OCTOPUS

DETAIL INSTALLATION GUIDE

REV: A 29 MAY 2008

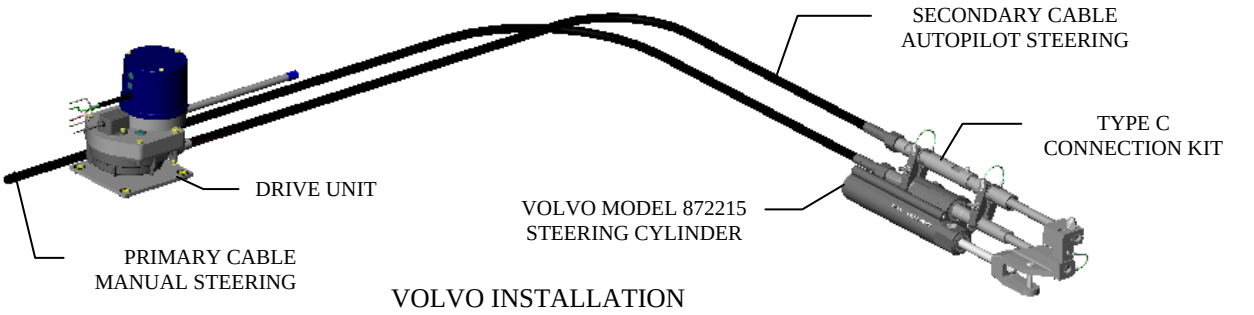
OC15SUK12C – TYPE C - MULTI I/O CONNECTION KIT

A. SYSTEM OVERVIEW:

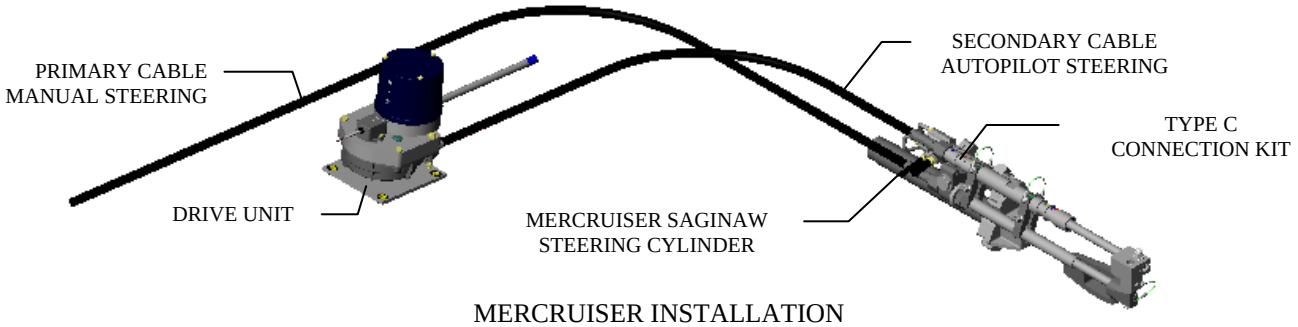
1. The Octopus Type C – Multi I/O connection kit can be fitted to mechanical push-pull cable controlled sterndrive power assisted steering cylinders made by Volvo (model 872215) and Mercruiser (Saginaw). Installation of the kit allows the addition of a second steering cable which can be used for autopilot control when connected to the Octopus Remote Mechanical Drive or Jog control when connected to the Octopus Intellisteer remote Mechanical Drive.

2. The model 872215 steering cylinder is fitted to Diesel Powered DP drives from 1994 onwards. The Saginaw steering cylinder is fitted to Alpha One Generation II and Bravo Sterndrives from 1983 to 1993.

Note: See separate guide OC15SUK12B – Type B – Multi I/O Connection Kit for – Mercruiser DHB Steering Cylinder fitted to all drives from 1994 and newer and Volvo models 3860726 – 3860883 – 3862210 - 3862513 Steering Cylinders fitted to Gasoline Powered SX & DP-S drives from 1997. Steering Cylinders from other Manufactures are not compatible with this system at this time. Consult the factory for additional information.



VOLVO INSTALLATION



MERCRUISER INSTALLATION

B. REQUIRED PARTS:

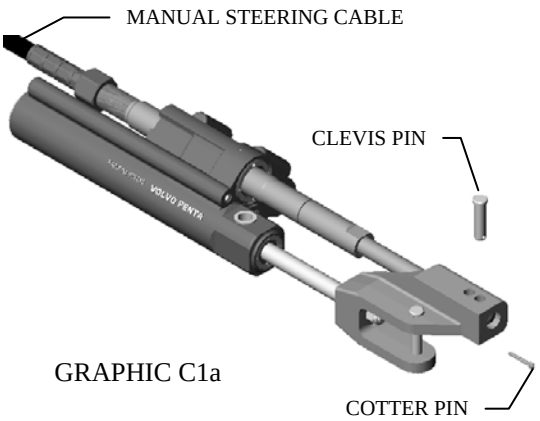
1. Part # OC15SUK12C – Type C – Multi I/O Connection Kit
2. Part # OC15109-6 secondary steering cable (6 foot) – other lengths available
   (Equivalent Steering Cables manufactured by Morse, Uflex or Teleflex may be used with the addition of cable end adapters. OC15SUK08 for the Uflex M66 or Teleflex SSC62 - OC15SUK07 for the Uflex M47, Teleflex SSC72 or Morse 304415)
3. OCAFMDRERW drive unit (see separate detail installation guide)
4. OC15SUK25 – Vent Filter Bracket (for Volvo KAD32 engines only)
5. General Shop Tools

C1. Recommended Installation Procedure For Volvo model 872215 steering cylinder

C1a. Prepare Steering Cylinder

i. Using the manual steering helm, centre the tiller. Note that it may be necessary to run the engine to achieve this.

ii. Using shop tools, remove the cotter pin and clevis pin connecting the manual steering cable rod end to the steering cylinder clevis bracket.



GRAPHIC C1a

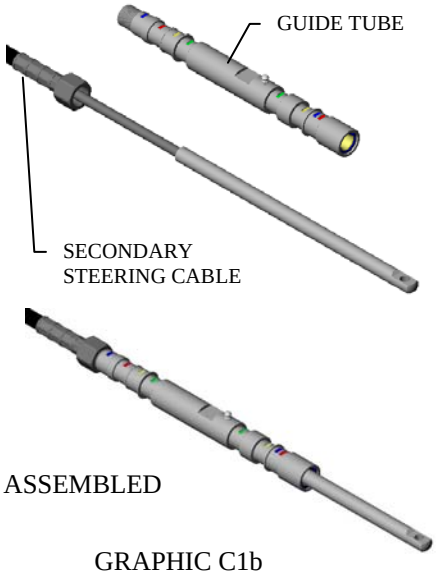
C1b. Pre-assemble Secondary Steering Cable to Guide Tube Assembly

i. Ensure that both the nut and the male thread are lubricated with marine quality grease before assembly.

ii. Ensure that the static portion of the rod end and the inside of the guide tube are liberally coated with marine quality grease.

iii. Insert the rod end portion of the secondary steering cable into the threaded side of the guide tube assembly.

iv. Engage 7/8-14 UNF nut on male thread, hand tighten and torque to 175 in-lbs (20Nm). Note that the nut has an internal thread locking feature that can increase the effort required to initial hand tighten.



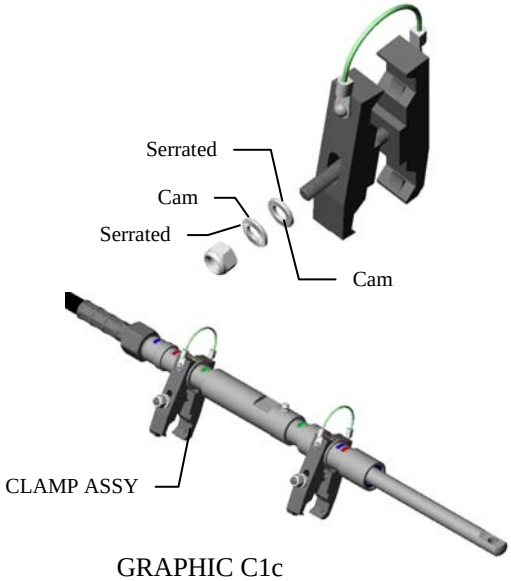
GRAPHIC C1b

C1c. Pre-assemble 2 x Clamp Assemblies to Guide Tube Assembly

i. Ensure that the anti-vibration cam-washers are assembled correctly on both of the Clamp Assemblies. The serrated face of the washers should be in contact with the nut face and the clamp face. The cam feature face of the washers should be in contact with each other.

ii. Orientate both of the Clamp Assemblies with the nut adjusted to maximum ‘open’ and facing forwards with the green lanyard at the top.

iii. Slide the Clamp Assemblies over the open end of the rod end and guide tube and locate them in the YELLOW color coded slots on the outside diameter of the guide tube.



GRAPHIC C1c

C1d. Pre-assemble Clevis Block Assembly to Secondary Steering Cable Rod End

i. Disassemble the 3/8-24 nut, cam washers and 3/8-24 bolt.

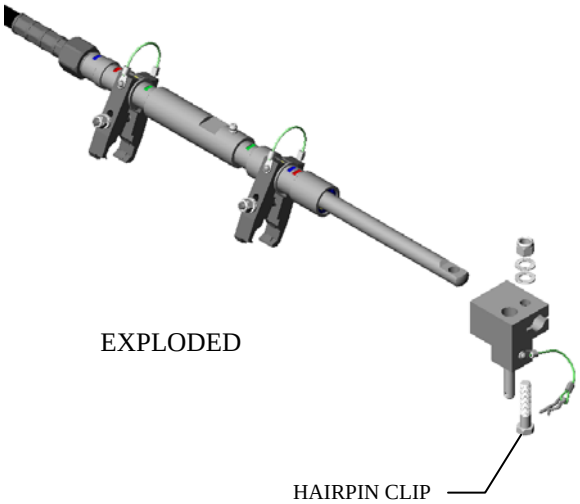
ii. Orientate the Clevis Block with the clevis pin facing down and forward.

iii. Insert the rod end into the slotted hole of the clevis block. From below insert the 3/8 bolt thru both the clevis block and the rod end.

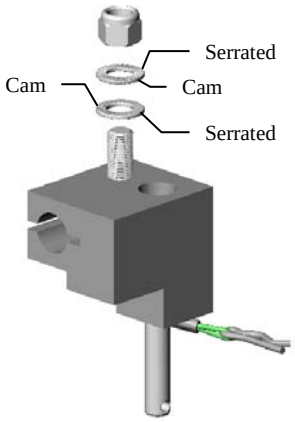
iv. Assemble 2 x cam washers and self locking nut. See orientation graphic. Tighten and torque to 180-200 in-lbs.

v. Ensure that the anti-vibration cam-washers are assembled correctly. The serrated face of the washers MUST be in contact with the nut face and the clevis block face. The cam feature face of the washers MUST be in contact with each other.

vi. Remove hairpin clip from the clevis pin cross hole and allow to hang freely on green lanyard.

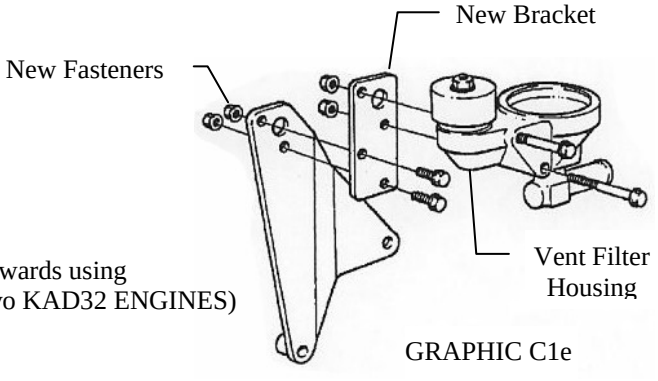


GRAPHICS C1d



CLEVIS BLOCK
CAM WASHER ORIENTATION

C1e. Re-locate Engine Crank Chamber Vent Filter Housing Upwards using OC15SUK25 Bracket Kit. (ONLY REQUIRED ON Volvo KAD32 ENGINES)



GRAPHIC C1e

C1f. Assemble I/O Kit & Second Steering Cable to Steering Cylinder

i. Position I/O Kit & Second Steering Cable sub-assembly above Steering Cylinder as shown in Stage 1 graphic.

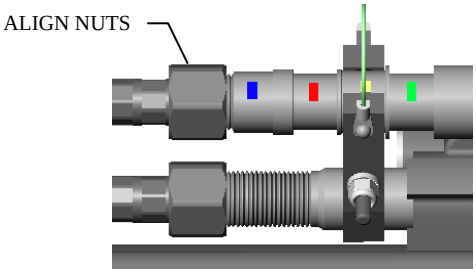
ii. Lower I/O Kit & Second Steering Cable sub-assembly onto Steering Cylinder. Ensure that clevis pin enters both the holes in Steering Cylinder clevis bracket and manual Steering Cable rod end.

iii. Misalignment may prevent engagement of the new Yolk clevis pin. If so, re-align cross hole in manual Steering Cable rod end with hole in Steering Cylinder clevis bracket by adjusting the manual helm slightly.

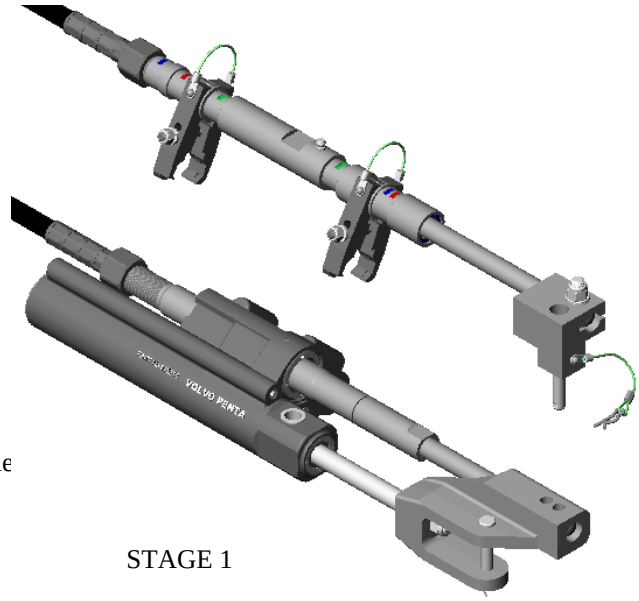
iv. Whilst lowering I/O Kit and engaging clevis pin, hold open 2 Clamp Assemblies and ensure that they are retained in the YELLOW color coded grooves. Guide the open clamps over manual steering cable guide tube.

v. Now I/O Kit & Second Steering Cable is sitting on top of Steering Cylinder with clevis pin fully engaged and 2 open Clamp Assemblies are loosely positioned on the manual steering guide tube and located in the YELLOW color coded grooves. As shown in Stage 2 graphic.

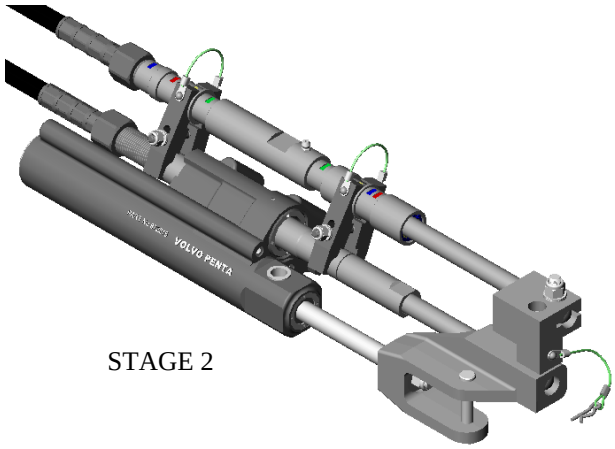
vi. Axially position I/O Kit guide tube so that the nut which connects the steering cable outer jacket is aligned with the similar nut on the manual steering cable outer jacket.



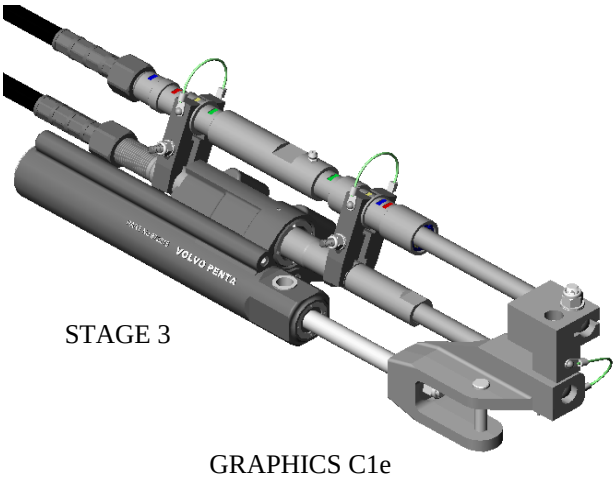
vii. Using a 10mm AF wrench, tighten and torque the 2 clamp nuts to 100 in-lbs (11Nm). Install Hairpin Clip through the cross hole in the clevis pin. As shown in Stage 3 Graphic



STAGE 1



STAGE 2



STAGE 3

GRAPHICS C1e

C1g. Install Drive Unit

i. See separate Detail Installation Guide for Drive Unit.

C1h. Perform Interference Evaluation (2 people required)

i. It is extremely important that a steering system FULL FUNCTION AND OPERATING CLEARANCE CHECK be performed between the new Connection Kit & Second Steering Cable and ALL adjacent hardware including hoses, electrical cables and control cables.

ii. The drive unit MUST be installed with the Second Steering Cable Assembled before performing the Function & Interference Evaluation.

iii. With one person operating the manual steering Helm and one person observing the tiller area. Slowly run the tiller to full HO left and then to full HO right while the observer ensures that there are no physical interferences and that the Steering System is functional. Note that it will be necessary to run the engine to perform this operation.

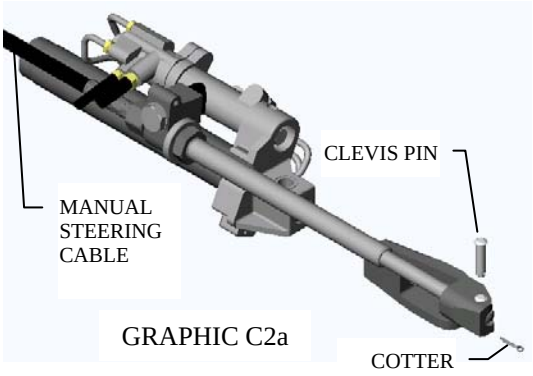
iv. It may be necessary to re-rout hoses, electrical cables or control cables. ALL hardware must be well clear of the new Connection Kit and Second Steering Cable. Note that chaffing can occur if parts are allowed to come into contact.

C2. Recommended Installation procedure For Mercruiser Saginaw Steering Cylinder

C2a. Prepare Steering Cylinder

i. Using the manual steering helm, centre the tiller. Note that it may be necessary to run the engine to achieve this.

ii. Using shop tools, remove the cotter pin and clevis pin connecting the manual steering cable rod end to the steering cylinder clevis bracket.



GRAPHIC C2a

C2b. Pre-assemble Secondary Steering Cable to Guide Tube Assembly

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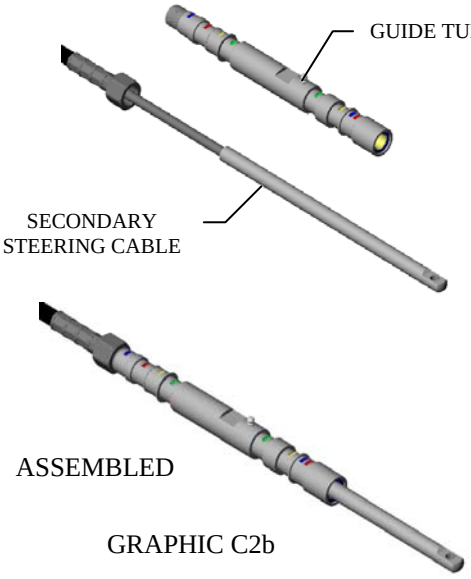
ii. Ensure that the static portion of the rod end and the inside of the guide tube are liberally coated with marine quality grease.

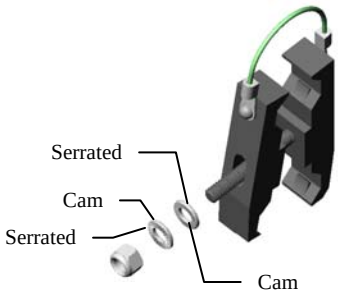
iii. Insert the rod end portion of the secondary steering cable into the threaded side of the guide tube assembly.

iv. Engage 7/8-14 UNF nut on male thread, hand tighten and torque to 175 in-lbs (20Nm). Note that the nut has an internal thread locking feature that can increase the effort required to initial hand tighten.



GRAPHIC C2b

C2c. Pre-assemble 2 x Clamp Assemblies to Guide Tube Assembly



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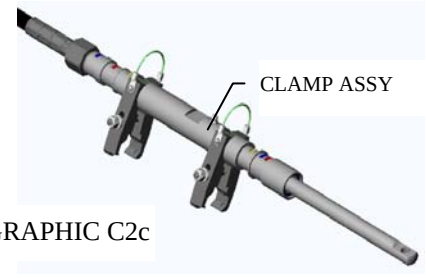
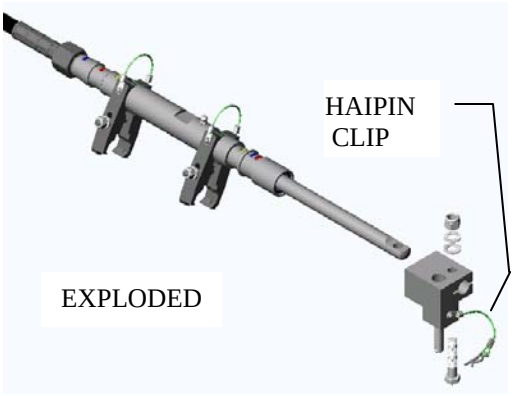
ii. Orientate both of the Clamp Assemblies with the nut adjusted to maximum 'open' and facing forwards with the green lanyard at the top.

iii. Slide the Clamp Assemblies over the open end of the rod end and guide tube and locate them in the GREEN color coded slots on the outside diameter of the guide tube.



GRAPHIC C2c

C2d. Pre-assemble Clevis Block Assembly to Secondary Steering Cable Rod End



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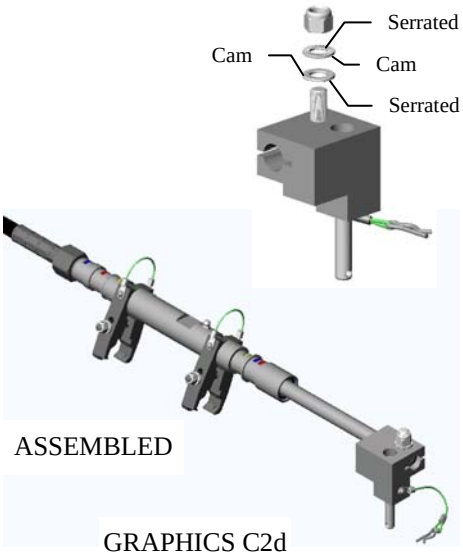

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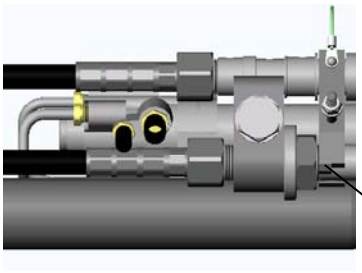
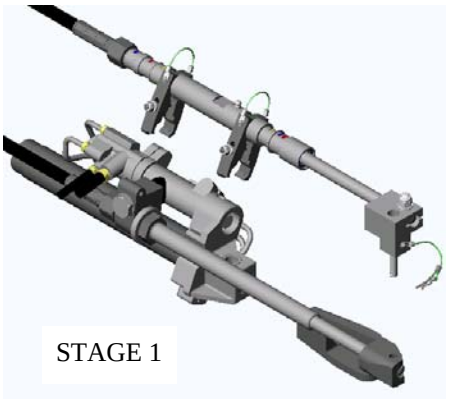
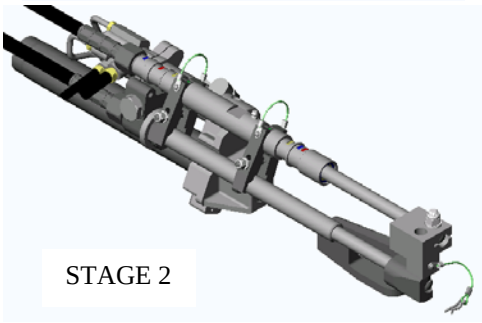
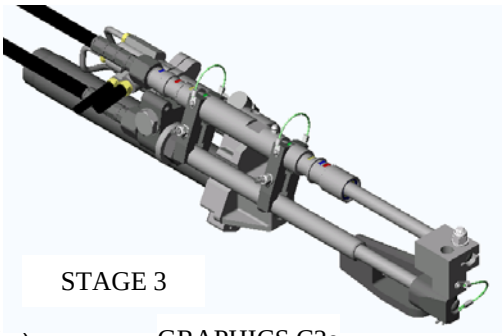
vi. Axially position I/O Kit guide tube with a minimum gap between the Clamp Assembly (nearest to the steering cable nut) and the lock nut on the primary steering cable guide tube.









GRAPHICS C2e

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