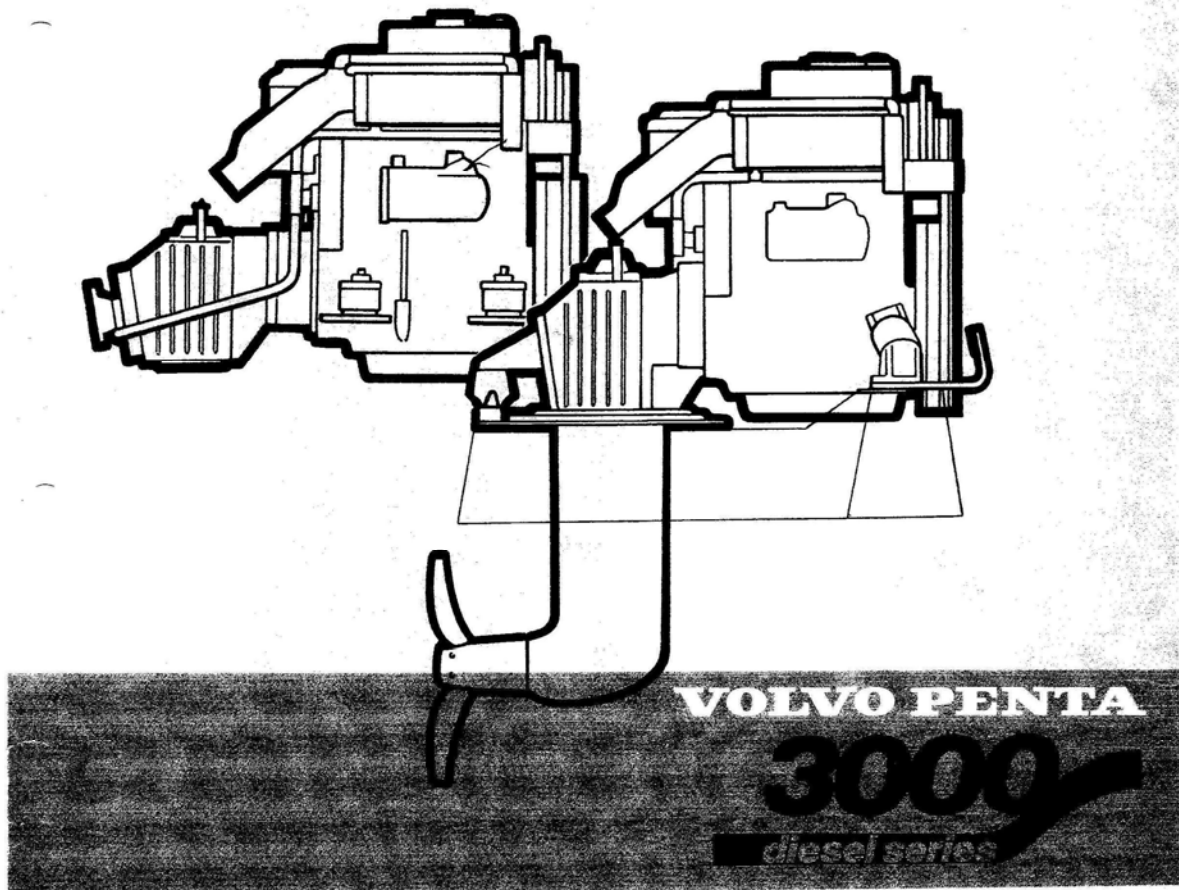
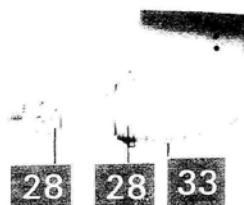
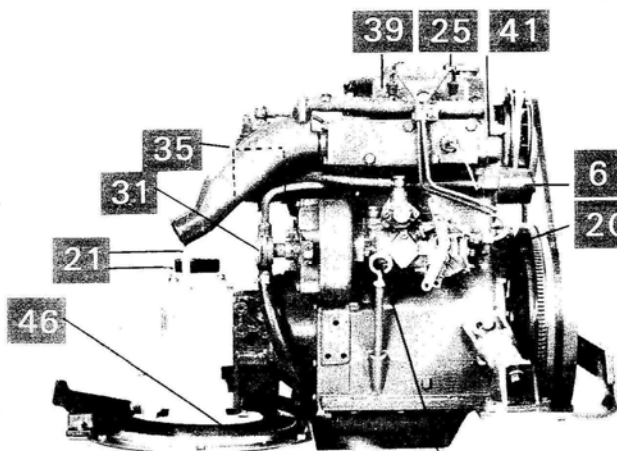
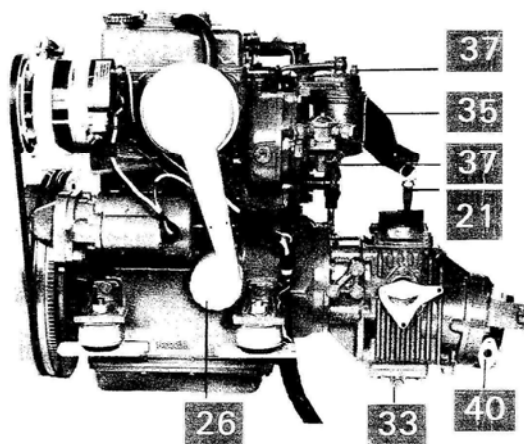
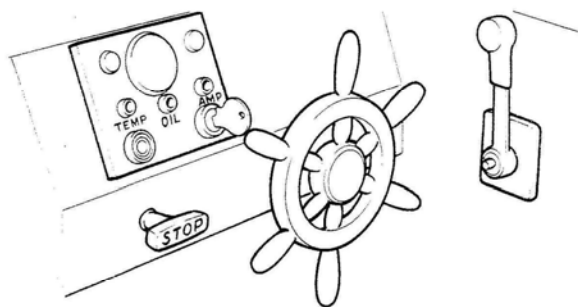


Instruction book
Betriebsanleitung
Manuel d'instructions
Libro de instrucciones

MD7B/MS2**MD7B/120S****VOLVO PENTA****3000****diesel series**

Manuale istruzioni
Instruktionsbok



A warranty certificate is supplied with each new engine.

Included in the warranty certificate is a delivery card which is to be completed by the dealer or boat seller and forwarded to Volvo Penta.

A new engine must be run-in with due care during the first 20 hours of operation.

Change the engine oil and oil filter after the engine has been run for 20 hours.

VORWORT

Jedem Motor wird ein Kundendienstheft beigelegt. Das Kundendienstheft hat eine Lieferungkarte, die von der Vertretung oder vom Bootverkäufer ausgefüllt und an Volvo Penta weitergeleitet wird.

Ein neuer Bootsmotor erfordert vorsichtiges Einfahren während der ersten 20 Betriebsstunden.

Nach 20 Betriebsstunden ist der Schmieröl in Motor und Ölfilter zu wechseln.

AVANT-PROPOS

Tous les moteurs sont accompagnés à la livraison d'un carnet d'entretien.

Le carnet d'entretien contient une fiche de livraison, qui doit être transmise à Volvo Penta, après avoir été remplie par le concessionnaire ou par le vendeur du bateau.

Un moteur marin neuf exige un rodage prudent durant les 20 premières heures de service.

L'huile moteur et le filtre à huile doivent être remplacés après 20 heures de service.

INTRODUCCION

Cada motor es suministrado con un librito de servicio.

El librito de servicio incluye una tarjeta de informe, que debe ser llenada por el concesionario, o por el vendedor de la embarcación, para ser enviada a Volvo Penta.

Un motor marino nuevo exige un ablande cuidadoso durante las primeras 20 horas de funcionamiento.

Después de 20 horas de funcionamiento, debe cambiarse el aceite lubricante del motor y el filtro.

PREFAZIONE

Ogni motore è accompagnato da un libretto di garanzia.

I termini della garanzia sono specificati nel libretto stesso che vi consigliamo di leggere attentamente.

Un motore marino nuovo deve essere rodato con cura durante le prime 20 ore di funzionamento.

Sostituire l'olio ed il relativo filtro dopo le prime 20 ore di moto.

FÖRORD

Med varje motor följer ett servicehäfte.

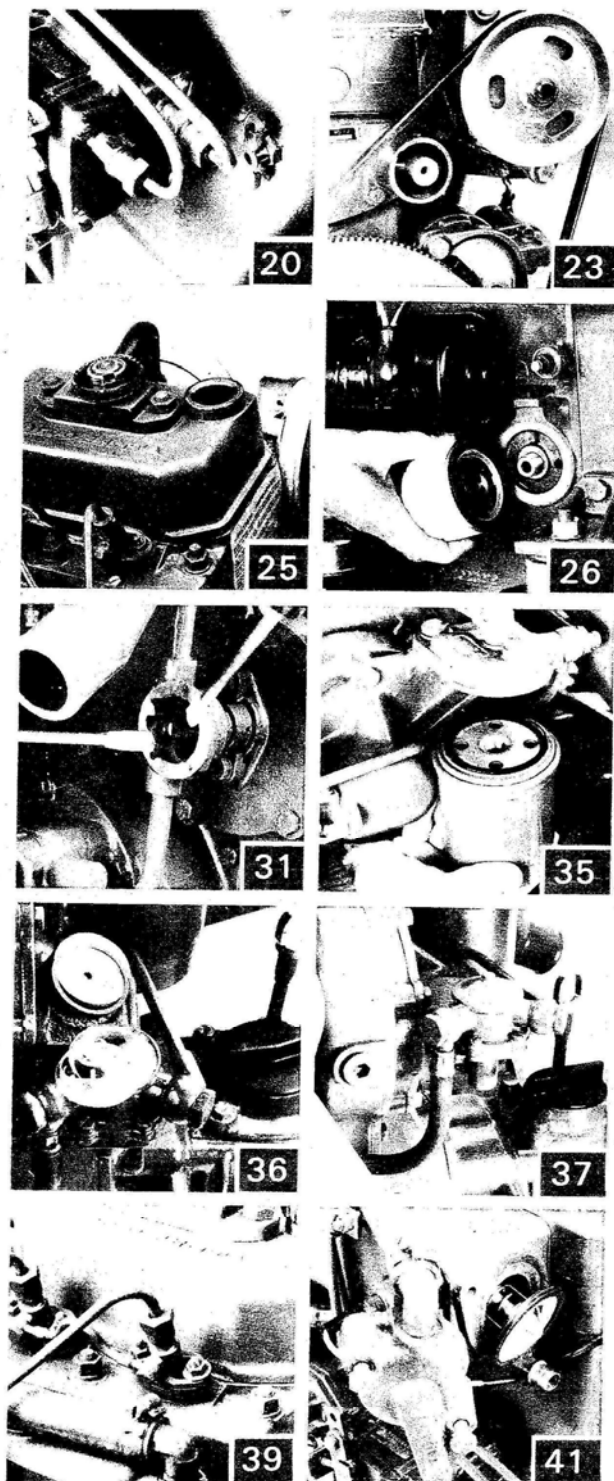
Servicehäftet har leveranskort, som skall ifyllas av återförsäljaren eller båtförsäljaren, och vidarebefodras till Volvo Penta.

En ny motor fordrar en försiktig inkörning under de första 20 driftstimmarna.

Efter 20 timmars drifttid skall motorns smörjolja samt oljefilter bytas.

DIESEL





Type designation
 Number of cylinders
 Prop. shaft output¹⁾ kW (hp)
 Max. operating speed r/min
 Bore, mm (inches)
 Stroke, mm (inches)
 Displacement, dm³ = litres (in³)
 Idling speed (r/min)
 Direction rot, from flywheel

Max. rearwards inclin. underway

Max. sideways inclin. underway
 Weight engine incl. rev. gear, kg (lb)
 Weight engine incl. S-drive 120S kg (lb)
 Fuel

VALVES

Clearance, inlet mm (in) hot engine
 outlet, mm (in) hot engine

Decompression, downwards

LUBRICATING SYSTEM ENGINE

Oil capacity, lit. (= qts) engine excl. filter
 incl. filter

Oil grade

Viscosity, above +10°C
 below +10°C

Ratio, MS2 rev. gear with red. gear

Oil capacity, lit. (= qts) MS2

Oil grade (same as for engine)

Viscosity, above +10°C (50°F)
 below +10°C (50°F)

Ratio, S-drive 120S

Oil capacity, lit. (= qts) 120S

Oil grade (same as for the engine)

Viscosity (same as for the engine)

Thermostat opens at °C/°F
 fully open °C/°F

ELECTRICAL SYSTEM

Battery voltage, V

Battery capacity, starter motor max Ah

Starter motor rating, kW

Alternator rating, A (W)

Battery electrolyte spec. grav:

Charging to be carried out at g/cm³
 Fully charged battery, g/cm³

TIGHTENING TORQUES

Cylinder head nuts Nm (kpm) (lbf. ft.)

Injector yoke nuts NM (kpm) (lbf. ft.)

1) Propeller shaft output according to DIN

Leistung B für Dauerbetrieb

2) Volvo Penta CD oil, Double grade

3) Volvo Penta CD oil, Single grade

Dati tecnici

Designazione motore
Numero cilindri
Potenza all'asse elica¹⁾
Velocità massima giri/min)
Lunghezza mm
Larghezza mm
Altezza mm
Capacità dm³
Velocità al minimo (giri/min.)
Sensibilità rot., visto dal volano

Velocità max. del motore in navigazione
Velocità laterale max. in navigazione
Peso del motore compr. inv. kg
Peso del motore compr. trasm. 120S kg
Combustibile

VALVOLE

Gioco valvole a motore caldo, aspir. mm
Gioco valvole a motore caldo, scar. mm
Decompre., spost. valv. di scar. mm

IMPIANTO DI LUBRIFICAZIONE MOTORE

Capienza olio motore lit. escl. il filtro
Capienza olio motore lit. compr. il filtro
Qualità olio
Viscosità con temp. sopra i 10°C
con temp. sotto i 10°C

Rapporto di riduzione, inv. MS2
Capienza olio lit. MS2
Qualità olio (la stessa del motore)
Viscosità con temp. sopra i 10°C
Viscosità con temp. sotto i 10°C
Rapporto di rid. trasm.
Capienza olio 120S
Qualità olio
Viscosità (la stessa dell'olio motore)
Termostato, comincia ad aprire a °C
Termostato, compl. aperto a °C

IMPIANTO ELETTRICO

Tensione batteria
Corrente massima batteria max Ah
Motorino di avviamento kW
Alternatore A (V)
Peso specifico dell'elettrolito batteria
Ricaricare la batteria a g/cm³
Batteria compl. carica a g/cm³

COPPIE DI SERRAGGIO

Dadi testata, Nm (kgm)
Dadi portainiettori, Nm (Kgm)

Tekniska data

Motorbeteckning
Cylinderantal, st
Propelleraxelevffekt¹⁾
Max. driftsvarvtal r/min)
Cylinderdiameter, mm
Slaglängd, mm
Slagvolym, dm³
Tomgångsvarvtal (r/min)
Rotationsriktning sett mot svänghjul

Max. bakåtlutning under gång
Max. sidolutning under gång
Motorvikt inkl. backslag, kg
Motorvikt inkl. drev 120S kg
Bränsle

VENTILER

Ventilspeil, inlopp mm, varm motor
Ventilspeil, utlopp mm, varm motor
Dekompr. nedtryckn. mm

SMÖRJSYSTEM MOTOR

Oljerymd, motor lit. exkl. filter
Oljerymd, motor lit. inkl. filter
Oljekvalitet
Viskositet, över +10°C
under +10°C

Utväxling MS2-backslag med red. växel
Oljerymd, MS2 lit.
Oljekvalitet (samma som motorn)
Viskositet, över +10°C
under +10°C
Utväxling drev 120S
Oljerymd 120 S
Oljekvalitet
Viskositet (samma som motorn)
Termostad, börjar öppna vid °C
Termostad, är fullt öppen vid °C

ELEKTRISKA SYSTEMET

Batterispänning, volt
Startmotorbatteri, max. Ah
Startmotoreffekt, kW
Generatoreffekt A (W)
Batterielektrolytens specifika vikt
Laddning utföres vid g/cm³
Fulladdat batteri, g/cm³

ÅTDRAGNINGSMOMENT

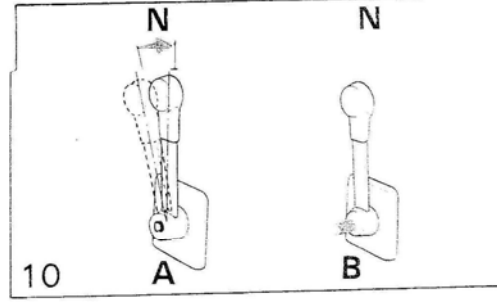
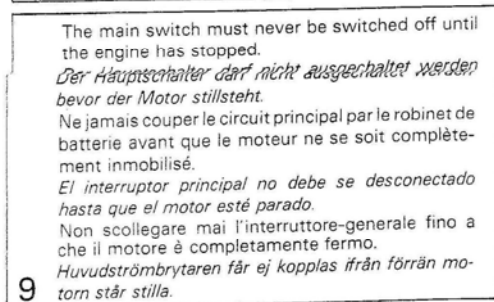
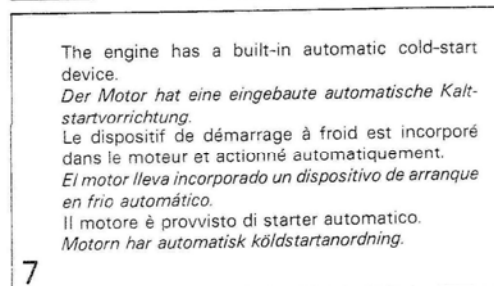
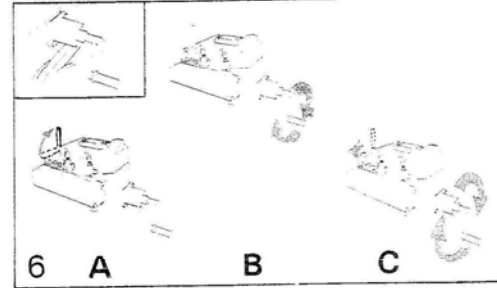
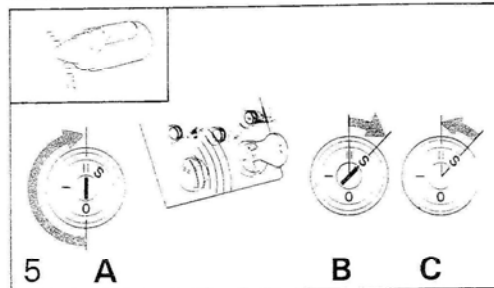
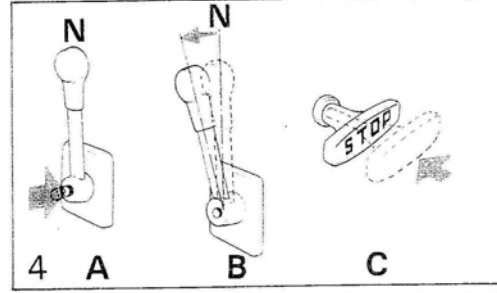
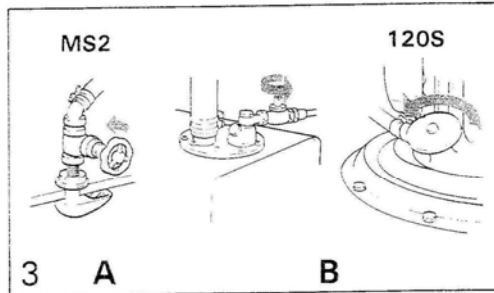
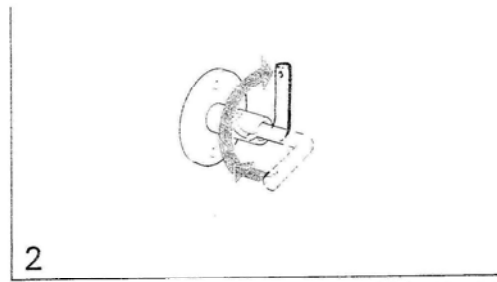
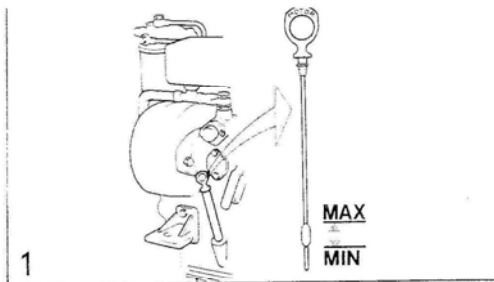
Cylinderlocksmuttrar Nm (kpm)
Muttrar för insprutarens ok Nm (kpm)

- 1) Potenza all'asse elica secondo le norme DIN Leistung B für Dauerbetrieb
- 2) Volvo Penta CD Multigrade
- 3) Volvo Penta CD Unigrade

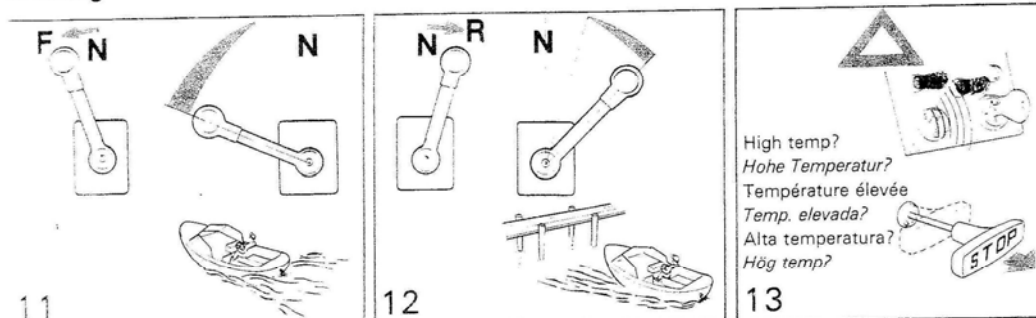
- 1) Propelleraxelevffekt enl. DIN Leistung B für Dauerbetrieb
- 2) Volvo Penta CD olja Double Grade
- 3) Volvo Penta CD olja Single Grade

Caution!
Achtung!
Avertissement!
Aviso!
Attenzione!
Varning!

AB VOLO PENTA
Technical Publications Dept.



Running *Fahren* Conduite *Manejo* Funzionamento *Körning*



11

12

13



Place controls in neutral when sailing.
Bedienungshebel beim Segeln in Leerlaufstellung stellen.
 Mettre la commande en position neutre lors de la navigation à voile.
 Al navegar a vela, poner el mando en la posición retroceso.
 Portare il comando sulla posizione di folle durante la navigazione a vela.

14 Ställ reglaget i neutralläge vid segling.



Place controls in reverse position when sailing.
Bedienungshebel beim Segeln in Stellung zurück stellen.
 Mettre la commande en position inversée lors de la navigation à voile.
 Al navegar a vela, poner el mando en la posición de retroceso.
 Portare il comando sulla posizione di marcia indietro durante la navigazione a vela.

Ställ reglaget i backläge vid segling.



Start and run engine 5 mins. every 10 hours on long-distance sailing trips.
Bei langdauerndem Segeln den Motor alle 10 Stunden anlassen und 5 Minuten fahren.
 Démarrer et faire tourner le moteurs 5 mn toutes les 10 heures lors des longues croisières.
 En singladuras prolongadas a vela, arrancar el motor cada 10 horas y hacerlo marchar 5 minutos en cada ocasión.
 Avviare il motore e lasciarlo funzionare per 5 min. ogni 10 ore di navigazione a vela.

15 Starta och kör motorn 5 min var 10:e timma vid långsegling.

The main switch must never be switched off until the engine has stopped.
Der Hauptschalter darf nicht ausgeschaltet werden bevor der Motor stillsteht.
 Ne jamais couper le circuit principal par le robinet de batterie avant que le moteur ne se soit complètement immobilisé.

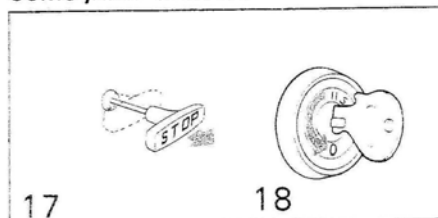
El interruptor principal no debe ser desconectado hasta que el motor esté parado.
 Non scollegare mai l'interruttore generale fino a che il motore è completamente fermo.
 Huvudströmbrytaren får ej kopplas ifrån förrän motorn står stilla.

16

Shutdown procedure
Como parar el motor

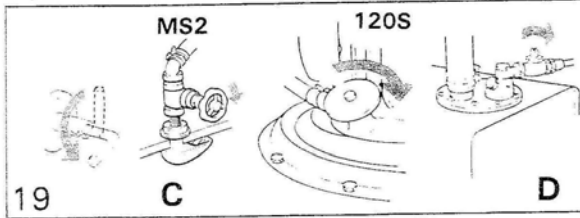
Beendigung der Fahrt
 Procedura per l'arresto del motore

Fin de marche
Avslutad körning



17

18



19

C

D



20

If risk of frost
Bei Frostgefahr
 Risque de gel
 Si hay riesgo de heladas
 Con rischio di gelo
 Vid frostrisk

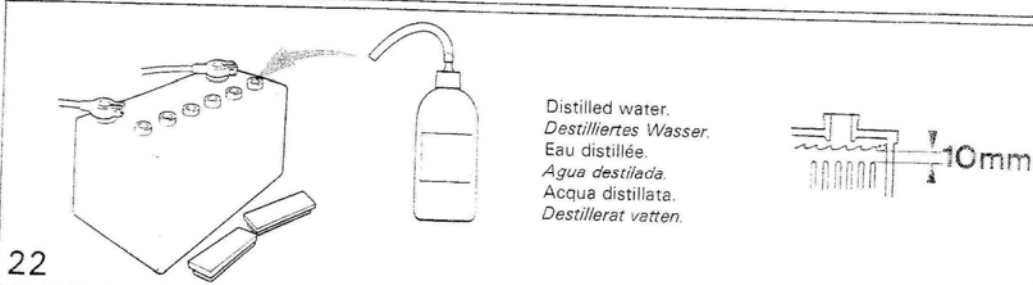
Do not allow to drain unsupervised
Kein Ablassen sondern Überwachung
 Pas de vidange
 Al vaciar, vigilar siempre
 Nessun scarico senza sorveglianza
 Ingen avtappning utan övervakning



Every 14 days
 Alle 14 Tage
 Tous les 15 jours
 Ogni 15 giorni
 Cada 15 dias
 Var 14:e dag

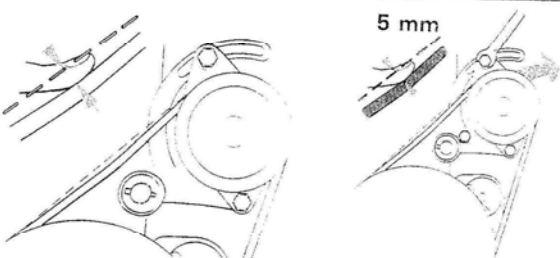


21



22

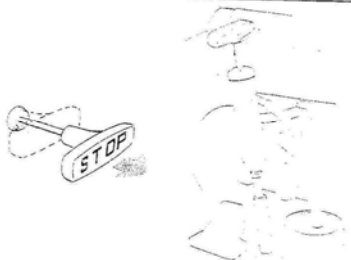
Belt tension
 Riemenspannung
 Tension de courroie
 Tensado de correas
 Tensione delle cinghia
 Remspänning



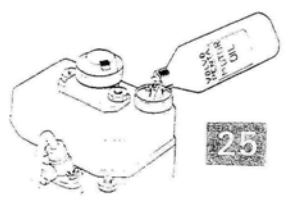
23

Every 50 hours
 Alle 50 Betriebsstunden
 Toutes les 50 heures
 Cada 50 horas
 Ogni 50 ore
 Var 50:e timma

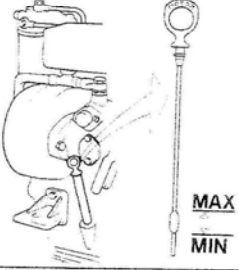
Allow engine to warm up
 Warmfahren
 Réchauffer
 Dejar marchar el motor hasta que se caliente
 Riscaldare il motore
 Varmkör



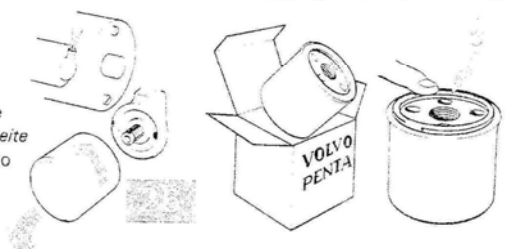
24



2,5 lit.

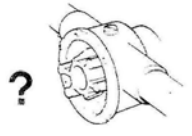
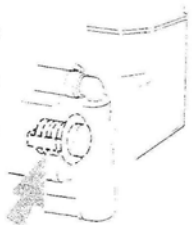
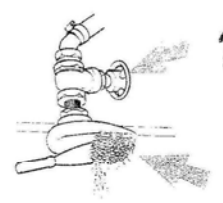


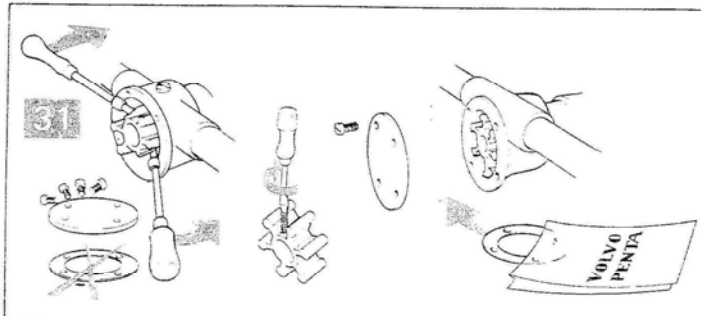
25

Every 100 hours <i>Alle 100 Betriebsstunden</i> Toutes les 100 heures <i>Cada 100 horas</i> Ogni 100 ore <i>Var 100:e timma</i>	See 24 <i>Siehe 24</i> Voir 24 <i>Ver 24</i> Ved. 24 Se 24	Oil filter <i>Ölfilter</i> Filtre à huile <i>Filtro de aceite</i> Filtro dell'olio <i>Oljefilter</i>	
	26		

 27	Screw on the filter by hand until it touches the contact surface. Turn the filter a further half turn. <i>Das Filter von Hand aufschrauben, bis es die Anliegefläche knapp berührt. Danach das Filter eine weitere halbe Drehung anziehen.</i> Visser ensuite le filtre à la main jusqu'à ce qu'il effleure juste la surface de contact. Serrer ensuite le filtre d'un demi-tour de plus.	Enroscar el filtro con la mano hasta que apenas roce con la superficie de contacto. Enroscar el filtro una media vuelta más. Avvitare il filtro a mano fino a che va a toccare la superficie di contatto. Avvitare quindi di un ulteriore mezzo giro ma non di più. Skruva på filtret för hand tills det just berör anliggningsytan. Skruva åt filtret ytterligare ett halvt varv.	See 25 <i>Siehe 25</i> Voir 25 <i>Ver 25</i> Ved. 25 Se 25
			28

If required *Bei Bedarf* En cas de besoin Se necessario *Si fuse necesario* Vid behov

 High temp? <i>Hohe Temperatur?</i> Température élevée <i>Temp. elevada?</i> Alta temperatura? <i>Hög temp?</i>	 ?	Thermostat Thermostat Thermostat Termostato Termostato Termostat	 ?	 ?
29				

MS2  120S 30	 31	MS2  120S 32
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See 24

Siehe 24

Voir 24

Ver 24

Ved. 24

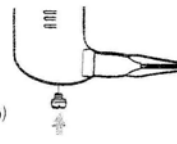
Se 24



MS2 In water
Im Wasser
A l'eau
En el agua
In mare
I sjön

120S

On land
Auf dem Land
A terre
En tierra
A terra (a secco)
På land



See 26

Siehe 26

Voir 26

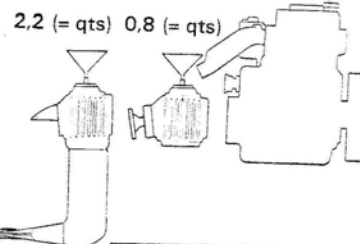
Ver 26

Ved. 26

Se 26

33

Fill up with VP oil.
VOLVO PENTA-Öl auffüllen.
Remplir d'huile Volvo Penta.
Poner aceite Volvo Penta.
Rifornire con olio Volvo Penta.
Fyll på Volvo Penta olja.



34

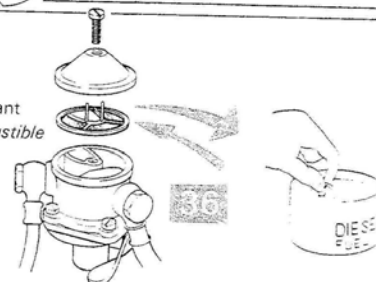


35
Fuel filter
Treibstofffilter
Filtre à carburant
Filtro de combustible
Filtro per il carburante
Bränslefilter



35

Fuel strainer
Treibstoffsieb
Crépine à carburant
Colador de combustible
Filtro a rete per
il carburante
Bränslesil



36

Venting
Entlüften

Purge

Purga

Spurgo

Luftning



Primer pump.
Handpumpe.
Pompe à main.
Cebador manual.
Pompa manuale.
Handpump.

37

37



Open venting screw. Pump out air by hand. Close.
Entlüftungsschraube öffnen, Entlüften im Handpumpe. Schließen.

Ouvrir la vis de purge. Pomper l'air manuellement. Fermer.

Abrir el tornillo de purga. Purgar el aire con el cebador manual. Cerrar.

Aprire la vite di aerazione. Eseguire lo spurgo dell'aria pompando a mano. Chiudere.

Öppna luftskruven. Handpumpa ut luften. Stäng.



Pump 1/2 min. for automatic venting.

Für automatische Entlüftung 1/2 Minute pumpen.

Pomper 1/2 mn pour purge automatique.

Para la purga automática de aire, bombear 1/2 minuto.

Pompare per mezzo minuto al fine di ottenere lo spurgo automatico.

Pumpa 1/2 min för automatisk urluftning.

38



39

39

Open the nut. Turn the engine by using the starter motor until fuel flows out from the delivery pipes.

Mutter öffnen. Motor mit dem Anlasser durchziehen, bis Kraftstoff an den Druckrohren ausströmt.

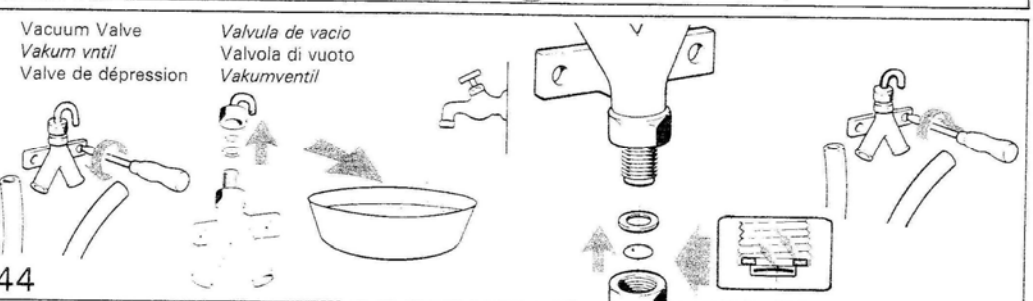
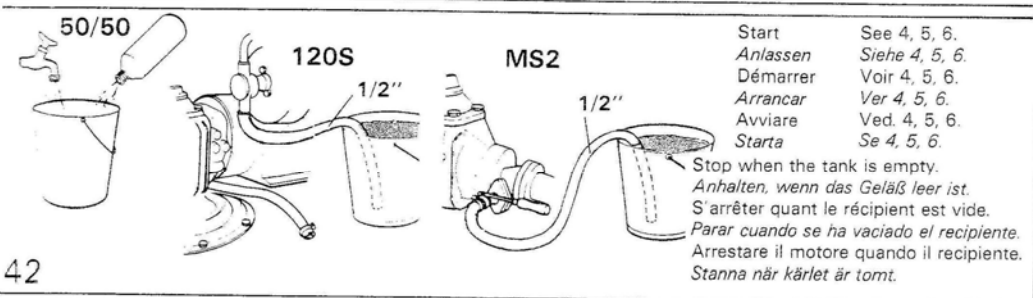
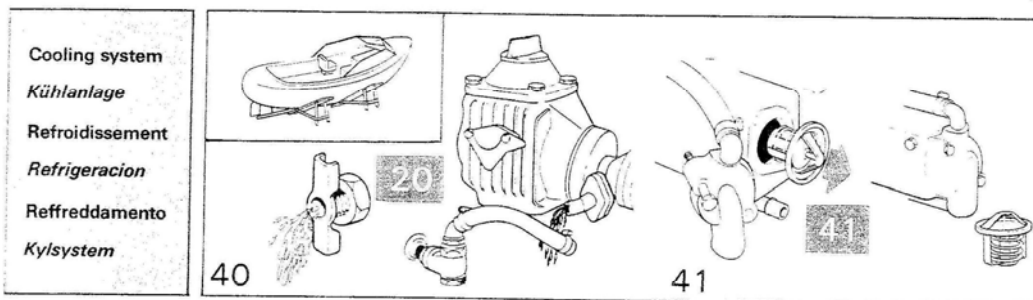
Ouvrir l'écrou. Mettre le moteur en marche au démarrage jusqu'à ce que le carburant s'échappe du tuyau de refoulement.

Abrir la tuerca. Hacer funcionar el motor con la ayuda del motor de arranque hasta que salga combustible por los tubos de presión.

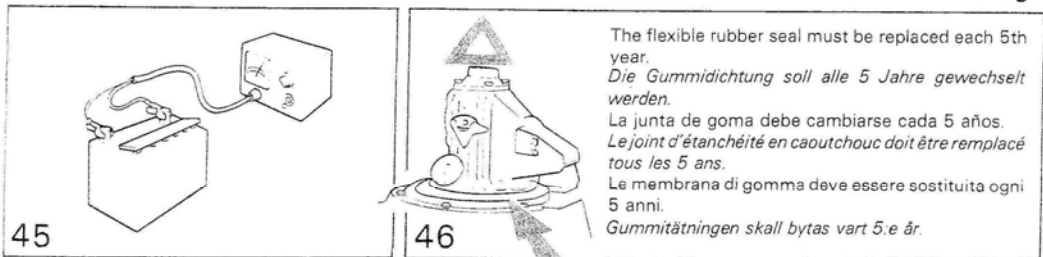
Aprire il dado. Far girare il motore con il motorino d'avviamento fino a che il gasolio fuoriesce dalle tubazioni mandate agli iniettori.

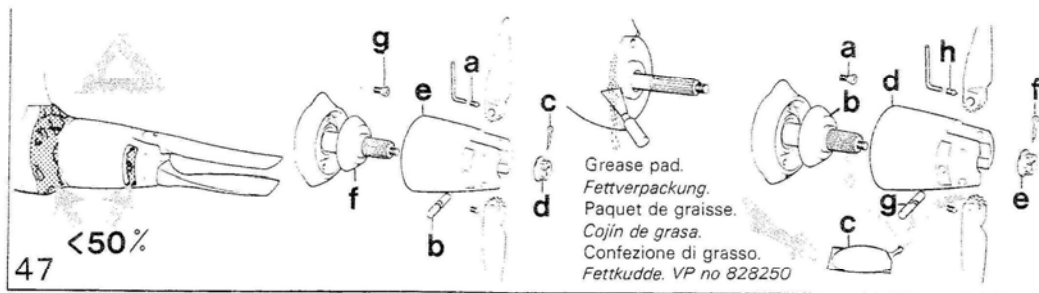
Öppna muttern. Kör runt motorn med startmotorn tills bränsle kommer fram.

Inhibiting *Konservieren* Conservation *Conservación* Preparazione *Konservering*

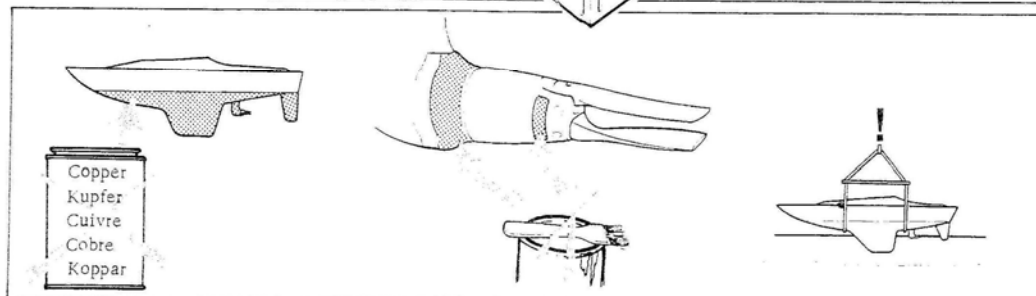
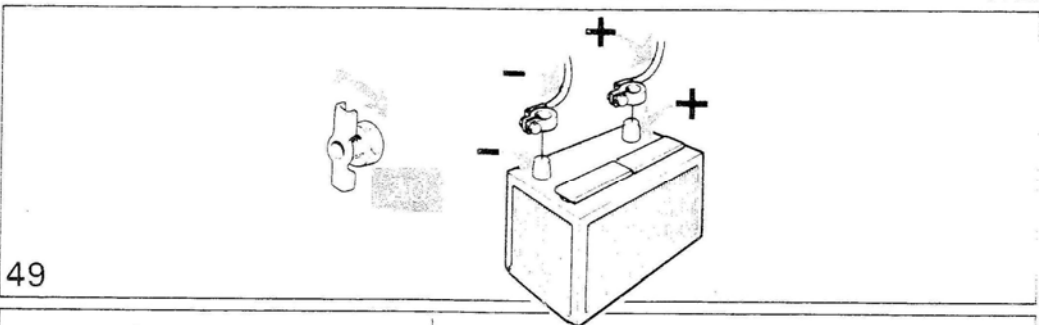
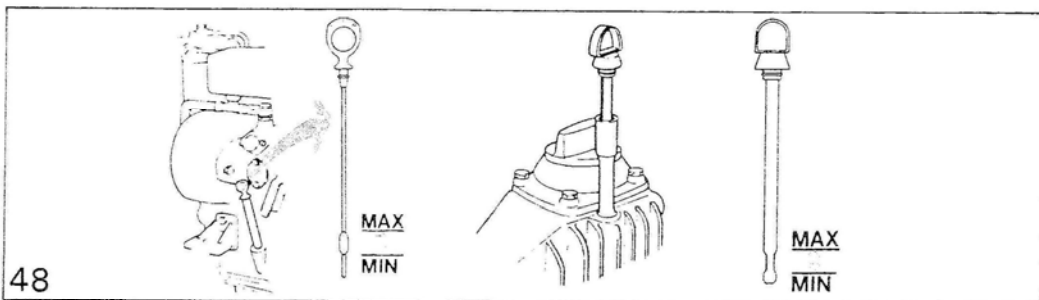


Other *Übriges* Autres *Otros* Varie *Övrigt*





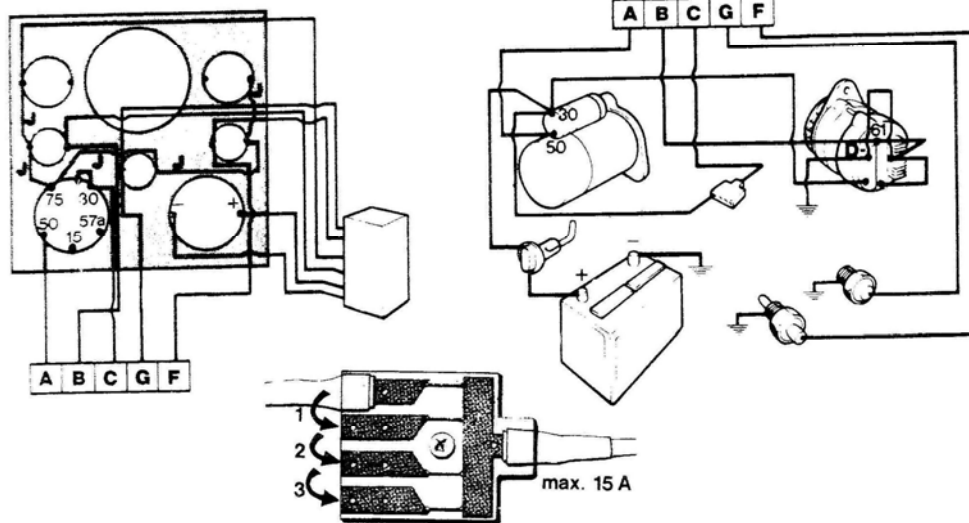
Launching Zuwasserlassen Mise à l'eau Botadura Varo Sjöläggning



Electrical system
Sistema elettrico

Elektrische Anlage
Impianto elettrico

Elsystem
Circuit électrique



Touch-up paint for S-drive.
 Aufbesserungsfarbe für Segelbootantrieb.
 Peinture de retouches pour hélice de transmission S.
 Pintura para retoques, para la transmisión S.
 Vernice per ritocchi, trasmissione S.
 Bättringsfärg för S-drev.
 VP no 832576

Onboard kit containing easily replaced spares.
 Bordsatz mit leicht austauschbaren Reserveteilen.
 Kit de pièces de rechange à montage facile pour usage à bord.
 Juego de a bordo con repuestos fácilmente cambiables.
 Serie di bordo, contenente parti di ricambio facilmente sostituibili.
 Ömbordsats innehållande lätt utbytbara reservdelar.
 VP no 875642

Grease pad for S-drive propeller.
 Fettverpackung für den Propeller des Segelbootantriebs.
 Paquet de graisse pour hélice de transmission S.
 Cojín de grasa para la hélice de la transmisión S.
 Confezione di grasso per elica trasmissione S.
 Fettkudde för S-drevspropellern.
 VP no 828250

Glycol
 283241 (5 lit.) (= qts)
 283240 (1 lit.) = qts)

VP engine oil can also be used for winter lay-up. For periods longer than 6 months, use special preservative oil.

Das Motoröl von VOLVO PENTA kann auch für das Auflegen im Winter verwendet werden. Bei längerem Auflegen des Bootes als 6 Monate, soll ein besonderes Konservieröl angewendet werden.

Huile de moteur Volvo Penta pouvant aussi être utilisée lors de la mise en conservation hivernale. Pour des durées de conservation de plus de 6 mois, une huile de conservation spéciale devra être utilisée.

Aceite Volvo Penta para motor. Puede utilizarse también para el invernaje. En almacenamientos superiores a 6 meses deberá utilizarse un aceite especial de conservación.

Olio per motori Volvo Penta che può essere impiegato anche per l'alaggio dell'imbarcazione durante la stagione fredda. Se il periodo di conservazione è superiore a 6 mesi, impiegare olio conservante speciale.

Volvo Penta motorolja som även kan användas vid vinteruppläggning. Vid längre uppläggning än 6 mån. bör speciell konserveringsolja användas.



SAE 20W/30 CD
 1 lit. (= qts) VP no 1141 1502