

Installation Instruction
(Owners Manual)
Installationsmanual



*Hydraulic Steering Systems
Directions Idrauliques
Timonerie Idrauliche – Idroguide
Hydrauliskt Styrsystem*

*Outboard – Inboard – Stern-Drive
Hors-Bord Inboard Stern-Drive
Fuoribordo – Entrobordo – Entrofuoribordo
Utomboardare – Inombordare – Drev*

English – Francais – Italiano – Svenska

Techno Italia KFT
Hungary – EU
technical@hydrodrive.eu

www.hydrodrive.eu

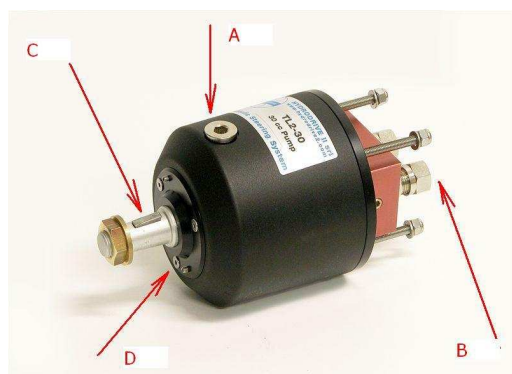
*Outboard Hydraulic Steering
Directions Hydrauliques Hors-Bord
Timoneria Idraulica Fuoribordo
Hydrauliskt Styrssystem för utombordare*

Models/désignation/modelli/modell: **MF90-MF120-MF150-MF300-MF350**

The hydraulic steering kit box contents / Kits complets / Kits completi / Den hydrauliska styrapaket innehåller:



- 1) Pump with fittings/*Pompe avec raccords/Pompa con raccordi/ Pump med tillbehör.*
- 2) Cylinder with fittings/*Vérin avec raccords/Cilindro con raccordi/ Cylinder med tillbehör.*
- 3) Hosing set with fittings/*Tuyau avec raccords/Tubazione con raccordi/ Slangset med tillbehör.*
- 4) Oil/*Huile/Olio/Olja.*
- 5) Easy filling oil system/*Système de remplissage rapide/Sistema di facile riempimento olio/ Behändigt oljefyllnadssystem.*



Pump/*Pompe/Pompa/Pump:*

- A) Oil filler cap/*Bouchon d'huile / Tappo riempimento olio/ Plugg för oljepåfyllning.*
- B) Hose connection to the cylinder /*Raccords pour liaison au verin/ Raccordi per collegamento al cilindro/ Slanganslutning till cylindern.*
- C) Steering wheel key/*Clè pour le Volant/Chiavetta per ruota/ Rattkil.*
- D) (Optional) Seal cap, Remove only in case seals need replacement/*Siege des garnitures/Insero porta guarnizione,*

rimuovere solo in caso di sostituzione guarnizioni/ *Packbox, Demonteras endast om packningen behöver bytas.*



Cylinder/*Vérin/Cilindro/Cylinderr:*

- A: Engine tilt tube shaft/*barra tubo motore/ Styrrosarm.*
- B: Steering Connection Arm/*barra di rinvio/ Länkarm för styranlutning*
- V: Bleeder Valve/*clapet de purge/valvole di spurgo aria/ Luftningsnippel.*

**P: Hose connection to the Helm Pump/raccordi per collegamento alla pompa/
Slanganslutning till styropump.**



**Hosing set with fittings / Tuyau avec raccords /
Tubazione con raccordi/ Slangset med kopplingar.**



**Easy filling oil system /
Système de remplissage
-de purge- rapide /
Sistema di riempimento
rapido/ Enkelt system
för oljepåfyllning .**

**Tooling for pump installation/ clefs-outils pour le pompe / chiavi utensili/ Verktyg som
behövs för pumpinstallation:**



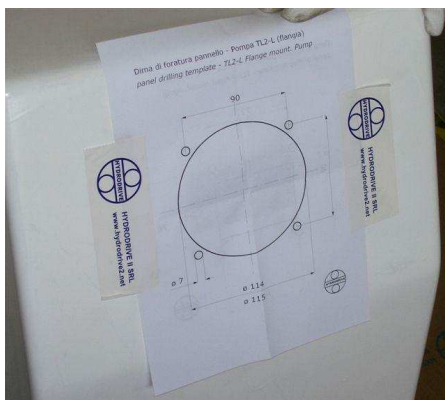
Before proceeding with installation, please read these instructions carefully. Hydrodrive cannot accept responsibility for installation where instructions have not been followed, where substitute parts have been used or where modifications have been made to our products. Hydrodrive helm pumps have a max. pressure valve inside so total lock is not possible.

Avant de commencer avec l'installation, nous vous prions de lire très attentivement et avancer selon les instructions. Hydrodrive ne va pas donner garantie quand l'installation n'été pas faite correctement, quand les pièces original sont été forcés, quand les pièces original sont été modifiés. Les pompes Hydrodrive ont à l'antérieur une valve de haute pression et s'arrête a peut prés au 100%.

Prima di procedure con l'installazione, preghiamo leggere attentamente e seguire queste istruzioni, la Hydrodrive non si ritiene responsabile di acconsentire alla garanzia dove l'installazione non è stata eseguita correttamente, dove le parti originali sono state sostituite o manomesse o dove fossero state fatte modifiche. Le pompe Hydrodrive hanno internamente una valvola di massima pressione, quindi è normale il bloccaggio non al 100%.

Innan du går vidare med att installera styropumpen, läs igenom instruktionerna noggrant. Hydrodrive kan inte hållas ansvarigt för felaktig installation, installation med icke-originaldelar och i fall där våra produkter har modifierats. Hydrodrive styropumpar har inbyggd säkerhetsventil vilket medför att fullständig stängning inte är möjlig.

Helm pump installation (outboard / inboard) "F" front (standard)
Pompe installation (hors-bord / inboard) "F" applique
Installazione della Pompa (per fuoribordo / entro bordo) "F" frontale
Installation av styropump (utombordare / inombordare) "F" front
(standard)



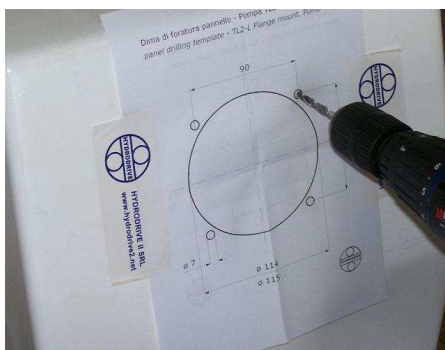
1:

Place the helm *template* (Front Mt) where required on the dash panel.

On doit mettre le dessin de perçement (dima) (F) sur le panneau du bateau.

Posizionare la *dima di foratura* (F) sul pannello dell'imbarcazione.

Placera mallen (Front Mt) på önskad plats på instrumentpanelen.



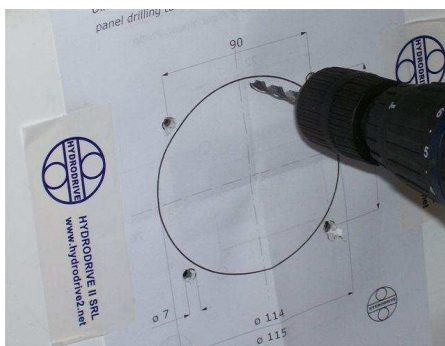
2:

Drill 4 x 7mm holes where indicated.

Perçer les 4 trous de 7 mm de diamètre.

Forare i 4 fori da 7 mm di diametro.

Borra 4 hål (7 mm) enligt mallen.



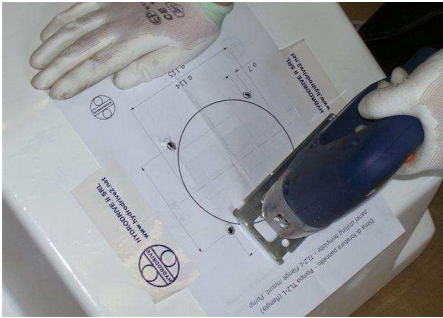
3:

Drill 4x holes in the corners of the valve location to enable cut out with a jig saw.

Perçer les autre 4 trous du même diamètre pour préparer le coupe pour la clapet (valve).

Forare altri 4 fori stesso diametro per preparare il taglio per lo spazio valvola.

Borra 4 hål, ett i varje hörn enligt mallen så det går att använda en sticksåg för att såga ut resten.



4:

Cut out the lock valve area. 50x90mm (Ø 90mm)

Couper l'espace valve (clapet) Ø 90mm

Tagliare lo spazio valvola Ø 90mm

Saga ut det markerade området (Ø 90mm)



5:

Remove the template.

Enlever le dessin de perçement.

Rimuovere la dima di foratura.

Ta bort mallen.



6:

Take off the screws and the fittings caps from the pump.

Enlever les écrous et les bouchons raccords de la pompe.

Rimuovere i dadi e i tappi raccordi dalla pompa.

Ta av skruvar och hylsor från pumpen.





7:

Install the helm pump in the dash panel.

Mettre la pompe dans les trous que sont été fait.

Infilare la pompa dentro i fori praticati.

Installera styrpumpen på instrumentpanelen.



8:

(Rear) Screw the nuts with the washers (4x).
Ensure the helm is firm and cannot move.

(Derrière le panneau) visser les 4 écrous avec les rondelle.

(Dietro al pannello) Avvitare i 4 dadi con le rondelle.

Använd brickor och dra fast muttrarna på baksidan. Se till att pumpen sitter ordentligt fast.

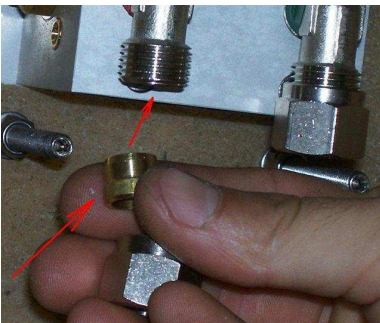


9:

Fittings cap installation – Place the Olive and lock nut in place.
Warning: right position as picture indication! **Close only by hand, not strong!**

*Insérer les ogives et les bouchons-raccord - Attention, suivre exactement l'emplacement comme démontré dans la figure. **Fermer seulement manuellement!** (avec la main)*

Inserire le ogive e i tappi raccordo – **Attenzione** alla posizione come indicato in figura! **Chiudere solo a mano!**



Montera hylsan och muttern. Obs kontrollera så hylsan monterars på samma sätt som på bilden. Dra endast åt för hand!



10:

Hoses installation: **FOLLOW the COLOURS!**
 Ensure hoses are inserted green to green
 and red to red. As indicated.

Installer les tuyau dans les raccords comme
 démontré dans la figure: **SUIVRE LES
 COULEURS!**

Installare I tubi nei raccordi come indicato in
 figura: **SEGUIRE I COLORI!**

Slanginstallation:
FÖLJ FÄRGERNA! Montera grön slang till
 grön koppling och röd slang till röd koppling,
 enligt bilden.

11:

Close the fittings cap as indicated, **tighten firmly!** After tightening ensure that the hose will not pull out.

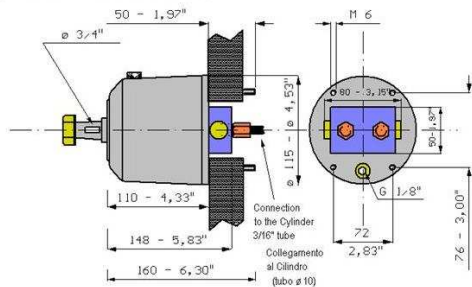
Visser les bouchons-raccord comme les indications, **serré!**

Stringere i dadi raccordo come indicato, **stretti!**

Montera anslutningarna enligt bilden och dra åt ordentligt. Kontrollera att slangen inte går att dra ut.

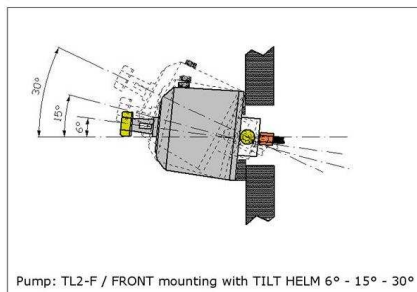


Pump: TL2-F / FRONT mounting



Pompa: TL2-F / attacco FRONTALE

Tilt Helm option: TH6-TH15-TH30



Angle 6°
 Angle 15°
 Angle 30°

Pump: TL2-F / FRONT mounting with TILT HELM 6° - 15° - 30°

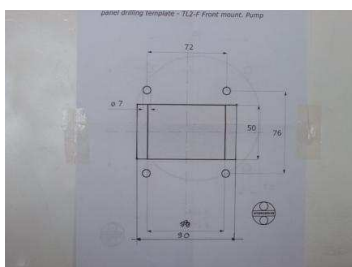
Pump installation (outboard / inboard) "L" back mount (option)
Pompe installation (horse-bord / inboard) "L" encastre
Installazione della Pompa (per fuoribordo / entro bordo) "L" flangia
Pumpinstallation (utombordare / inombordare) "L" frontmontage (möjligt alternativ)

With the option kit **PL140** the front "F" pump can become "L" back mount pump.
 Avec le kit **PL140** la pompe frontal "F" peut devenir a encastrer "L".
 Con il kit **PL140** la pompa frontale "F" diventa pompa ad incastro (a flangia) "L".
 Med kettet **PL140** kan front "F" pumpen bli "L" infälld.

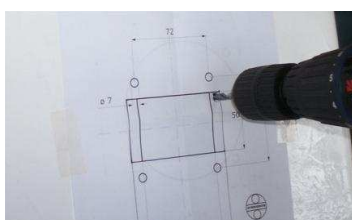


1.1: Flange pump, front mount / pompe encastrer montage a l'applique / pompa flangia montaggio frontale.

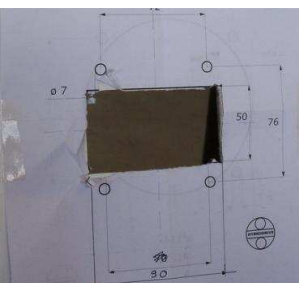
1.1: Put the *drilling template* (F) on boat panel.
 On doit mettre le dessin de perçement (dima) (F) sur le panneau du bateau.
 Posizionare la *dima di foratura* (F) sul pannello dell'imbarcazione.
 Fäst bormmallen (F) på instrumentpanel.



1.2: Drill 4x holes same dia. 7mm (0,3") to prepare the cutting for valve place.
 Percer les 4 trous du même diamètre (7mm) pour préparer la coupe pour la clapet (valve).
 Forare i 4 fori stesso diametro (7mm) per preparare il taglio per lo spazio valvola.
 Borra 4 hål (7 mm) som förberedelse för att såga upp för backventilen.



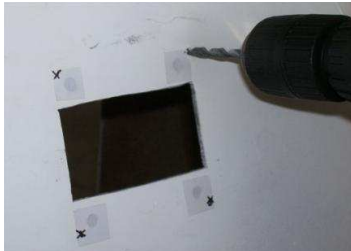
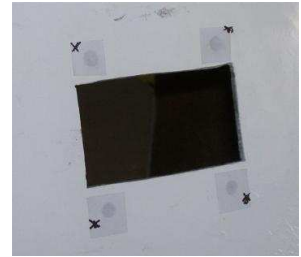
1.3: Cut the valve space 50x90mm (2"x3,55").
 Couper l'espace valve (clapet) 50x90mm.
 Tagliare lo spazio valvola 50x90mm.
 Såga enligt mall (50x90 mm).



1.4: Remove the *template*.
 Enlever le dessin de perçement
 Rimuovere la *dima di foratura*.
 Ta bort mallen.



1.5: Mark the 4x holes on the pump flange with a pen.
Marquer avec le crayon les 4 trous de la pompe a encastre.
 Marcare con la penna i 4 fori della flangia pompa.
 Markera de 4 hålen genom plastringen med en penna.



1.6: Drill 4 x 7 mm dia. holes for the flange.
Percer les 4 trous de 7 mm de diamètre.
 Forare i 4 fori da 7 mm di diametro.
 Borra 4 hål (7 mm).

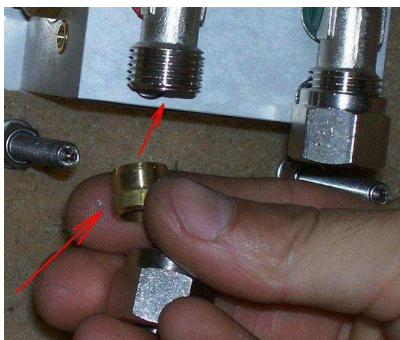


1.7: Install the pump inside the (panel) holes.
Mettre la pompe dans les trous que sont été fait.
 Infilare la pompa dentro i fori praticati.
 Installera pumpen från baksidan.

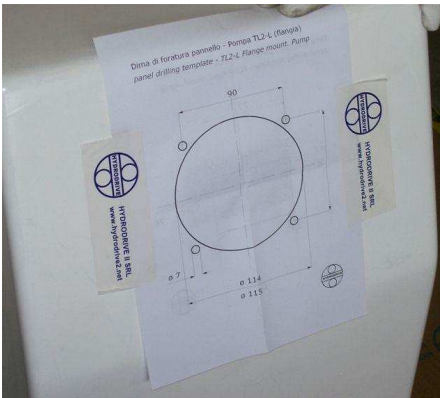


1.8: (Rear) Fix the helm pump in place with the 4 washers and lock nuts.
(Derrière le panneau) visser les 4 écrous avec les rondelle.
 (Dietro al pannello) Avvitare i 4 dadi con le rondelle.
 (Baksidan) Fixera styropumpen med 4 brickor och låsmuttrar.

Make the same operation page 6/7 point 9-10-11
Répéter les meme opérations pag. 6/7 points 9-10-11
Ripetere le stesse operazioni pag. 6/7 punti 9-10-11
Upprepa sida 6/7 punkt 9-10-11



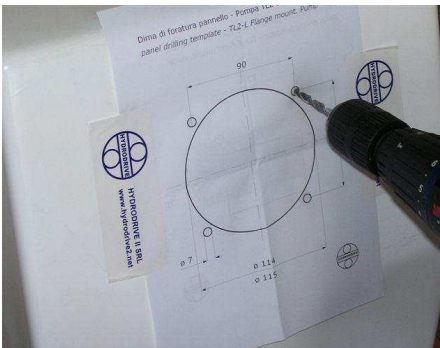
1.2 Flange Pump Back mount / Pompe a l'encastrer / Pompa a flangia /tyrpump infällt montage



1.2.1: Place the drilling template (F) on dash panel.
On doit mettre le dessin de perçement (dima) (F) sur le panneau du bateau.

Posizionare la *dima di foratura* (F) sul pannello dell'imbarcazione.

Placera bormmallen (F) på instrumentpanelen.

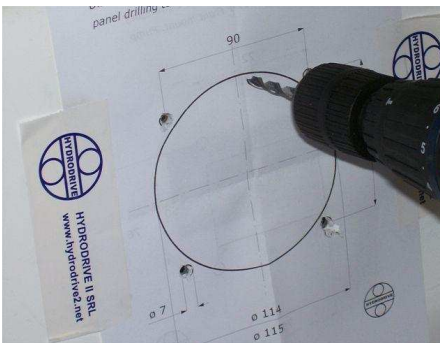


1.2.3: Drill the 7 mm dia. (0,3") (4x holes).

Perçer les 4 trous de 7 mm de diamètre.

Forare i 4 fori da 7 mm di diametro.

Borra 4 hål (7 mm).



1.2.4: Drill some holes same dia. to prepare the round cutting (DIA. 114-115mm 4,5") for pump place.

Perçer quelques autres trous du même diamètre pour préparer le coupe pour la pompe (diam. 114-115mm).

Forare altri fori stesso diametro per preparare il taglio per lo spazio pompa (diam. 114-115mm).

Borra några hål (7 mm) som förberedelse för att såga runt för pumpen (ø 114-115 mm).



1.2.5: Cut the round pump space (DIA. 114-115mm 4,5").

Couper l'espace pour la pompe (diam. 114-115mm).

Tagliare lo spazio tondo per la pompa.

Såga runt enligt bild (ø 114-115 mm). Använd sticksåg.





1.2.6: Install the **FR10** fixing ring for pump inside the (panel) holes.
*Mettre le **FR10** anneau de fixation de la pompe dans les trous que sont été fait.*
 Infilare il fixing ring **FR10** della pompa dentro i fori praticati.
 Installera fixeringsringen (**FR10**) för pumpen i de borrade hålen.



1.2.7: Remove the oil cap from the pump.
Enlever les bouchons de l'huile de la pompe.
 Rimuovere il tappo olio dalla pompa.
 Ta bort oljepluggen från pumpen.



1.2.8: Install the pump on the back side of the panel (hole).
Encastrer la pompe derrière le panneau dans les trous que sont été fait.
 Infilare la pompa dietro il pannello dentro il foro praticato.
 Installera pumpen från baksidan av panelen.



1.2.9:

Make the same operation page 6/7 point 8-9-10-11
Répéter les même opérations page 6/7 points 8-9-10-11
Ripetere le stesse operazioni pag. 6/7 punti 8-9-10-11
Repetera sidorna 6/7 punkt 8-9-10-11

1.2.10: Install the wheel on the helm pump as pictures show.
Installer le volant comme signé dans les figures.
 Installare il volante (ruota) come indicato nelle figure.
 Installera ratten på styropumpen enligt bilden.



1.3: Flange Pump **Rear mount** / *Pompe a encastre a **disparition*** / *Pompa a flangia a **scomparsa*** / *Styrpump, infällt montage*

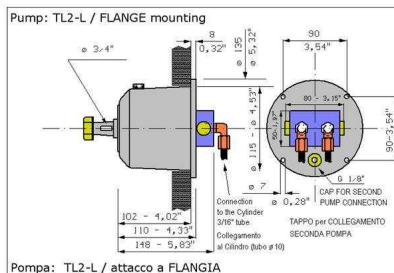
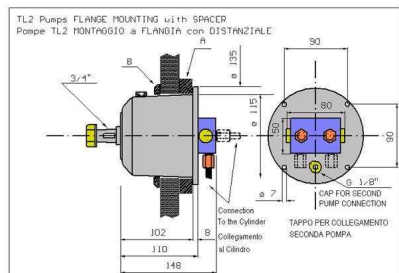


AD10 spacer kit to have Rear Mount Helm Pump.

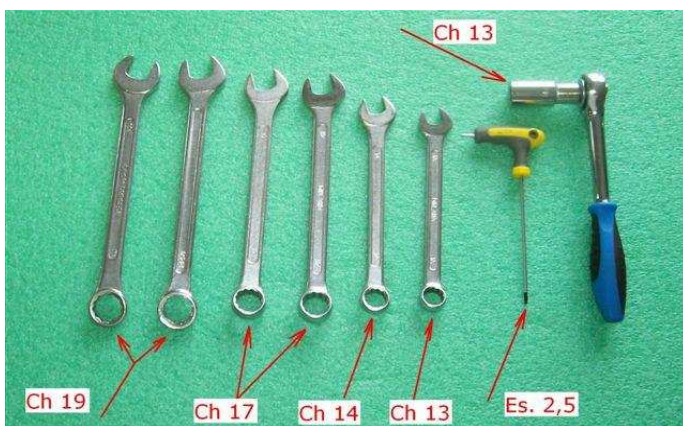
AD10 kit anneau espacé pour le pompe a disparition.

AD10 kit distanziali per montaggio pompa a scomparsa

AD10 Distsansringar för infällt montage av styrpump.



B: fixing ring **FR10** **A:** spacer **AD10** / **B:** Fixeringsring **FR10** **A:** Distsansring **AD10**



Tools for Cylinders installation.

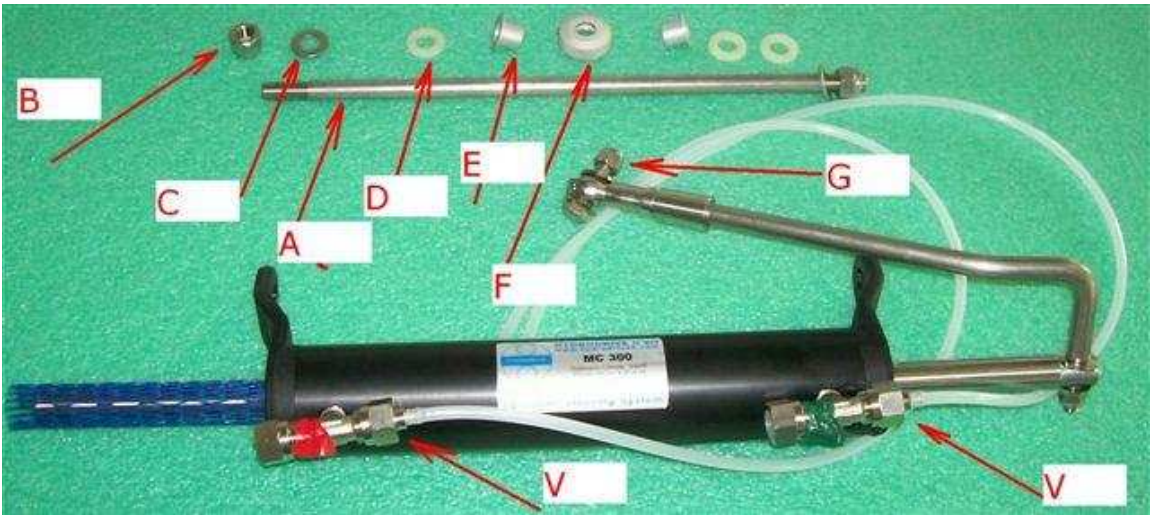
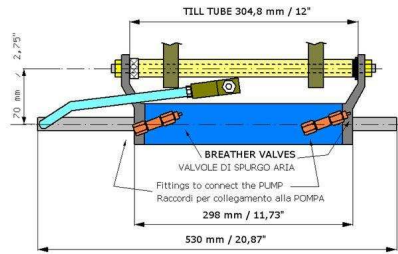
clefs-outils pour le verin.

chiavi utensili per installazione cilindri.

Verktyg för installation av hydraulcylindrar.

Outboard front mount Cylinder installation (standard)
Verin installation (horse-bord)
Installazione del Cilindro per fuoribordo (frontale)
Installation av frontmonterad Cylinder (Utombordare) (standard)

Models/désignation/modelli: **MC80-MC100-MC120-MC150-MC200-MC300**



Parts / Part / Parti / Delar :

A: 050.01.07 – Tilt tube rod /Styrrörsarm (050.01.07)

C: Dia. 12 – Washer (2x)/ Brickor Ø 12mm (2 st)

E: 025.02.11 Busher (2x)/ Bussning (2 st) (025.02.11)

G: 3/8”-24UNF-2A Complete engine pin joint/
3/8”-24UNF-2A Motorbult

B: M12 - Nut (2x)/ M12 - Mutter (2 st)

D: 12x24x2 – Nylon washer (3x)/
Nylon brickka (3 st) 12x24x2

F: 025.02.12 Adjustable ring/
Justerbar ring (025.02.12)

V: 724.00.14 Breather valves (bleeder)/
Luftningsnipplor (724.00.14)



Hydrodrive front mount Outboard Cylinders series MC can be easily installed directly on the engine tilt tube!

Installation facile!

Tutti I Cilindri per fuoribordo Hydrodrive della serie MC possono essere facilmente installati direttamente sul tubo del motore!

Hydrodrives frontmonterade serie av Utombordscylindrar kan enkelt installeras direkt på motorns styrrör.

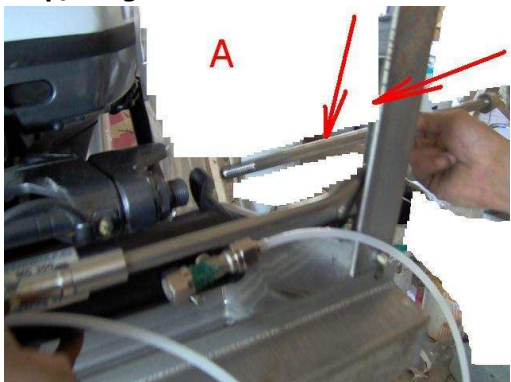
Step/ Steg: 1



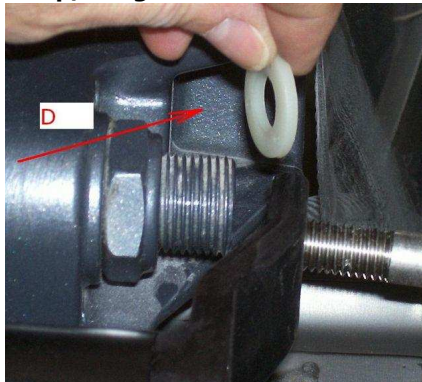
Step/ Steg: 2



Step/ Steg: 3

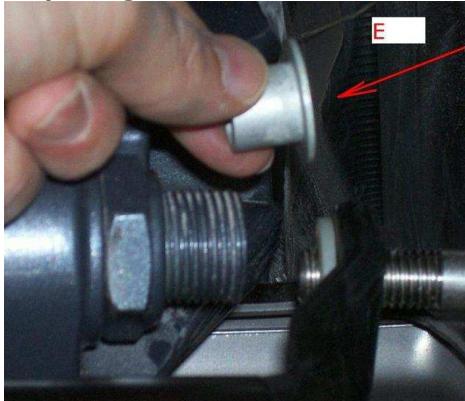


Step/ Steg: 4



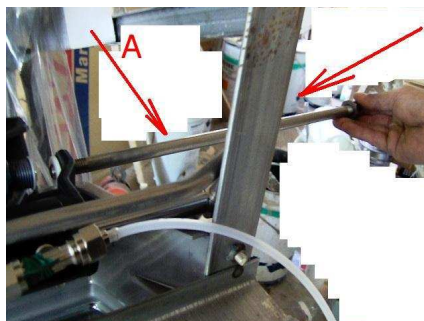
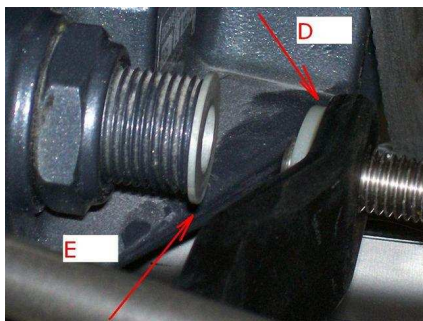
Note/Notera: Put more nylon washer (D) in case to compensate more space.
Insérer plus de (rondelle) en nylon pour avoir plus d'espace.
Inserire più rondelle in nylon (D) per compensare maggior spazio.
Sätt på så många nylonbrickor som behövs.

Step/ Steg: 5

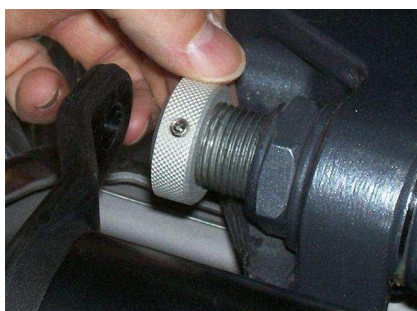
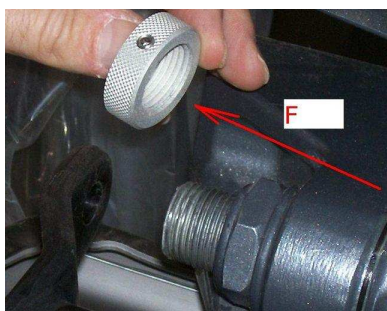


Step/ Steg: 6





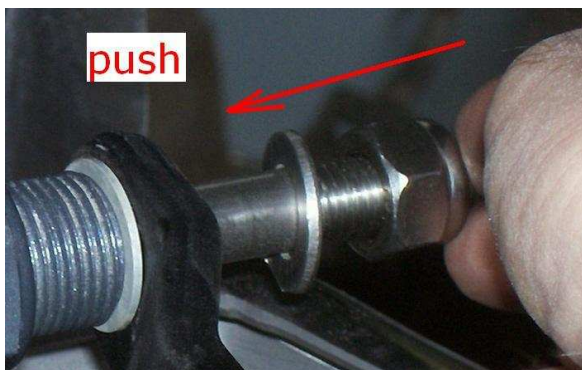
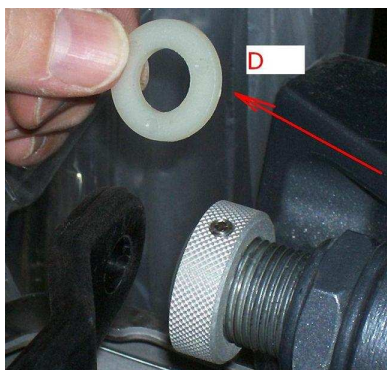
Step/Step: 7
 Push the rod (A) into the engine tilt tube
Pousser la verge (angel) dans le tuyau moteur.
 Spingere l' asta (A) dentro il tubo motore.
Tryck styrrörsarmen A in i styrröret på motorn.



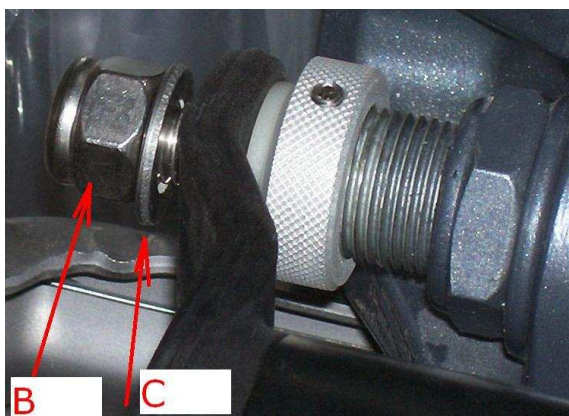
Step/Step: 8

Step/Step: 9

Step/Step: 10



Step/Step: 11



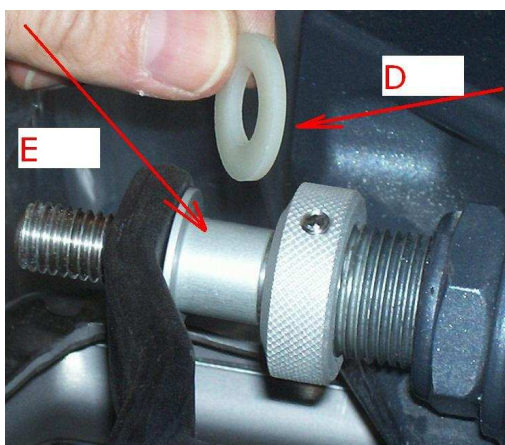


Step/Step: 12

Make regulation with adjustable ring (F) that the cylinder horizontal back-lash will be max. 0,5mm (0,02"), then lock the screw on the adjustable ring. In case of more space between the engine tilt tube and the cylinder brackets, set up other nylon washers (D).
Régler le bague (F) pour obtenir avec le vérin un jeu horizontal de 0,5 mm au maximum. Dans le cas de plus grand jeu entre le tuyau moteur et la étrier vérin, insérer autres (rondelle) en nylon (D).
 Regolare l' anello (F) in modo che il cilindro abbia un gioco orizzontale di max. 0,5mm. In caso di maggiore gioco tra il tubo motore e la staffa cilindro, inserire altre rondelle nylon (D).

Justera den runda muttern (F) så att cylinderns horisontala spelrum är max 0,5 mm, lås skruven på muttern. Om spelrummet är större än 0,5 mm montera ytterligare nylonbrickor.

1



Note/Notera:

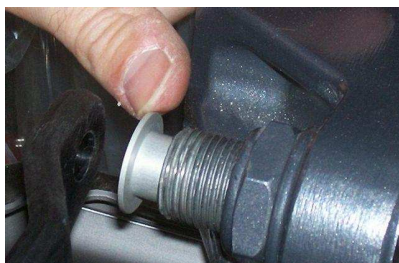
In case of engine tilt tube different length, play to set up bush (E) and – or nylon washers (D) **(photo 1)** or take off the adjustable ring (F) installing just the bush (E) with or without the nylon washer (D) **(photo 2)**.
Dans le cas que ont a longueur différent du tuyau moteur, insérer la boucle (E) et/ou les (rondelle) en nylon (figure 1) où enlever le bague de réglage et insérer seulement la boucle (E) avec où non la (rondelle) en nylon (D) (figure 2).

In caso di lunghezze differenti del tubo motore, inserire la boccia (E) o/e le rondelle in nylon (D) **(foto 1)** o togliere l' anello di regolaz. (F) inserendo solamente la boccia (E) con/senza la rondella in nylon (D) **(foto 2)**.

Om styrröret har en icke passande längd, använd medföljande bussningar och nylonbrickor (foto 1) eller

ta bort den justerbara ringen (F) och använd bara bussningen (E) med eller utan nylonbrickor (foto 2).

2



Step/Step: 13

Note/ Notera: When tightening cylinder, ensure that there is a small vertical back-lash, so the cylinder can move with engine trim operation.

En bloquent le vérin, laisser un petit jeu vertical pour laisser bouger le vérin dans la situation de trim

Bloccando il cilindro, lasciare un piccolo gioco verticale in modo che il cilindro possa muovere in caso di trim.

När du skruvar fast cylindern, se till att det finns ett litet spelrum så att cylindern kan röra sig med motorns trim/tilt-rörelser.

Step/Step: 14



Step/Step: 15



Step/Step: 16 Adjustment / regulation / regolazione/ Justering



Step/ Step: 17

To lock / blocage /
bloccare / Lås fast

Step/Step: 18 Loosen the fittings caps (nuts).
Dévisser un peut les écrous-raccord.
Svitare leggermente I tappi (dadi) raccordi.
Lösa slanganslutningsmuttern.



Note/Notera:

Ensure that inside the hose fitting nut is a brass olive.
Se till att det inne i slanganslutningen finns en mässingshylsa.

Step/Step: 19



Hoses installation: **FOLLOW** the **COLOURS!** As indicated.

Installer les tuyaux dans les raccords comme démontré dans la figure: **SUIVRE LES COULEURS!**

Installare I tubi nei raccordi come indicato in figura: **SEGUIRE I COLORI!**

Slanginstallation : **Installera enligt färgkoderna (rött, grönt)**



Note/Notera:

Lock the fittings caps (nuts) as photo indicated!

Fermer les écrous-raccord comme dans la figure!

Chiudere i dadi raccordi come indicato in figura!

Lås fast anslutningsmuttern enligt bilden!



Note/Notera: Hoses can be fitted on the right or left part of the Tee fittings, the same make for the breather valve on Tee fittings. *Slangarna kan monteras till höger eller till vänster om T-nippeln.*

Filling and purging the hydraulic systems *Reimplissage the le système* Riempimento e spurgo del sistema idraulico Att fylla och lufta det hydrauliska systemet

These instructions show how to fill and purge all Hydrodrive steering systems, the same for single station, double station, twin cylinder. **This procedure requires also just one person.**

During the filling procedure **oil must be visible** in the funnel kit tube. Do not allow the oil level disappear into the pump, as this may introduce air into the system and increase your filling time.

*Cette instructions montrent le système pour remplir et épurer tout les systèmes hydrauliques Hydrodrive, on doit faire le même quand on a une station, quand on a deux vérin où la double-station. **Pour cet déroulement c'est nécessaire seulement une personne.** Pendant le moment du remplissage, le niveau d'huile doit être visible dans le kit même du remplissage. Si le niveau de l'huile on va diminuer dans la pompe, peut être que un peu d'air est entré dans le système et il faut attendre un peu de temps pour cette opération.*

Queste istruzioni mostrano come riempire e spurgare tutti i sistemi idraulici Hydrodrive, lo stesso vale per singola, doppia stazione, doppio cilindro. **Questa procedura richiede anche solo una persona.** Durante il riempimento **il livello dell'olio deve essere visibile** nel kit di riempimento. Se il livello olio scende nella pompa, potrebbe introdursi aria nel sistema con aumento del tempo necessario a questa operazione.

Dessa instruktioner visar hur man fyller och luftar alla Hydrodrives styrsystem: singelstation, dubbelstation och dubbelcylinder. Denna metod kan göras av bara en person. Under påfyllningen måste det alltid finnas olja i medföljande påfyllnadstratt med slang.



Step/Step: 2.1

Install the Oil "filler kit" on the helm pump (port A).
Visser le "filler kit" sur la pompe (bouchon A)
Avvitare il "filler kit" sulla pompa (tappo A)
Montera oljepåfyllnadskittet på styrpumpen (port A).



Step/Step: 2.2

Put both bleed hoses (on the cylinder) into an empty bottle to collect the oil overflow.
Mettre dans une bouteille vide les deux tuyau de vérin pour le épure pour recueillir l'huile.
Mettere in una bottiglia vuota i due tubi di spurgo (sul cilindro) per raccolta olio.
Sätt på båda luftnings slangarna (på cylindern) och led dem till en tom flaska för att samla upp överflödiga olja.



tep/Step: 2.3

Without turning the steering wheel fill the helm with oil using the easy fill funnel.

Remplir la pompe (jusqu'ou on peut voir le niveau de l'huile) SANS tourner le volant.

Riempire la pompa (fino a che si vede il livello dell' olio) SENZA girare il volante.
Fyll styrpumpen med olja, utan att vrida ratten.



Step/Step: 2.4

On the CYLINDER open (a bit) the LEFT side BLEEDER.
Sur le vérin ouvrir (un peu ou légèrement) la valve d'épurement gauche.

Sul CILINDRO aprire (leggermente) la valvola di spurgo sinistra.

Öppna cylinderns vänstra luftskruv en aning.



Step/Step: 2.4.1

On the CYLINDER close (a bit) the RIGHT side BLEEDER.
Sur le vérin fermer (un peu ou légèrement) la valve d'épurement droite.

Sul CILINDRO chiudere (leggermente) la valvola di spurgo destra.

Stäng cylinderns högra luftskruv en aning.



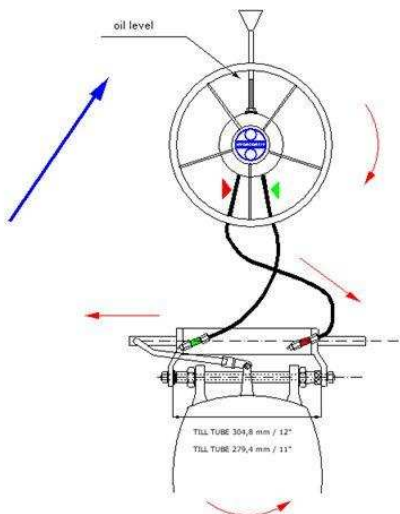
Step/Step: 2.5

Turn the steering wheel clockwise following the drawings below, until the cylinder rod is fully extended. During filling oil should always be visible in the filler tube.

Tourner le volant suivant les instructions des dessin suivant et dans le même moment il faut continuer a remplir d'huile la pompe jusqu' que le queue du vérin arrive à la fin de sa course. L'huile doit être toujours visible dans le tuyau du remplissage.

Girare il volante seguendo le istruzioni dei disegni seguenti, riempiendo costantemente di olio la pompa, fino a che lo stelo cilindro non è tutto a fine corsa. L' olio deve essere sempre visibile nel tubo di riempimento.

Vrid ratten medsols enligt bilderna tills hydraulkolven är helt ute. Det ska hela tiden finnas olja i påfyllnadsslangen.

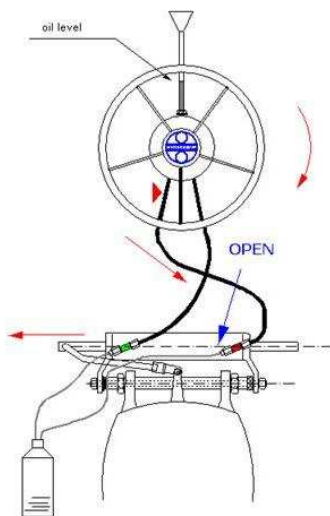


Drive direction: follow the colours as indicated to have a right drive direction.

Direction de guide: suivre les couleurs pour avoir la juste direction de guide.

Direzione di guida: seguire i colori per avere la giusta direzione di guida.

Ratt rörelser: Följ färgerna enligt bilden för rätt styrriktning.



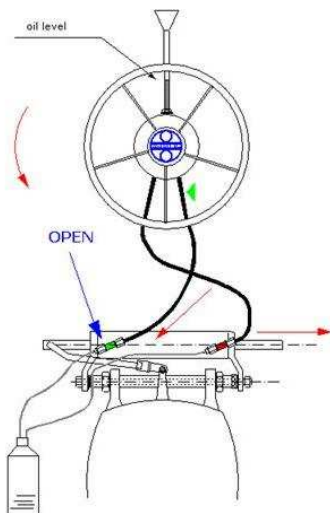
Step/Step: 2.6

OPEN RIGHT side BLEEDER (close the left side bleeder)
Turn (slowly) the steering wheel clockwise until the cylinder rod is fully extended on the left side, continue turning the steering for another half turn.

Ouvrir l'ÉPURGE droite (épurge gauche fermé) Tourner doucement le volant en sens horaire jusqu' que le queue du vérin arrive à la fin de le coté gauche de sa course, depuis tourner de midi tour le volant.

APRIRE lo SPURGO DESTRO (spurgo sinistro chiuso)
Girare lentamente il volante in senso orario fino a che lo stelo cilindro non è a fine corsa sul lato sinistro, poi ruotare ancora il volante di un mezzo giro.

Stäng den vänstra luftningsnippel och öppna den högra. Vrid ratten sakta medsols tills hydraulkolven är helt ute på vänster sida. Fortsätt vrida ratten ytterligare ett halvt varv.



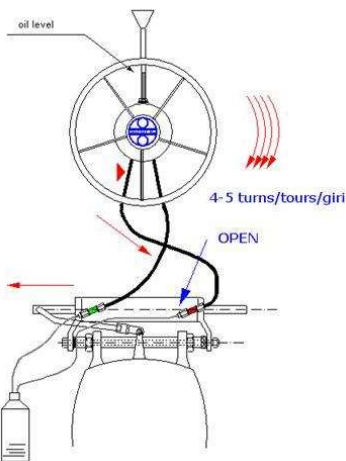
Step/Step: 2.7

OPEN LEFT side BLEEDER (close the right side bleeder)
Turn (slowly) the steering wheel counter clockwise until the cylinder rod is fully extended on the right side, continue turning the steering for other half turn.

Ouvrir l'ÉPURGE GAUCHE (épurge droite fermé) Tourner doucement le volant en sens anti-horaire jusqu' que le queue du vérin arrive à la fin de la coté droite de sa course, depuis tourner encore de midi tour le volant.

APRIRE lo SPURGO SINISTRO (spurgo destro chiuso)
Girare lentamente il volante in senso anti-orario fino a che lo stelo cilindro non è a fine corsa sul lato destro, poi ruotare ancora il volante di un mezzo giro.

Stäng den högra luftningsnippel och öppna den vänstra. Vrid ratten sakta motsols tills hydraulkolven är helt ute på höger sida. Fortsätt vrida ratten ytterligare ett halvt varv.



Step/Step: 2.8

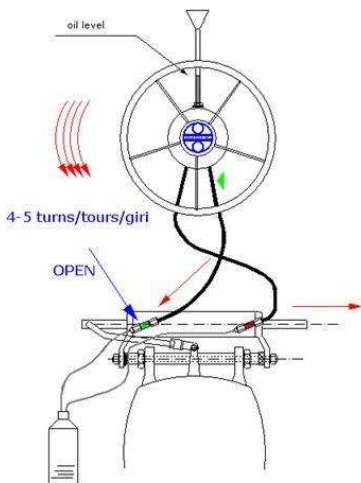
OPEN RIGHT side BLEEDER (close the left side bleeder)
Turn (slowly) the steering wheel clockwise until the cylinder rod is fully extended on the left side. Turn for other 4-5 turns until a steady stream of air free oil comes out of the bleeder.

OUVRIR l'ÉPURGE DROITE (épurge gauche fermé) Tourner doucement le volant en sens horaire jusqu' que le queue du vérin arrive à la fin de la coté gauche de sa course. Tourner encore pour 4 o 5 tours le volant jusqu' que l'air est complètement sortie de l'épuration.

APRIRE lo SPURGO DESTRO (spurgo sinistro chiuso)
Girare lentamente il volante in senso orario fino a che lo stelo cilindro non è a fine corsa sul lato sinistro. Ruotare ancora il volante di altri 4-5 giri fino a che fuoriesce tutta l'aria dallo spurgo.

Stäng den vänstra luftningsnippel och öppna den högra. Vrid ratten sakta medsols tills hydraulkolven är helt ute på vänster sida. Vrid ytterligare 4-5 varv tills oljan är fri från luftbubblor.

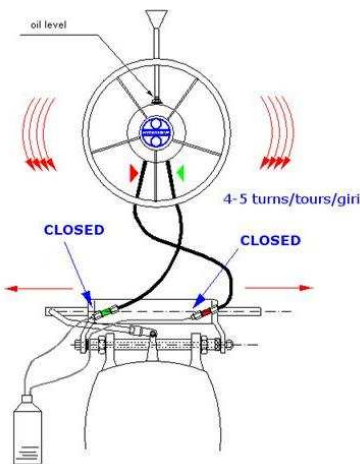
Step/Step: 2.9



OPEN LEFT side BLEEDER (close the right side bleeder)
Turn (slowly) the steering wheel counter clockwise until the cylinder rod is fully extended on the right side. Turn for other 4-5 turns until a steady stream of air free oil comes out of the bleeder.
OUVRIR L'ÉPURGE GAUCHE (épurge droite fermé) Tourner doucement le volant en sens anti-horaire jusqu que le queue du vérin arrive à la fin de la coté droite de sa course. Tourner encore pour 4 o 5 tours le volant jusqu que l'air est complètement sortie de l'épurge.

APRIRE lo SPURGO SINISTRO (spurgo destro chiuso)
Girare lentamente il volante in senso anti-orario fino a che lo stelo cilindro non è a fine corsa sul lato destro. Ruotare ancora il volante di altri 4-5 giri fino a che fuoriesce tutta l' aria dallo spurgo.
Stäng högra luftningsnippel och öppna den vänstra. Vrid ratten sakta motsols tills hydraulkolven är helt ute på höger sida. Vrid ytterligare 4-5 varv tills oljan är fri från luftbubblor.

Step/Step: 2.10



CLOSE (WELL) LEFT and RIGHT side BLEEDER.
Turn the steering wheel clockwise and counter clockwise until the cylinder rod is fully extended on the right and left side (steering wheel come to a stop). Repeat that operation for other 4-5 time until a steering will have a good response.

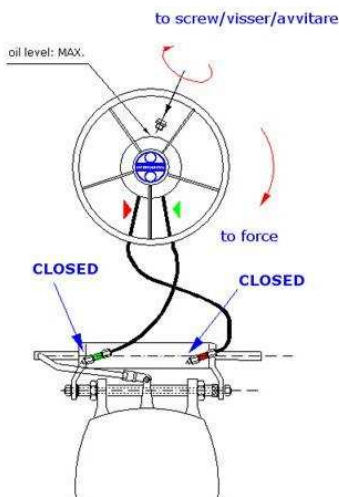
FERMER TRES BIEN L'EPURGE DROITE ET GAUCHE.

Tourner le volant en sens horaire et anti-horaire jusqu que le queue du vérin arrive à la fin de sa course droite et gauche (le volant s'arrêtera). Répéter l'opération encore pour 4 o 5 tours jusqu que on aura un excellent réponse de la direction.

CHIUDERE BENE lo SPURGO DESTRO e SINISTRO.

Girare il volante in senso orario e anti-orario fino a che lo stelo cilindro non è a fine corsa sul lato destro e sinistro (il volante si fermerà). Ripetere l' operazione per altri 4-5 giri fino a che non si avrà un' ottima risposta della timoneria.

Stäng vänster och höger luftningsnippel helt. Vrid ratten medsols och motsols till hydraulkolvens ändlägen. Upprepa 4-5 gånger tills styrningen känns bra och motorn följer rattrelserna lätt.



Step/Step 2.11:

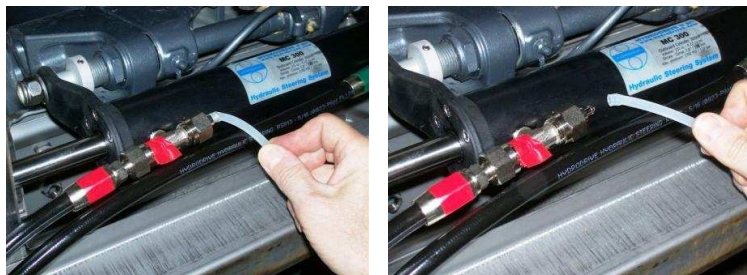
Remove the oil fill kit, turn the steering wheel hard over until it comes to a stop. Ensure that the oil level is at in the helm is full. Replace the oil cap into the helm without moving the steering wheel.

Dévisser le kit du remplissage d'huile, tourner le volant jusqu que s'arrête, forcer un peut la fin course, le niveau de l'huile doit être au maximum dans la pompe. Visser le bouchon de l'huile sans lâcher le volant.

Svitare il kit di riempimento olio, girare il volante fino a che si ferma, forzare leggermente il fine corsa, il livello dell' olio deve essere al max. nella pompa. Avvitare il tappo olio senza lasciare il volante.

Ta bort oljefyllnadskittet, vrid ratten kraftigt till dess ändläge. Kontrollera att oljenivån i styrpumpen fortfarande är full. Sätt i oljepluggen utan att vrida ratten.

Note: sometimes when returning the wheel from a hard over position, a slight resistance may be felt and a clicking sound heard. This should not be mistaken as a fault, as it is normal situation caused by the release of the lock-spool valve.



Notice: quand le volant révent de la position forcé de fin de sa course, peut etre que on écoutera un fort click que n'est pas un défaut du système, mais le normal remise de clapet anti-retour.

Notizia: quando ritorna il volante dalla posizione forzata di fine corsa, potrebbe capitare di sentire un click forte, questo non è un difetto del sistema, ma il normale rilascio della valvola di blocco.

Notera: Ibland när man vrider tillbaka ratten från dess ändläge kan man känna ett lätt motstånd och höra ett klickljud. Detta är inget fel utan helt normalt när backventilen släpper.

Take off the small hoses from the bleeder valves on the cylinder. / Enlever les petit tuyaux chez les valves d'epurge. / Rimuovere i piccoli tubi dalle valvole spurgo. / Ta bort de små slangarna från luftningsnipplarna på hydraulcylindern.

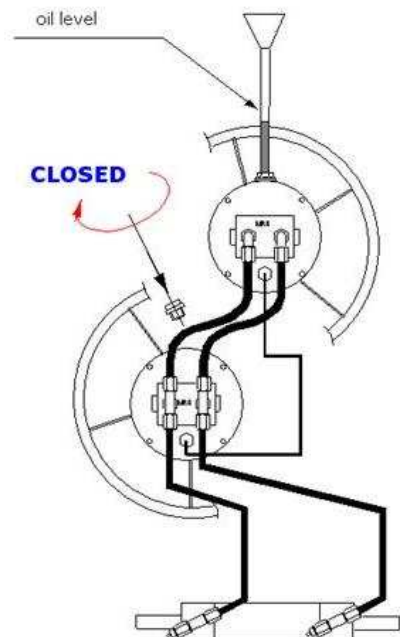
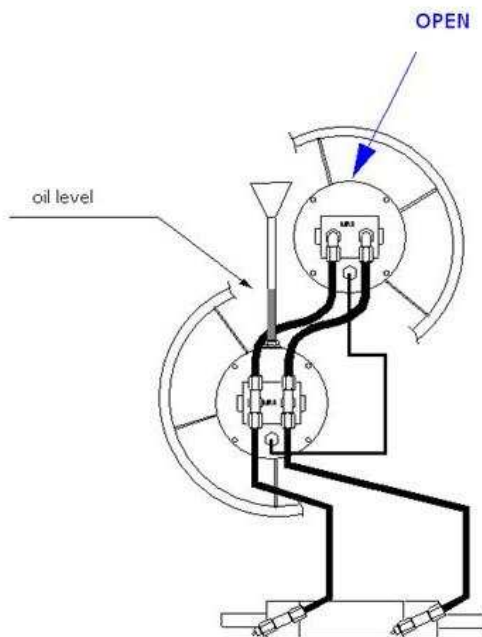
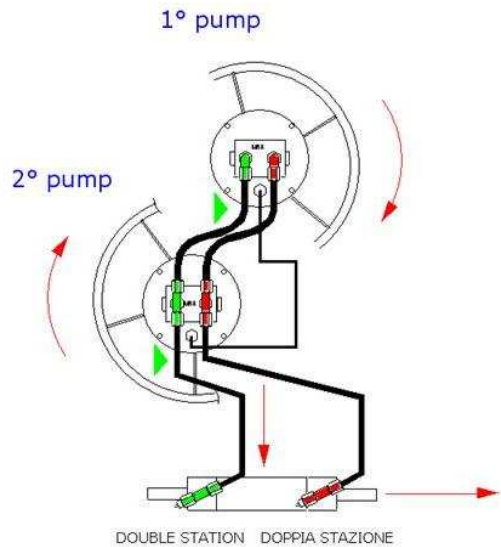
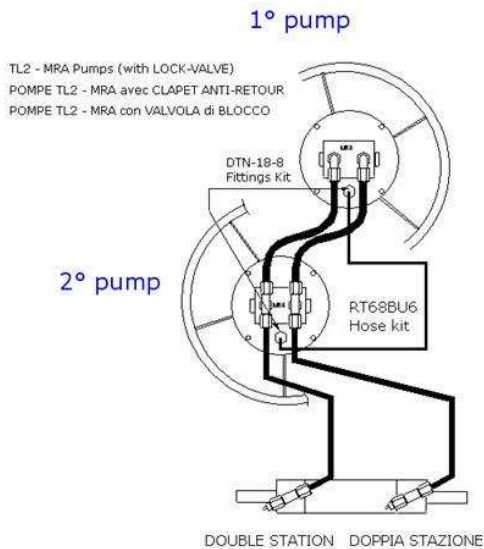
Check all port (fittings – hoses) for leaks. If no leaks your steering system is ready for use. **Check** periodically all port (fittings – hoses) for leaks and oil level.

Vérifier que tout les raccords et tout les tuyaux. Si dans le système il n'y a pas des fuites, il est prêt pour l'emploi. **Vérifier** périodiquement tout les raccords, les tuyaux et le niveau de l'huile.

Controllare tutti i raccordi e le tubazioni, se non ci sono perdite, il sistema è pronto per l' uso. **Controllare** periodicamente tutti i raccordi, le tubazioni e il livello dell' olio.

Kontrollera alla anslutningar och slangar för läckage. Om de är helt täta är styrsystemet klart för användning. Kontrollera periodvis oljenivån och alla anslutningar för tidigt upptäckta eventuellt läckage.

Twin Station single Cylinder
Montage 2 Pompes avec 1 verin
Doppia Stazione singolo Cilindro
Dubbelstation med en cylinder



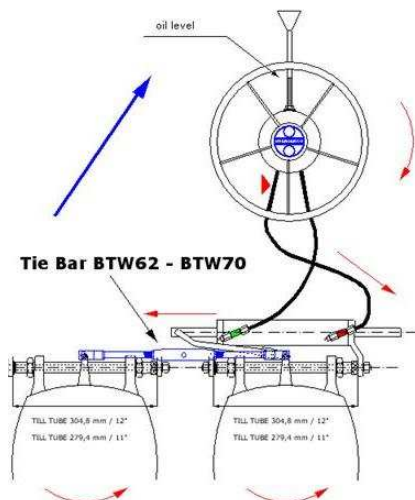
Step/Steg: 1

Step/Steg: 2

Make the same operation page 21/22/23 point 2.6-2.7-2.8-2.9-2.10-2.11
Répéter les mêmes opérations pag. 21/22/23 points 2.6-2.7-2.8-2.9-2.10-2.11

Ripetere le stesse operazioni pag. **21/22/23** punti **2.6-2.7-2.8-2.9-2.10-2.11**
Utför de steg som beskrivs på sidorna **21/22/23** punkt **2.6-2.7-2.8-2.9-2.10-2.11**

Single Station Twin Engine, Single Cylinder
Montage 1 Pompe avec 2 Moteurs, 1 Verins
Sigola Stazione Doppio Motore, Singolo Cilindro
Enkelstation för dubbelmotor, en cylinder



BTW62:

Tie bar for twin engine, adjustable from 540 until 620 mm (21,26" until 24,41").

Barre réglable pour 2 moteur hors-bord 540-620 mm (21,26" - 24,41").

Barra doppio motore, regolabile da 540 a 620 mm (21,26" - 24,41").

Länkstång för dubbelmotor, justerbar från 540 till 620 mm).

BTW70:

Tie bar for twin engine, adjustable from 620 until 700 mm (24,41" until 27,56").

Barre réglable pour 2 moteur hors-bord 620-700 mm (24,41" - 27,56").

Barra doppio motore, regolabile da 620 a 700 mm

Länkstång för dubbelmotor, justerbar från 620 till 700 mm.

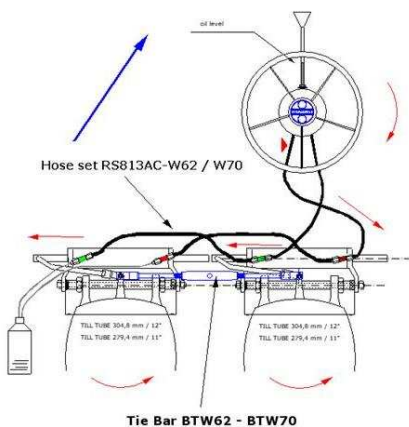
(24,41" - 27,56").



BTW62 adjustable / regolabile: 21,26" - 24,41" / 540 - 620 mm
 BTW70 adjustable / regolabile: 24,41" - 27,56" / 620 - 700 mm

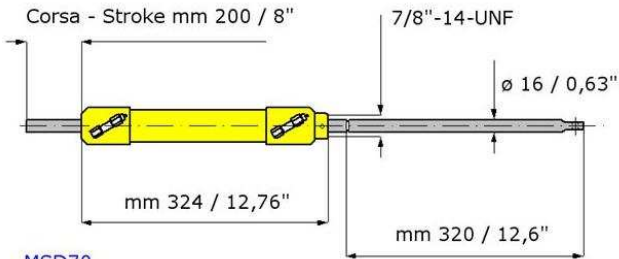
STAINLESS-STEEL / INOX

Single Station Twin Engine, Twin Cylinder
Montage 1 Pompe avec 2 Moteurs, 2 Verins
Sigola Stazione Doppio Motore, Doppio Cilindro
Enkelstation för dubbelmotor, dubbelcylinder



Tie Bar BTW62 - BTW70

Stern-Drive installation Z-Drive Entro-Fuoribordo Stjärn-installation



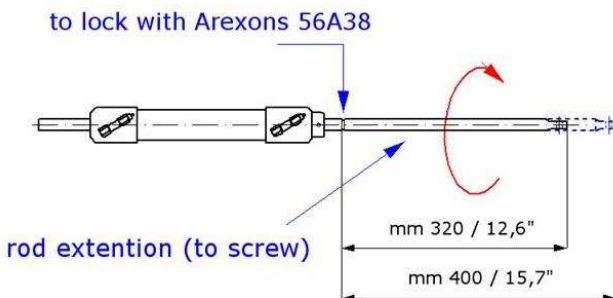
MSD70
Timoneria Idraulica
Entro - Fuoribordo
Stern-Drive Hydraulic Steering
Cilindro MC70 - MC70 Cylinder

Installation on the engine tube, with or without engine original standard servo steering.

S' installe sur tuyau des moteur (pompe d' assistance) ou s' installe en remplacement de la pompe d' assistance. (Avec ou sans direction assistée).

Si installa direttamente sul tubo del motore, con o senza la servo guida originale o in sostituzione della servo guida standard.

Installation på drevet, med eller utan original servostyrning.



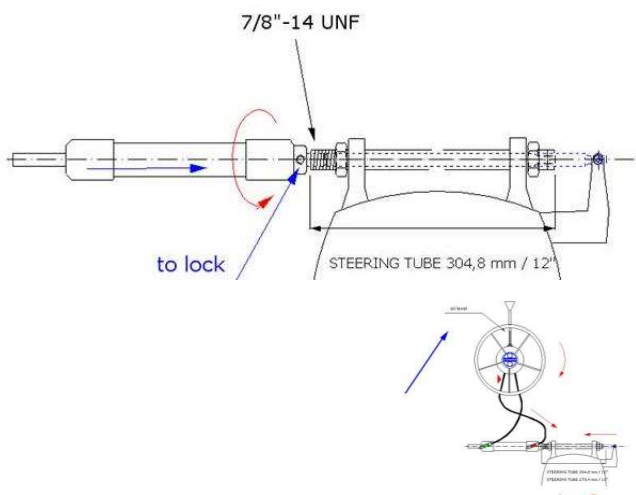
Step/Step: 1

Choose the length of the rod extension (320-400mm / 12,6-15,7") included in the kit. Screw it on cylinder shaft and lock with glue.

Choisir la barre extensible (longueur 320 ou 400 mm) que trouverez dans le kit. Visser sur le queue du vérin et se coller.

Scegliere la barra di estensione (lunghezza 320 o 400mm) fornite nel kit. Avvitare sullo stelo cilindro incollando.

Välj längd på förlängningen av länkstången (320-400 mm), inkluderad i kittet. Skruva fast den på cylinderskaftet och lås med lim.



Step/Step: 2

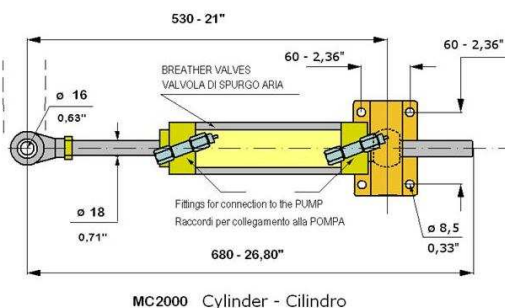
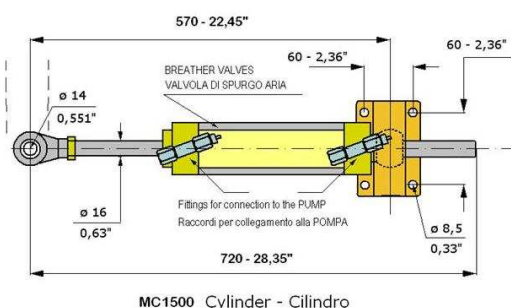
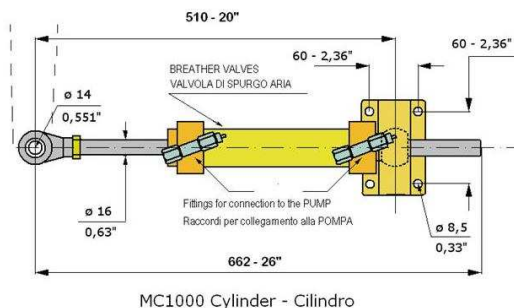
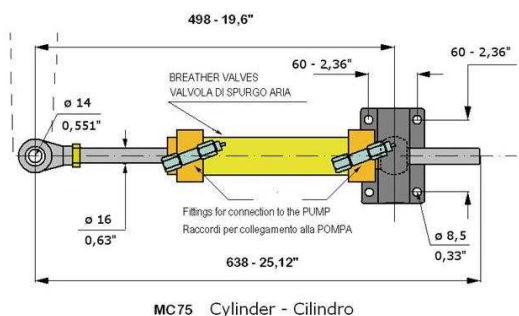
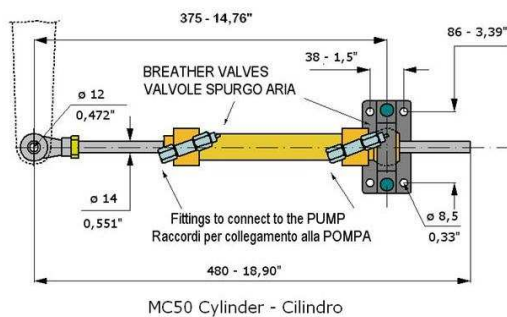
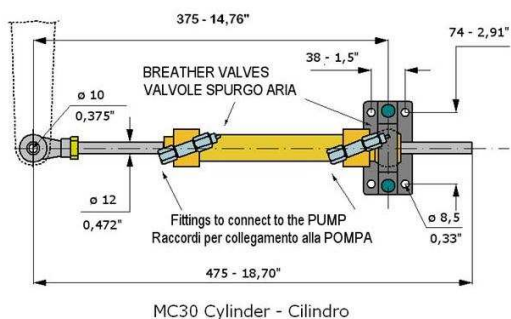
Screw the cylinder body on the 7/8"-14 UNF engine tube thread, lock the screw (nut) on the cylinder.

Visser le corps vérin sur le filet de 7/8"-14 UNF du tuyau moteur, bloquer la vis du vérin.

Avvitare il corpo cilindro sul filetto da 7/8"-14 UNF del tubo motore, bloccare la vite del cilindro.

Skruva cylinderkroppen på 7/8" -14 UNF motorgången, använd muttern för att låsa på cylindern.

Inboard / Inboard / Entrobordo / Inombordare



Alesaggio / Bore: 50 mm / 2" Corsa / Stroke: 225 mm / 8,86"

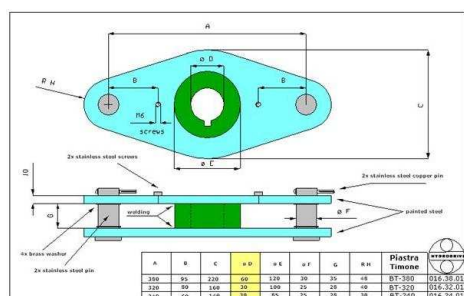
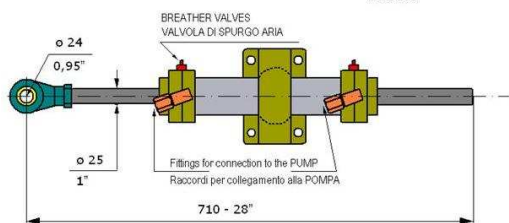
Torque (on 60 bar): 200 Kg/mt. Torque (on 70 bar): 232 Kg/mt.

Potenza di Spinta / Power Thrust (on 60 bar): 883 Kg.

Potenza di Spinta / Power Thrust (on 70 bar): 1030 Kg.

Volume: 331 cm³ / 20,21 cu inc

MCC250



BT240-BT320-BT380

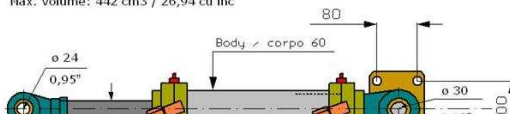
Rudder plate for 2 cylinders. *Plaques pou 2 verin. Piastra timone per 2 cilindri. Roderplatta för 2 cylindrar.*

Inboard Professional Inboard Professionnel Entrobordo Professionale Professionell inombordare

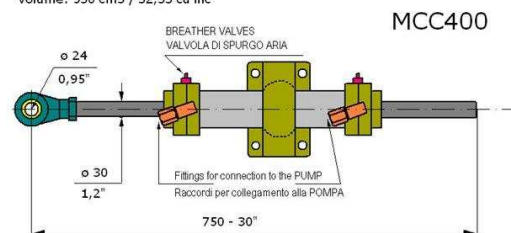
Alesaggio / Bore: 50 mm / 2" Corsa / Stroke: 225 mm / 8,86"
Torque (on 60 bar): 265 Kg/mt. Torque (on 70 bar): 309 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 1178 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 1374 Kg.
Max. Volume: 442 cm³ / 26,94 cu inc



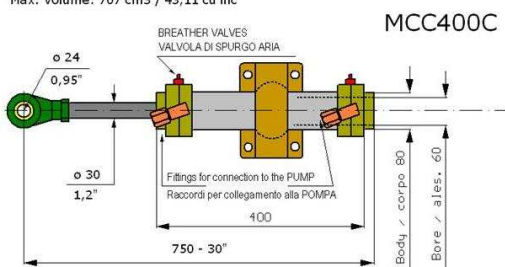
Alesaggio / Bore: 50 mm / 2" Corsa / Stroke: 225 mm / 8,86"
Torque (on 60 bar): 265 Kg/mt. Torque (on 70 bar): 309 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 1178 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 1374 Kg. MCC250CJAF
Max. Volume: 442 cm³ / 26,94 cu inc



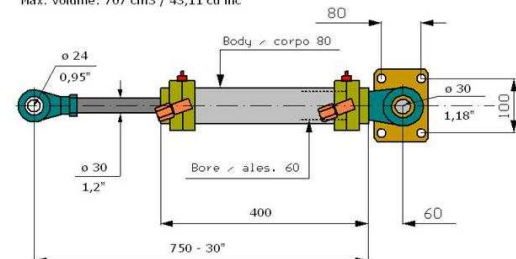
Alesaggio / Bore: 60 mm / 2,36" Corsa / Stroke: 250 mm / 10"
Torque (on 60 bar): 318 Kg/mt. Torque (on 70 bar): 371 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 1272 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 1484 Kg.
Volume: 530 cm³ / 32,33 cu inc



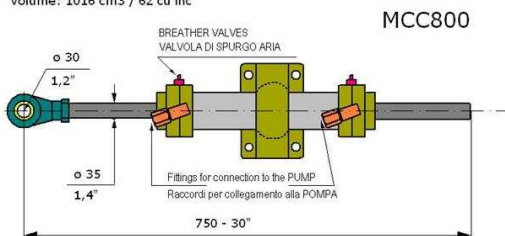
Alesaggio / Bore: 60 mm / 2,36" Corsa / Stroke: 250 mm / 10"
Torque (on 60 bar): 424 Kg/mt. Torque (on 70 bar): 495 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 1696 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 1978 Kg.
Max. Volume: 707 cm³ / 43,11 cu inc



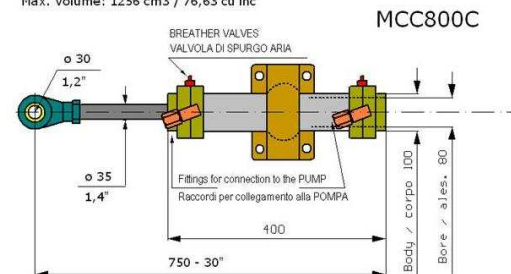
Alesaggio / Bore: 60 mm / 2,36" Corsa / Stroke: 250 mm / 10"
Torque (on 60 bar): 424 Kg/mt. Torque (on 70 bar): 495 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 1696 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 1978 Kg. MCC400CJAF
Max. Volume: 707 cm³ / 43,11 cu inc



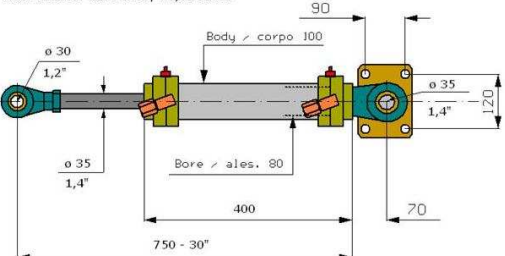
Alesaggio / Bore: 80 mm / 3,15" Corsa / Stroke: 250 mm / 10"
Torque (on 60 bar): 609 Kg/mt. Torque (on 70 bar): 711 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 2437 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 2844 Kg.
Volume: 1016 cm³ / 62 cu inc



Alesaggio / Bore: 80 mm / 3,15" Corsa / Stroke: 250 mm / 10"
Torque (on 60 bar): 754 Kg/mt. Torque (on 70 bar): 879 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 3014 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 3517 Kg.
Max. Volume: 1256 cm³ / 76,63 cu inc



Alesaggio / Bore: 80 mm / 3,15" Corsa / Stroke: 250 mm / 10"
Torque (on 60 bar): 754 Kg/mt. Torque (on 70 bar): 879 Kg/mt.
Potenza di Spinta / Power Thrust (on 60 bar): 3014 Kg.
Potenza di Spinta / Power Thrust (on 70 bar): 3517 Kg. MCC800CJAF
Max. Volume: 1256 cm³ / 76,63 cu inc



Hoses / Tuyau / Tubazioni / Slangar

Normally the hose set is included in the steering kit and the fittings are already installed on the hoses, in case you buy the hose separately, here following the installation.

Comme d'habitude le série des tuyaux sont compris dans le kit de la direction et les raccords sont déjà installé dans le tuyau, dans le cas que on achète le tuyau séparément on peut trouver en suite toute les indications pour les installer.

Normalmente trovate il set di tubazioni incluso nel kit timoneria, con I raccordi già installati sul tubo, nel caso di acquisto di tubo separato, qui di seguito le indicazioni per l'installazione.

Normalt är slangsetet inkluderat i styrsystemet och anslutningsdetaljerna redan installerade på slangarna. I de fall du köper slangarna separat följer här installationsanvisningar.



Parts / Part / Parti // Delar :

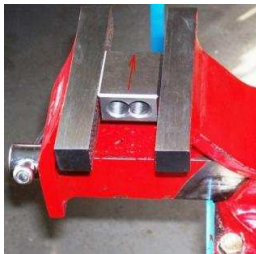
(4x) AC516 : fittings / raccord / raccordi

Included (standard) in the hose kit / *inclus dans le kit standard/ inclusi nel kit tubo standard / Innehåll I anslutningskitet.*

Option:

020.01.01: tooling set to fit the AC516 fittings / *outil pour installer les raccords AC516 dans le tuyau / attrezzo per installare i raccordi AC516 sul tubo/ Verktøy som behövs till AC516.*

Step/Step: 1



Step/Step: 2



Step/Step: 3



Step/Step: 4



Step/Step: 5



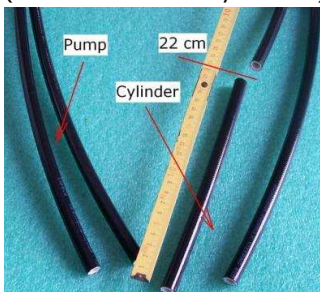
Step/Step: 6

(hose open for 50 cm)



Step/Step: 7

(to cut 22 cm – only 1 hose)



Step/Step: 8



Step/Step: 9



Step/Step: 10



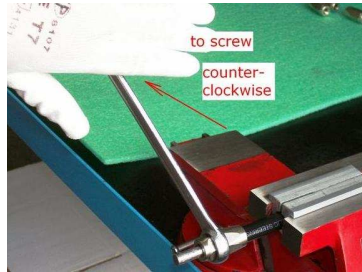
Step/Step: 11



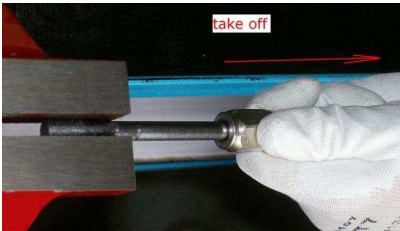
Step/Step: 12



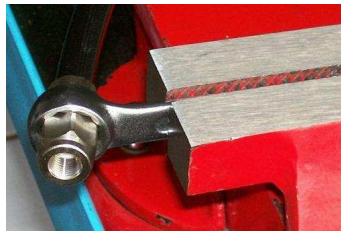
Step/Step: 13



Step/Step: 14



Step/Step: 15



Step/Step: 16



Step/Step: 17

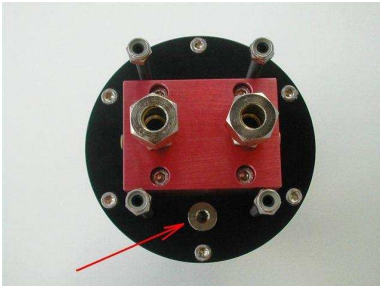


Step/Step: 18

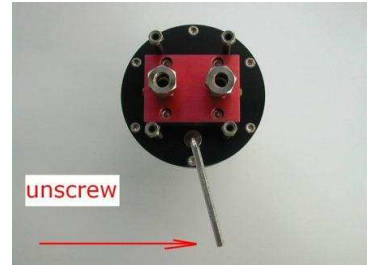


Technical Information / Information Technique / Informazioni Tecniche / Teknisk information

Two Pumps connection / Liaison entre deux pompes / Collegamento di due pompe / Två pumpanslutningar



Unscrew the 1/8" cap on the back side of the pump.
Dévisser le bouchon de 1/8" que se trouve derrière la pompe.
 Svitare il tappo da 1/8" posto sul retro della pompa.
Skruva av 1/8"-locket på baksidan av pumpen.

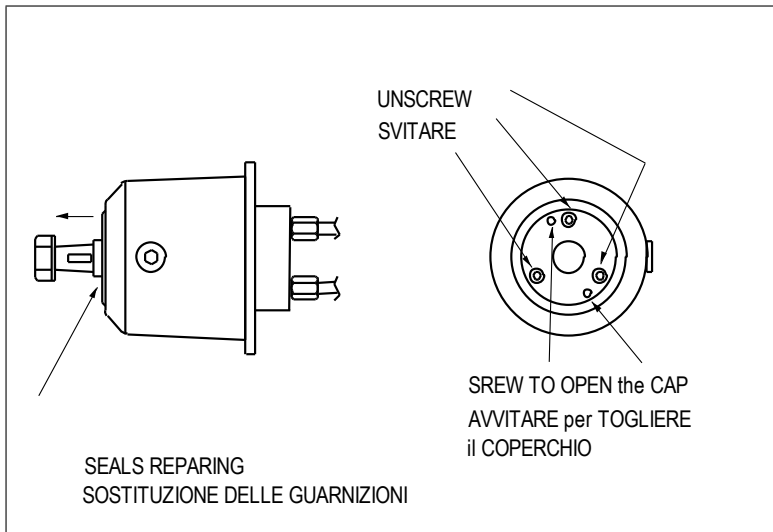


Install the RT68BU6 hose set
Liaison le RS68BU6 tuyau.
 Installare il tubo RT68BU6.
Installera RT68BU6 slangsettet.

Push the brass (BU6) bush inside the hose.
Pousser la boucle (BU6) dans le tuyau.
 Spingere la boccola (BU6) nel tubo.
Tryck in mässingshylsan i slangen.



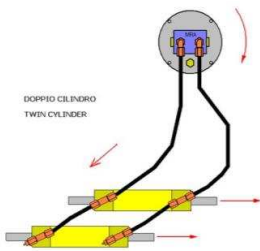
Seals replacement (pump) / xxx / Sostituzione delle guarnizioni (pompa):



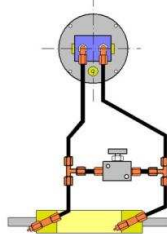
Unscrew the 3 screws on the pump (front) cap, screw the 2 small screws to take off the seals cap.
Dévisser les trois vis du couvercle frontal de la pompe, visser les deux petit vis pour enlever le couvercle avec les garnitures.
 Svitare le tre viti del coperchio sul frontale pompa, avvitare i 2 grani per sfilare il coperchio sede guarnizioni.

Skruva bort de tre skruvarna på pumpfrontens lock. Skruva de två små skruvarna för att ta bort packningslocket.

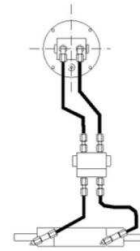
Others mounting possibilities
Autre possibilité d'installation - Schema Technique
Altre possibilità di installazione
Andra monteringsalternativ



Pompe avec 2 verin



By-Pass Valve



MRA-Line

Automatic Pilot installation:

In case of automatic pilot, need pump with **Lock-Valve**, but contact Hydrodrive for further technical information before installing.

Installation avec le Pilote Automatique: En cas d'installation avec le pilote automatique est nécessaire la pompe avec le clapet anti-retour, mais pour sûreté c'est nécessaire contacter le service assistance technique Hydrodrive.

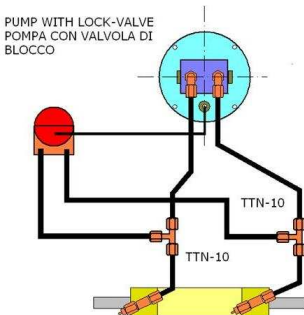
Installazione con Pilota Automatico:

In caso di installazione con pilota automatico, necessita la pompa con **Valvola di Blocco**, ma per sicurezza contattare il servizio di assistenza tecnica Hydrodrive.

AutoPilotinstallation:

Vid autopilotinstallation behövs en pump med backventil.

Kontakta Hydrodrive för ytterligare teknisk information före installation.



Warning: Hydrodrive offer the installation book as a guide only and is not responsible for any consequences resulting from incorrect dismantling repairs.

Attention: Hydrodrive offre cet manuel d'installation seulement comme introduction est l'Hydrodrive même n'est pas responsable pour les cas de non correcte installation, réparation, violation du produit.

Attenzione: Hydrodrive offre questo libro di installazione solo come guida e non è responsabile per conseguenze imputabili ad incorretta installazione o riparazioni o manomissioni del prodotto.

Varning: Hydrodrive erbjuder endast denna installationsmanual som en guide och är inte ansvarig för några konsekvenser till följd av felaktiga demonteringar och reparationer.

Warranty: we warrant to the original retail purchaser that Hydrodrive produces have been manufactured free from defect in material and workmanship. This **warranty** is effective for **five years** from date of purchase. We will provide replacement products without charge, immediately when we received back the bad part (free of charge). Prior to returning products to Hydrodrive under warranty, please obtain a [return goods authorization number](#) (claim number).

Garantie: nous garantissons les produits original Hydrodrive pour les défauts des matériaux ou usinages. Cette garantie est valable pour 5 année a partir de la date acquisition. Nous enverrons les produits en substitution ou réparé (sans frais) immédiatement après avoir reçu les produits avec défauts et avoir vérifié les éventuel défauts. Avant la restitution des produits (les frais des expédition sont à la charge du acheteur) nous donnerons le numéro d'autorisation.

Garanzia: noi garantiamo i prodotti originali Hydrodrive per i difetti di materiale o lavorazione. Questa garanzia è effettiva per cinque anni dalla data di acquisto. Noi provvederemo ad inviare il materiale riparato o in sostituzione (senza spese), immediatamente aver ricevuto in ritorno il materiale difettoso per verificare gli eventuali difetti. Prima di restituire i prodotti (con spese a carico del compratore), ottenere il [numero di autorizzazione al reso](#).

Garanti : Vi garanterar den ursprungliga slutkonsumenten att Hydrodrives produkter har tillverkats utan defekter i material och arbete. Denna garanti gäller i 5 år från inköpsdatum. I händelse av garantifel sker utbyte mot insändande av trasig produkt (utan kostnad). Före återsändande av produkt till Hydrodrive under garanti måste ett auktoriserat returgoodsnummer erhållas.