

CONTINENTAL MOTORS® AIRCRAFT ENGINE
CRITICAL SERVICE BULLETIN

CATEGORY 2
CSB15-7

COMPLIANCE NECESSARY TO MAINTAIN SAFETY

TECHNICAL PORTIONS
FAA APPROVED

SUBJECT: TSIO-550-K Oil Cooler Cross Fitting Replacement

PURPOSE: To replace oil cooler cross fitting (part number AN918-1J) with a new enhanced cross fitting (P/N 658607).

COMPLIANCE: Prior to further flight. A maximum of 5 hours flight time is authorized for aircraft repositioning in order to comply with this bulletin.

MODELS

AFFECTED: All new and rebuilt TSIO550-K aviation gasoline (AvGas) engine models that use oil cooler cross fitting P/N AN918-1J.

I. GENERAL INFORMATION

Continental Motors, Inc. (CMI) is aware of some occurrences in which there was a loss of engine oil due to a fractured nipple fitting that connects the cross fitting to the pipe bushing at the oil cooler. Design improvements consolidate the oil cooler cross fitting stack-up into a single part, which significantly increases the strength and provides a simplified installation procedure for installing the oil cooler cross fitting found on specified TSIO-550-K engines.

WARNING

It is critical to follow ALL “Standard Practices” within your Maintenance and Overhaul Manual when connecting fittings and hoses.

II. BACKGROUND INFORMATION

CMI has made several design enhancements to the cross fitting configuration that provides lubricating oil to the turbocharger bearings, and, in some cases, the oil pressure sensor.

Located in your M-18 (29 May 2015), or later revision, Maintenance and Overhaul Manual:

1. Chapter 17 provides detailed instructions on installing the pipe fittings found on the oil cooler and the authorized pipe sealant to be used.
2. Appendix B provides the “General Torque Specifications” to be used when tightening the pipe fittings and B-nuts.

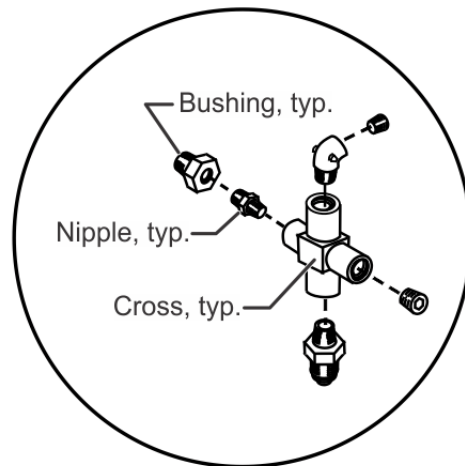
CAUTION: It is critical to follow Standard Practices to prevent applying twisting or shear loads, or over torquing the mated fittings.

3. Appendix C provides specific instructions to properly support equipment during installation of fittings and/or B-nuts (reference section C-12, “Hose and Tubing Installation.”)

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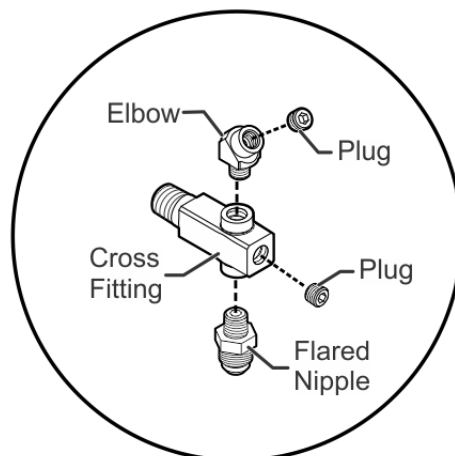
Design enhancements:

1. Eliminate the pipe bushing and nipple fitting stack-up (see Figure 1) typically found between the cross fitting and the oil cooler and replaces them with a single cross fitting (P/N 658607).
2. Provide a larger tool surface area on the cross fitting for support wrenches during subsequent fitting and b-nut installation.
3. Add a new requirement for engine model TSIO550-K to use the AN915-1J 45-degree elbow fitting to install the oil pressure sensor.



TSIO550-K

Figure 1. Cross Fitting Stack-Up, Prior Configuration



TSIO550-K

Figure 2. Cross Fitting, NEW Configuration

III. ACTION REQUIRED

REMOVE AND REPLACE the superseded parts with new cross fitting (P/N 658607) using the same procedures located in your M-18 Maintenance and Overhaul Manual. Reference the latest revision of the CMI Illustrated Parts Catalog (IPC) to determine applicable additional connectors, elbows, or plug part numbers and adjust the instructions accordingly.

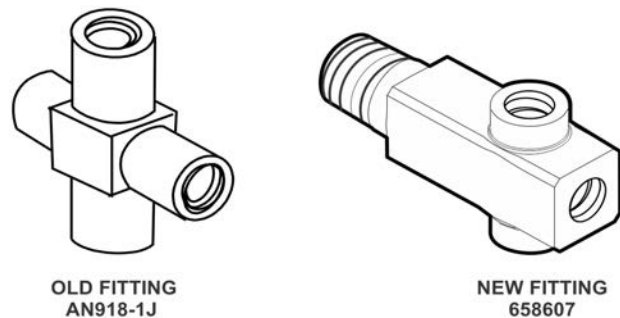


Figure 3. Cross Fitting, Comparison

WARNING

Use eye protection when cutting safety wire to prevent eye injury.

1. Remove and discard safety wire securing vernatherm to oil cooler pipe bushing.
2. Follow the detailed instructions for removing and installing pipe fittings found on oil coolers (Chapter 17-6) using sealant specified.
3. Use a minimum 10X magnifying lens to visually inspect outboard port threads at the aft side of the oil cooler for contamination, distortion, or damage **before** installing new cross fitting (P/N 658607).
 - a. If determined serviceable, continue installing new cross fitting.
 - b. If there is evidence of contamination or damage, please contact Continental Motors Customer Service Department directly at 1(800) 326-0089.
4. Reference Appendix B, “General Torque Specifications” for torque pipe fitting installation instructions (NPTF threads):
 - a. Screw the cross fitting (P/N 658607) into the outboard port (at the aft side of the oil cooler) to the finger tight position.
 - b. Wrench tighten the cross fitting to the appropriate clocking of fitting within 1-3 turns from the finger tight position. Minimum torque of 185 in/lbs must be achieved upon clocking position of fitting.

NOTE: The fitting is not to be loosened in order to achieve proper alignment (clocking). Torque values specified are for reference only. Torque values **must** be used on other pipe fittings or plugs where clocking is **not** required.

5. Reference Appendix C, “Hose and Tubing Installation” when installing fittings and/or B-nuts.

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CAUTION: It is critical to support pipe fittings and follow Standard Practices to prevent applying twisting or shear loads, or over torquing the mated fittings.

- a. Use a wrench on both mating connections to avoid applying excessive torque to the fittings. Securely tighten fittings and torque to the specified value in Appendix B. Torque the hose or tubing end fitting while maintaining sufficient force on adjacent fittings to prevent twisting and shear loads.

CAUTION: Do not exceed specified torque values.

- b. Support the last fitting in the assembly on components that contain multiple fittings coupled in one location (see Figure 4). DO NOT over-torque fittings.

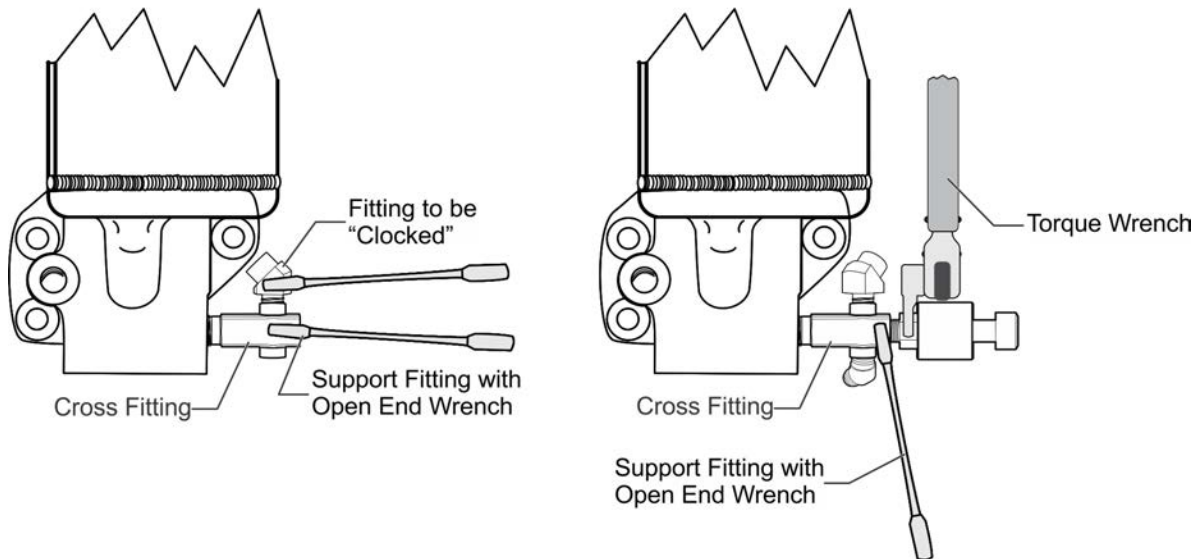


Figure 4. Hose and Tube Installation Support

6. Install new safety wire securing vernatherm to cross fitting. Reference Appendix C-4, "Safety Wire Hardware" to properly secure hardware.
7. Conduct a normal engine start and ground run-up according to your Airplane Flight Manual / Pilot's Operating Handbook (AFM/POH) provided by the airframe manufacturer.
8. Perform a visual leak check of the serviced area, after shut-down, prior to placing aircraft in service.
9. Make appropriate logbook entries detailing compliance actions taken in accordance with this Critical Service Bulletin (CSB15-7). The logbook entry must include a complete listing of parts used in this installation.
10. Return aircraft to service.

IV. WARRANTY

This Critical Service Bulletin is your authorization to perform the required inspection, replace the affected part(s), and receive warranty reimbursement, limited to the “Models Affected” and compliance action required as defined within. Contact your authorized Continental Motors distributor for warranty claim application and parts return instructions.

Contact Continental Motors Technical Services at one of the numbers listed below if you have any questions concerning the technical content of this Critical Service Bulletin.

1.888.826.5465	toll free in United States
+1.251.436.8299	international callers
+1.305.964.0872	en Español

NOTE: Visit the Continental Motors web site at www.continentalmotors.aero to obtain copies of Continental Motors Warranty Policies.

A. Allowances/Reimbursements

Table 1. Labor allowance shall be:

Scope of Work	Labor Allowance (hr)
Remove and replace superseded parts.	1.0

B. Illustrated Parts Catalog Instructions

Replacement parts required to comply with this bulletin are published in the illustrated parts catalogs on the Continental Motors web site and may be ordered through any authorized Continental Motors distributor.

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CONTINENTAL MOTORS® AIRCRAFT ENGINE
CRITICAL SERVICE BULLETIN

COMPLIANCE NECESSARY TO MAINTAIN SAFETY

CATEGORY 2
CSB15-7A

SUPERSEDES CSB15-7
TECHNICAL PORTIONS
FAA APPROVED

SUBJECT: TSIO550-K Oil Cooler Cross Fitting Replacement

PURPOSE: To replace oil cooler cross fitting (part number AN918-1J) with a new enhanced cross fitting (P/N 658607).

COMPLIANCE: Prior to further flight. A maximum of 5 hours flight time is authorized for aircraft repositioning in order to comply with this bulletin.

MODELS

AFFECTED: New and rebuilt TSIO550-K aviation gasoline (AvGas) engine models using oil cooler cross fitting P/N AN918-1J with engine serial numbers prior to 1012296.

I. GENERAL INFORMATION

Continental Motors, Inc. (CMI) published CSB15-2 upon discovering isolated occurrences in which there was a loss of engine oil due to a fractured nipple fitting between the cross fitting and the pipe bushing at the oil cooler. Design improvements consolidate the oil cooler cross fitting stack-up into a single part, significantly increasing the strength and providing a simplified procedure for installing the oil cooler cross fitting found on specified TSIO550 engines. *If CSB15-2 was previously complied with on the TSIO550-K engine, no further action is required. Modifications described herein on engine serial numbers 1012296 and higher were accomplished at the factory.*

WARNING

It is critical to follow ALL “Standard Practices” within your Maintenance and Overhaul Manual when connecting fittings and hoses.

II. BACKGROUND INFORMATION

CMI has made several design enhancements to the cross fitting configuration that provides lubricating oil to the turbocharger bearings, and, in some cases, the oil pressure sensor.

Located in your M-18 (29 May 2015), or later revision, Maintenance and Overhaul Manual:

1. Chapter 17 provides detailed instructions on installing the pipe fittings found on the oil cooler and the authorized pipe sealant to be used.
2. Appendix B provides the “General Torque Specifications” to be used when tightening the pipe fittings and B-nuts.

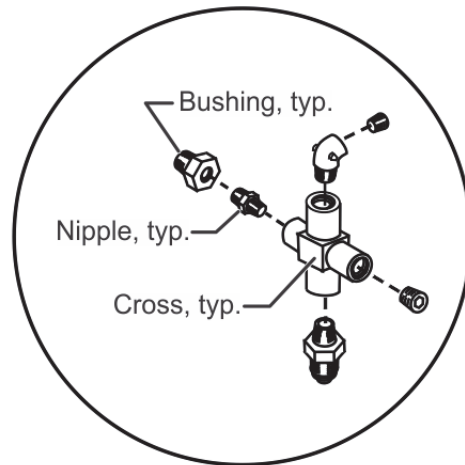
CAUTION: It is critical to follow Standard Practices to prevent applying twisting or shear loads, or over torquing the mated fittings.

3. Appendix C provides specific instructions to properly support equipment during installation of fittings and/or B-nuts (reference section C-12, “Hose and Tubing Installation.”)

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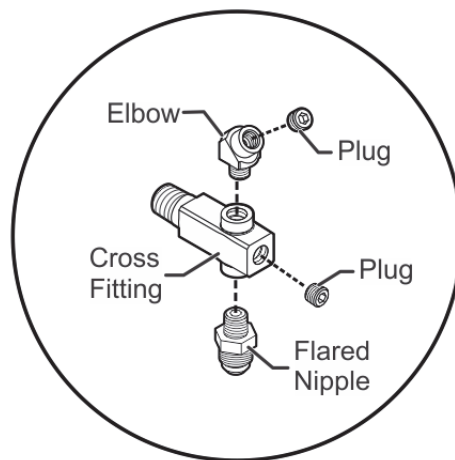
Design enhancements:

1. Eliminate the pipe bushing and nipple fitting stack-up (see Figure 1) typically found between the cross fitting and the oil cooler and replaces them with a single cross fitting (P/N 658607).
2. Provide a larger tool surface area on the cross fitting for support wrenches during subsequent fitting and B-nut installation.



TSIO550-K

Figure 1. Cross Fitting Stack-Up, Prior Configuration



TSIO550-K

Figure 2. Cross Fitting, NEW Configuration

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III. ACTION REQUIRED

REMOVE AND REPLACE the superseded parts with new cross fitting (P/N 658607) using the same procedures located in your M-18 Maintenance and Overhaul Manual. Reference the latest revision of the CMI Illustrated Parts Catalog (IPC) to determine applicable additional connectors, elbows, or plug part numbers and adjust the instructions accordingly.

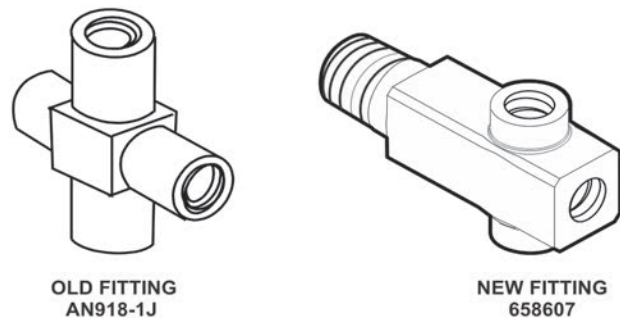


Figure 3. Cross Fitting, Comparison

WARNING

Use eye protection when cutting safety wire to prevent eye injury.

1. Remove and discard safety wire securing vernatherm to oil cooler pipe bushing.
2. Follow the detailed instructions for removing and installing pipe fittings found on oil coolers (Chapter 17-6) using sealant specified.
3. Use a minimum 10X magnifying lens to visually inspect outboard port threads at the aft side of the oil cooler for contamination, distortion, or damage **before** installing new cross fitting (P/N 658607).
 - a. If determined serviceable, continue installing new cross fitting.
 - b. If there is evidence of contamination or damage, please contact Continental Motors Customer Service Department directly at 1(800) 326-0089.
4. Reference Appendix B, “General Torque Specifications” for torque pipe fitting installation instructions (NPTF threads):
 - a. Screw the cross fitting (P/N 658607) into the outboard port (at the aft side of the oil cooler) to the finger tight position.
 - b. Wrench tighten the cross fitting to the appropriate clocking of fitting within 1-3 turns from the finger tight position. Minimum torque of 185 in/lbs must be achieved upon clocking position of fitting.

NOTE: The fitting is not to be loosened in order to achieve proper alignment (clocking). Torque values specified are for reference only. Torque values **must** be used on other pipe fittings or plugs where clocking is **not** required.

5. Reference Appendix C, “Hose and Tubing Installation” when installing fittings and/or B-nuts.

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CAUTION: It is critical to support pipe fittings and follow Standard Practices to prevent applying twisting or shear loads, or over torquing the mated fittings.

- a. Use a wrench on both mating connections to avoid applying excessive torque to the fittings. Securely tighten fittings and torque to the specified value in Appendix B. Torque the hose or tubing end fitting while maintaining sufficient force on adjacent fittings to prevent twisting and shear loads.

CAUTION: Do not exceed specified torque values.

- b. Support the last fitting in the assembly on components that contain multiple fittings coupled in one location (see Figure 4). DO NOT over-torque fittings.

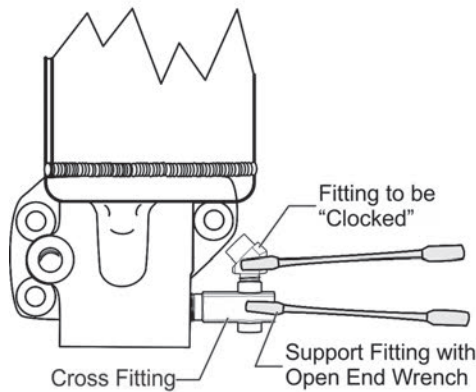


Figure 4. Hose and Tube Installation Support

6. Install new safety wire securing vernatherm to cross fitting. Reference Appendix C-4, "Safety Wire Hardware" to properly secure hardware.
7. Conduct a normal engine start and ground run-up according to your Airplane Flight Manual / Pilot's Operating Handbook (AFM/POH) provided by the airframe manufacturer.
8. Perform a visual leak check of the serviced area, after shut-down, prior to placing aircraft in service.
9. Make appropriate logbook entries detailing compliance actions taken in accordance with this Critical Service Bulletin (CSB15-7). The logbook entry must include a complete listing of parts used in this installation.
10. Return aircraft to service.

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CONTINENTAL MOTORS® AIRCRAFT ENGINE
CRITICAL SERVICE BULLETIN

COMPLIANCE NECESSARY TO MAINTAIN SAFETY

CATEGORY 2
CSB15-7B

Supersedes CSB15-7A
TECHNICAL PORTIONS
FAA APPROVED

SUBJECT: TSIO550-K Oil Cooler Cross Fitting Replacement

PURPOSE: To replace oil cooler cross fitting (P/N AN918-1J) with a new enhanced cross fitting (P/N 658607).

COMPLIANCE: Prior to further flight. A maximum of 5 hours flight time is authorized for aircraft repositioning in order to comply with this bulletin. An alternative method of compliance for hose and connection fittings may be available from the airframe manufacturer. Contact the airframe manufacturer for compliance alternatives under their authority.

MODELS

AFFECTED: New and rebuilt TSIO550-K aviation gasoline (AvGas) engine models using oil cooler cross fitting (P/N AN918-1J) with engine serial numbers prior to 1012296.

I. GENERAL INFORMATION

Continental Motors (CM) published CSB15-2 upon discovering isolated occurrences in which there was a loss of engine oil due to a fractured nipple fitting between the cross fitting (P/N AN918-1J) and the pipe bushing at the oil cooler. Design improvements consolidate the oil cooler cross fitting stack-up into a single part, significantly increasing the strength and providing a simplified procedure for installing the oil cooler cross fitting found on specified TSIO550 engines. *If compliance was previously achieved through CSB15-2 on the TSIO550-K engine, no further action is required. Modifications described herein on engine serial numbers 1012296 and higher were accomplished at the factory.*

WARNING

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II. BACKGROUND INFORMATION

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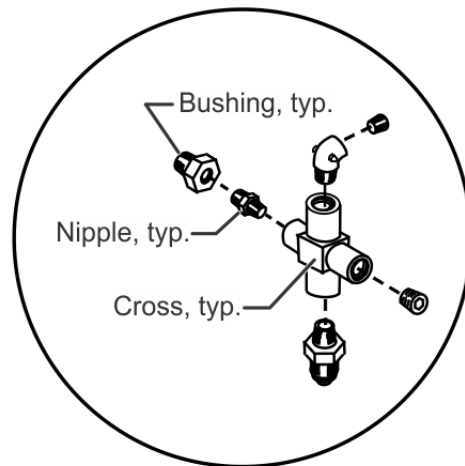
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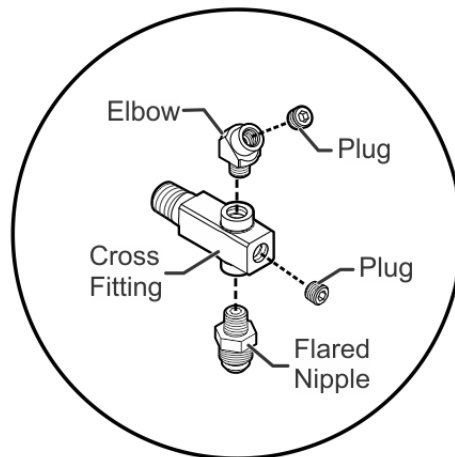
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TSIO550-K

Figure 1. Cross Fitting Stack-Up, Prior Configuration



TSIO550-K

Figure 2. Cross Fitting, NEW Configuration

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III. ACTION REQUIRED

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NOTE: An alternative method of compliance for hose and connection fittings may be available from the airframe manufacturer. Contact the airframe manufacturer for compliance alternatives under their authority.

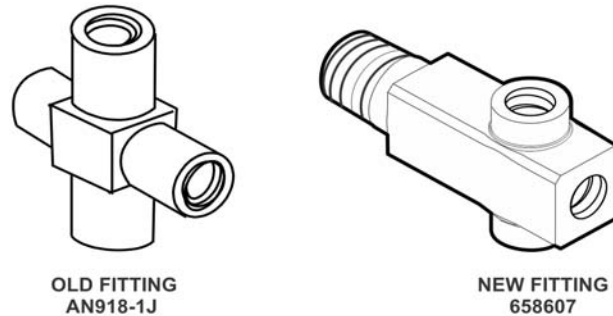


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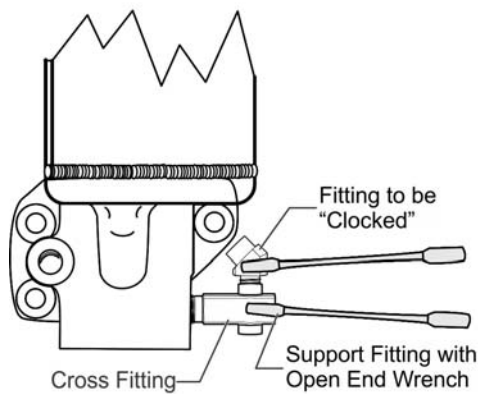


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