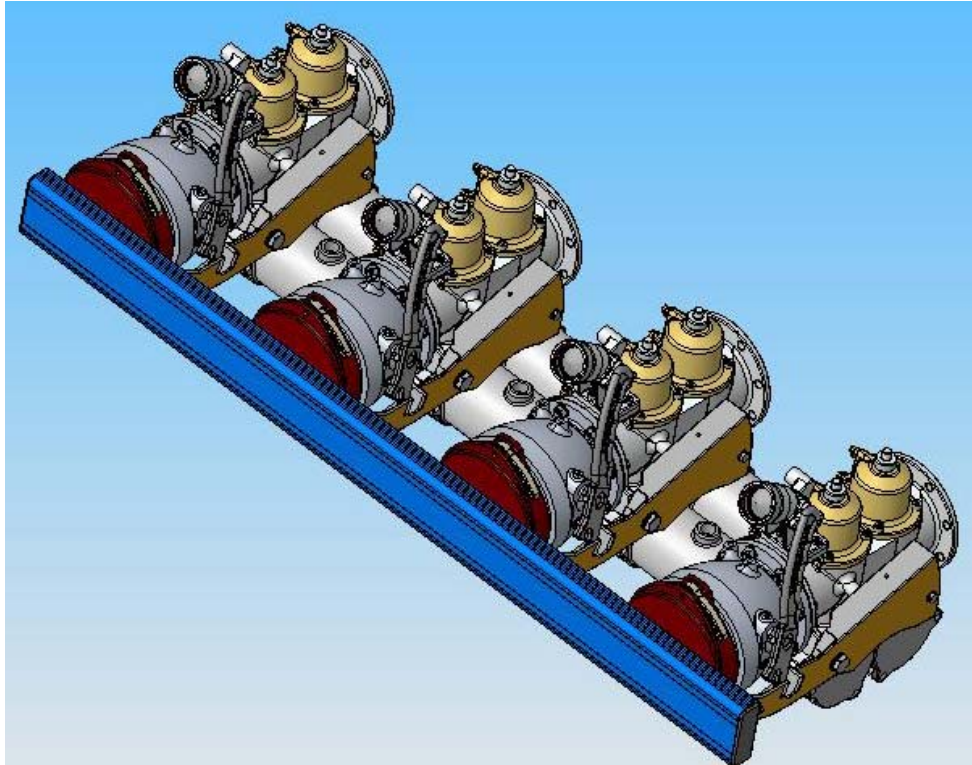


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PETROLEUM MANIFOLD for TANK TRUCKS



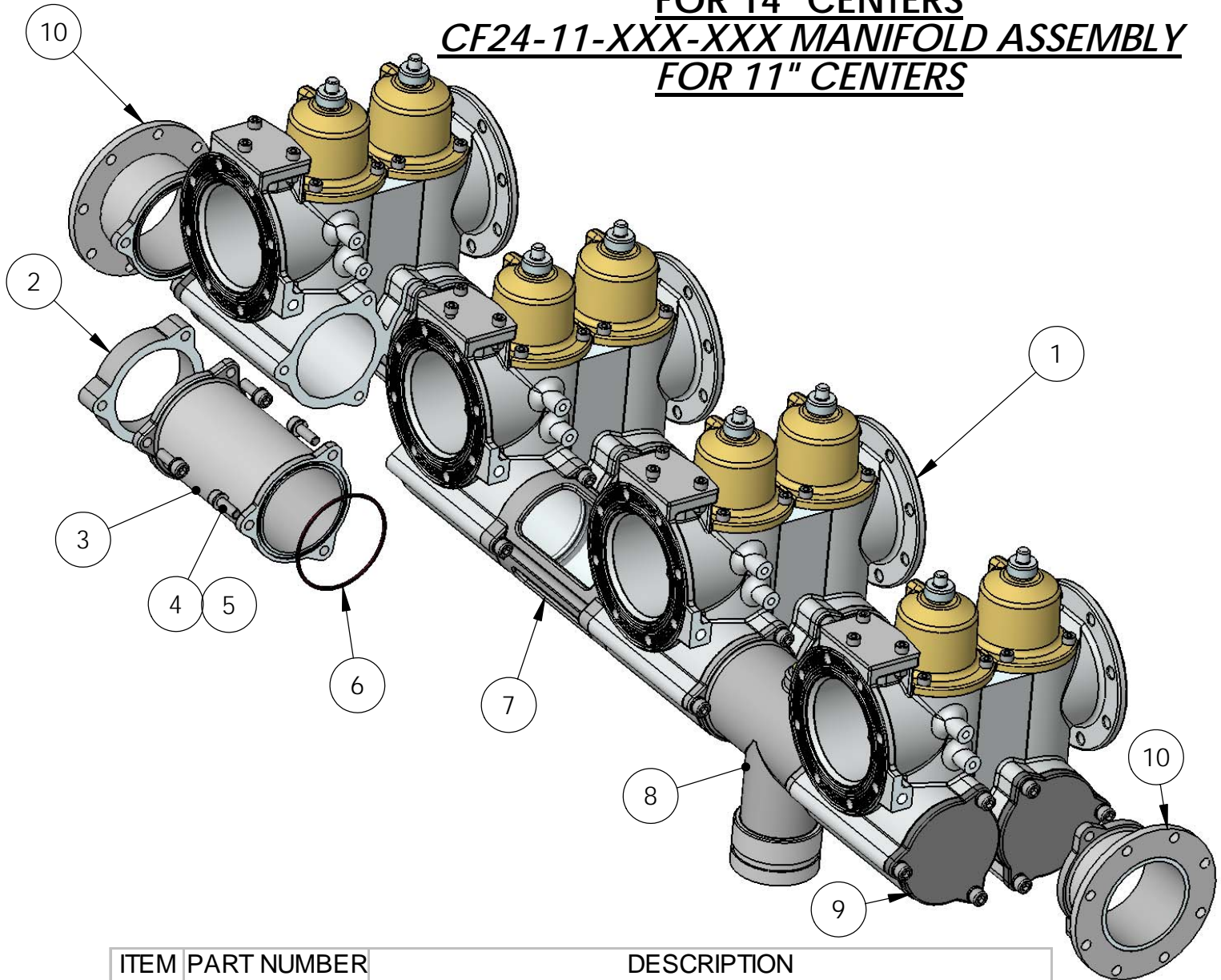
Installation Instruction

CIVACONTM

A Unit of Knappco, Inc.

Item numbers highlighted in yellow or in red square text box are listed for sale on our website

**CF24-14-XXX-XXX MANIFOLD ASSEMBLY
FOR 14" CENTERS**
**CF24-11-XXX-XXX MANIFOLD ASSEMBLY
FOR 11" CENTERS**



ITEM	PART NUMBER	DESCRIPTION
1	10541M	DUAL MANIFOLD VAVLE ASSEMBLY
2	10982M	SPACER, 1" WIDE FOR 12" CENTERS
3	10562M	COLLECTOR PIPE FOR 14" CENTERS
3	10561M	COLLECTOR PIPE FOR 11" CENTERS
4	10521M	SCREW, M10 X 30 ZINC PLATED (TYPICAL)
5	10740M	WASHER, M10 ZINC PLATED (TYPICAL)
6	10494M	O-RING, NITRILE (TYPICAL)
7	10644M	COLLECTOR SIGHT GLASS FOR 14" CENTERS
7	10698M	COLLECTOR SIGHT GLASS FOR 11" CENTERS
8	10798M	COLLECTOR TEE FOR 14" CENTERS, 3" VICTAULIC
8	10697M	COLLECTOR TEE FOR 11" CENTERS, 3" VICTAULIC
9	10558M	END CAP, COLLECTOR
10	10983M	OUTLET ADAPTER, 4" TTMA (OPTIONAL)

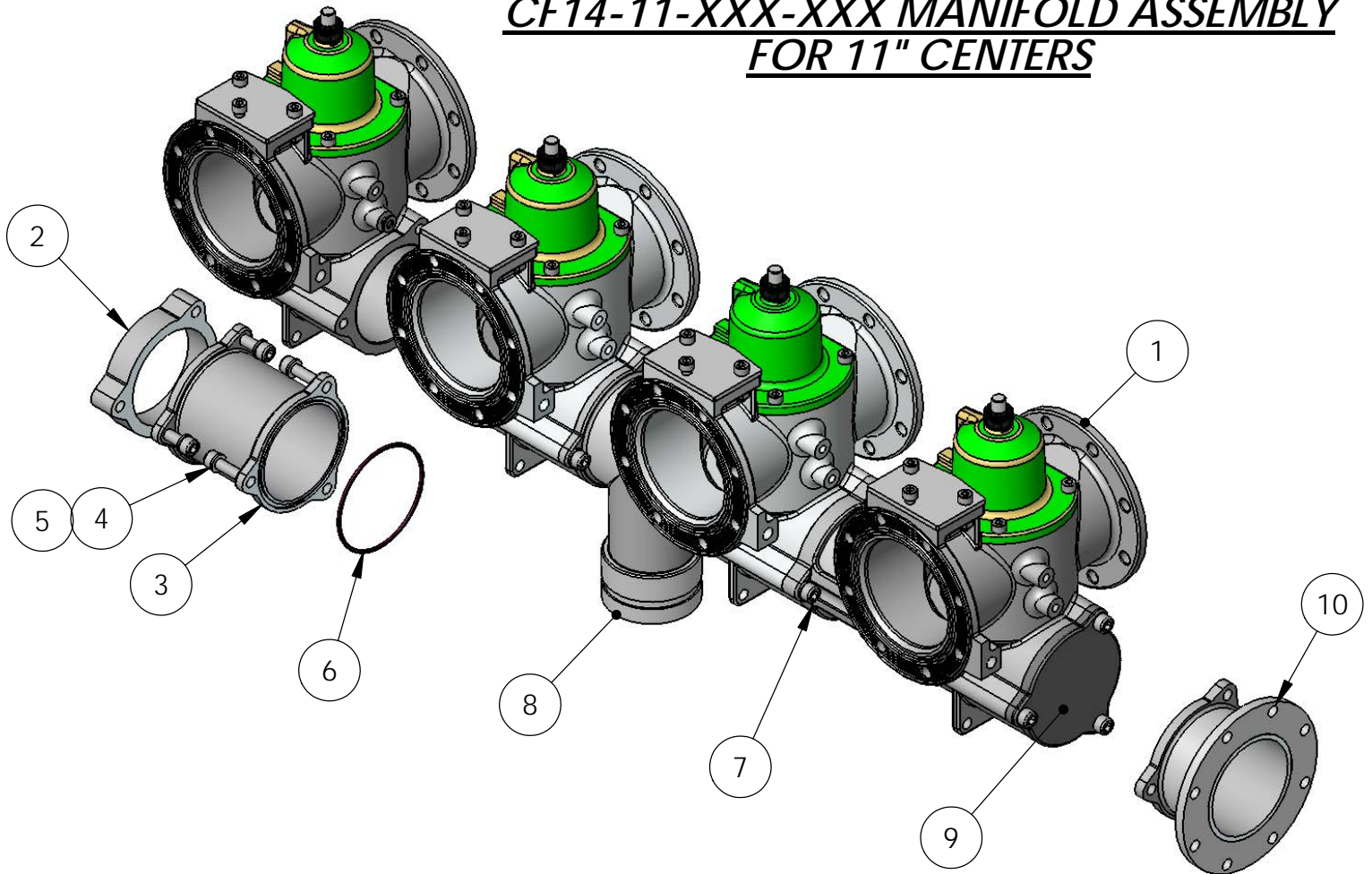
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CF14-14-XXX-XXX MANIFOLD ASSEMBLY FOR 14" CENTERS

CF14-11-XXX-XXX MANIFOLD ASSEMBLY FOR 11" CENTERS

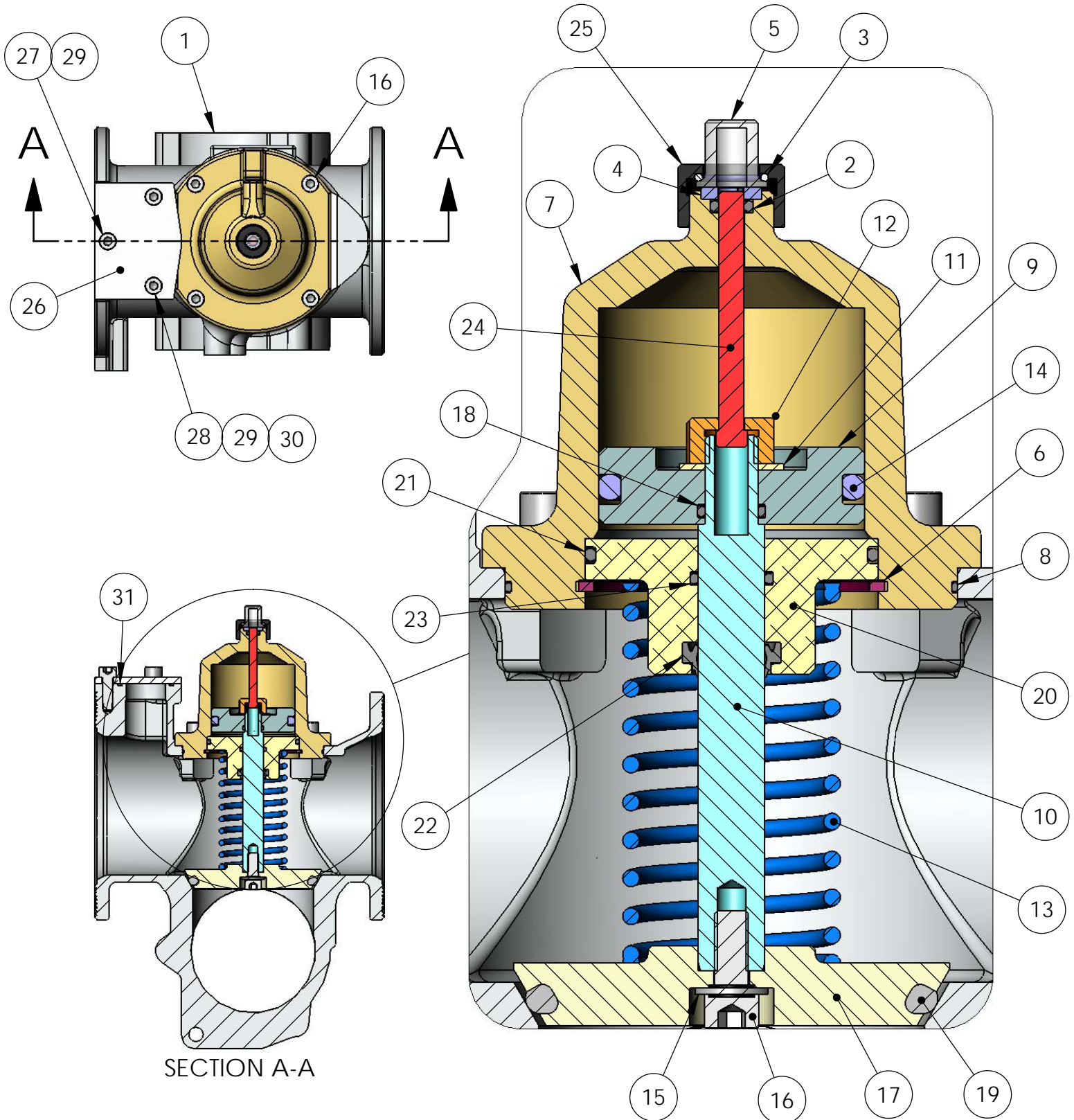


ITEM	PART NUMBER	DESCRIPTION
1	10540M	SINGLE MANIFOLD VALVE ASSEMBLY
2	10982M	SPACER, 1" WIDE FOR 12" CENTERS
3	10562M	COLLECTOR PIPE FOR 14" CENTERS
3	10561M	COLLECTOR PIPE FOR 11" CENTERS
4	10773M	SCREW, M10 X 30 ZINC PLATED (TYPICAL)
5	10237M	WASHER, M10 ZINC PLATED (TYPICAL)
6	10494M	O-RING, NITRILE (TYPICAL)
7	10644M	COLLECTOR SIGHT GLASS FOR 14" CENTERS
7	10698M	COLLECTOR SIGHT GLASS FOR 11" CENTERS
8	10798M	COLLECTOR TEE FOR 14" CENTERS, 3" VICTAULIC
8	10697M	COLLECTOR TEE FOR 11" CENTERS, 3" VICTAULIC
9	10558M	END CAP, COLLECTOR
10	10983M	OUTLET ADAPTER, 4" TTMA (OPTIONAL)

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10540M SINGLE MANIFOLD VALVE ASSEMBLY



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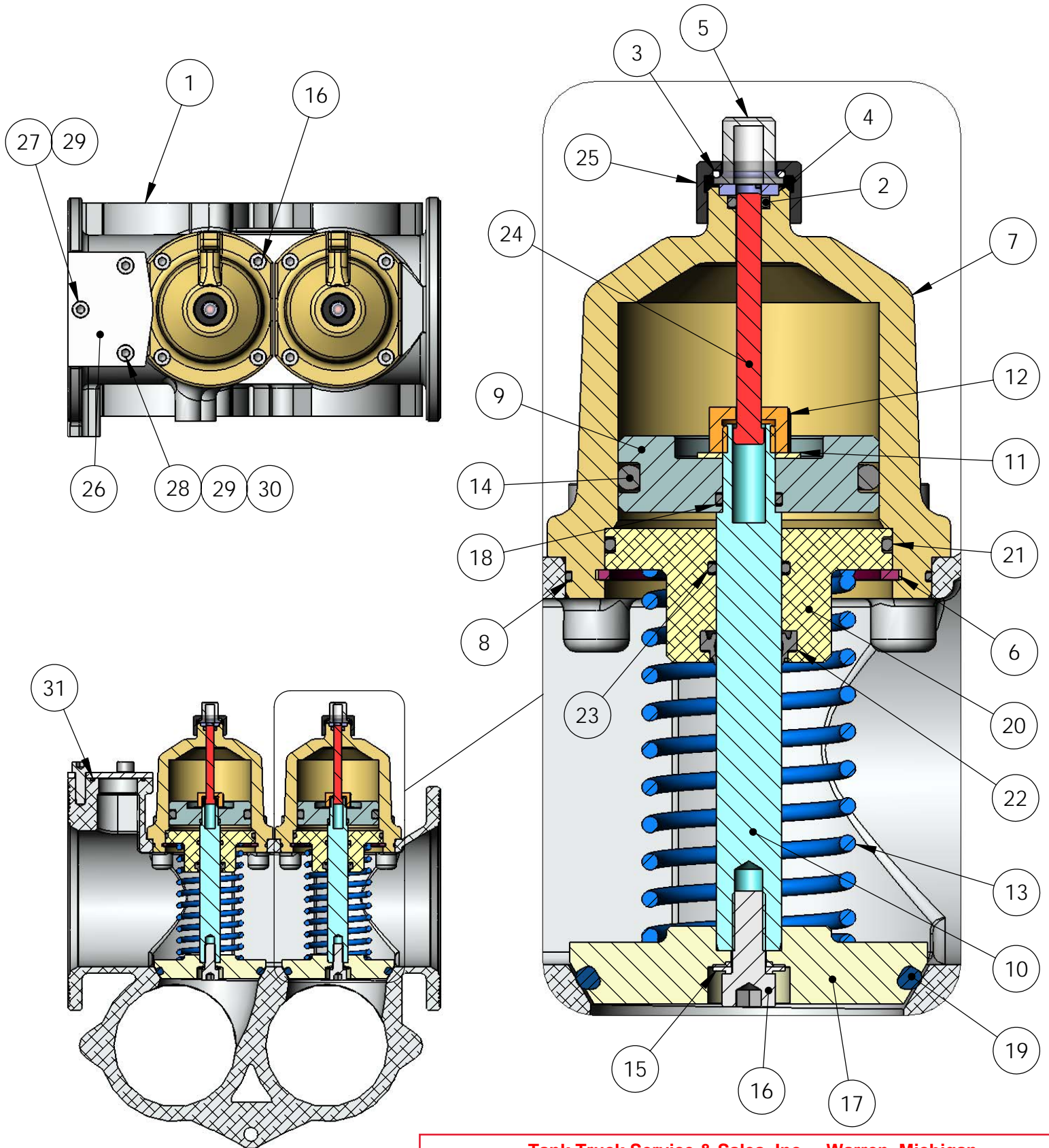
10540M SINGLE MANIFOLD VALVE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10387M	BODY, SINGLE MANIFOLD, MACHINED	1
2	10241M	O-RING, NITRILE	1
3	10776M	O-RING, BUNA-N	1
4	10209M	INDICATOR WASHER	1
5	10773M	SIGHT GLASS	1
6	10237M	RETAINING RING, 2-3/4" ZINC PLATED	1
7	10390M	CYLINDER, SINGLE MANIFOLD, MACHINED	1
8	10242M	O-RING, VITON	1
9	10203M	PISTON	1
10	10204M	MAIN SHAFT	1
11	10206M	PISTON WASHER	1
12	10205M	PISTON SHAFT NUT	1
13	10233M	SPRING, COMPRESSION	1
14	10476M	O-RING, FLUOROSILICONE	1
15	10232M	SEAL WASHER, 5/16"	1
16	10235M	SCREW, M8 X 20	5
17	10210M	POPPET	1
18	10240M	O-RING, NITRILE	1
19	10680M	O-RING, VITON	1
20	10202M	CYLINDER END PLATE	1
21	10243M	O-RING NITRILE	1
22	10238M	WIPER SEAL, VITON GF	1
23	10520M	O-RING, FLUOROSILICONE	1
24	10207M	INDICATOR ROD	1
25	10772M	CARRIER, SIGHT GLASS	1
26	10537M	BLANKING PLATE, RETURN SPOUT	1
27	10276M	SCREW, M8 X 25	1
28	10277M	SCREW, M8 X 35	2
29	10263M	WASHER, M8 FLAT PLATED	3
30	10262M	NUT, M8 HEX PLATED	2
31	10269M	O-RING, NITRILE	1



REV 1 1SEP05

10541M DUAL MANIFOLD VALVE ASSEMBLY



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CIV11284M-RK DUAL MANIFOLD POPPET REPAIR KT - PARTS 15-17-19-21

CIV10541M-RK DUAL MANIFOLD VALVE SUB-ASSY - PARTS 2 THRU 25

10541M DUAL MANIFOLD VALVE ASSEMBLY

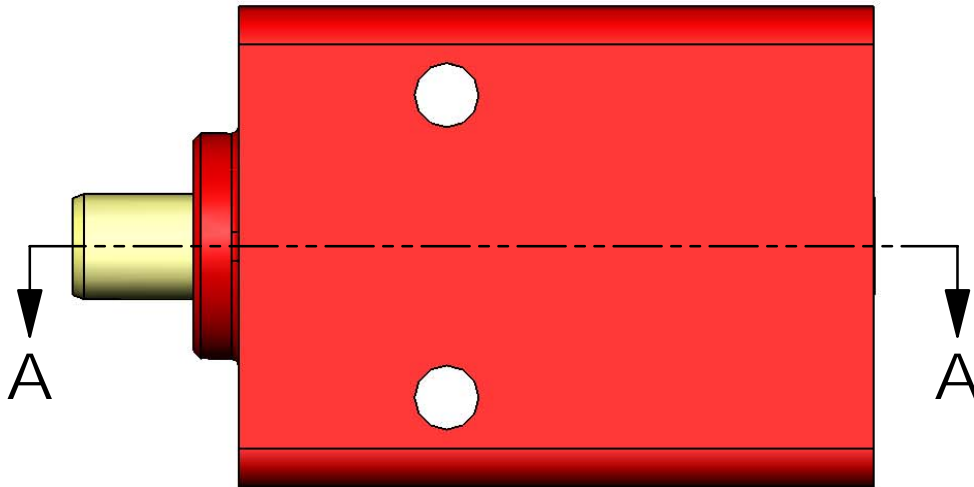
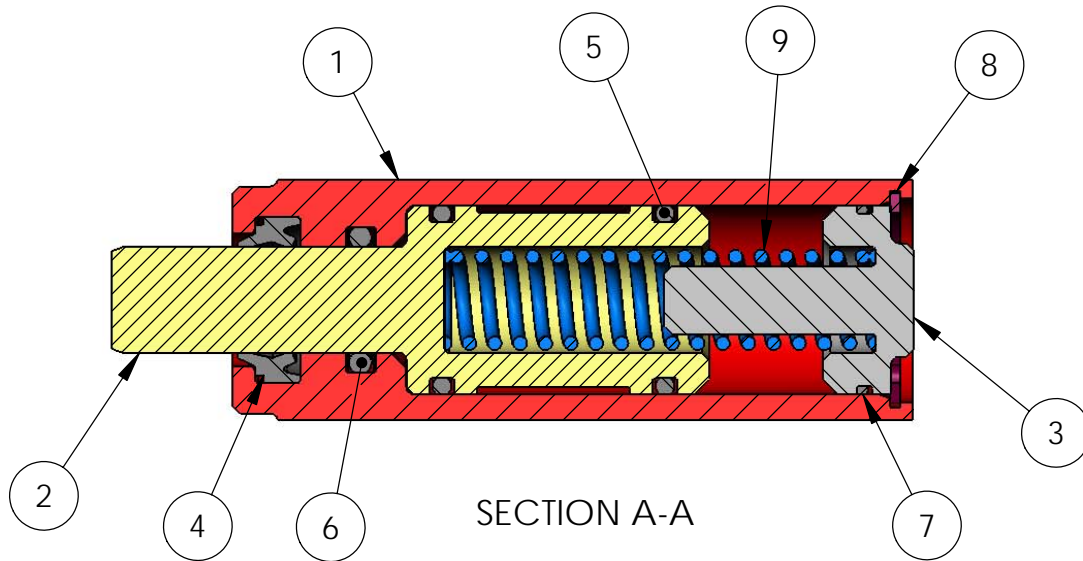
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10386M	BODY, DOUBLE MANIFOLD, MACHINED	1
2	10241M	O-RING, NITRILE	2
3	10776M	O-RING, BUNA-N	2
4	10209M	INDICATOR WASHER	2
5	10773M	SIGHT GLASS	2
6	10237M	RETAINING RING, 2-3/4" ZINC PLATED	2
7	10391M	CYLINDER, DUAL MANIFOLD, MACHINED	2
8	10267M	O-RING, VITON	2
9	10203M	PISTON	2
10	10204M	MAIN SHAFT	2
11	10206M	PISTON WASHER	2
12	10205M	PISTON SHAFT NUT	2
13	10233M	SPRING, COMPRESSION	2
14	10476M	O-RING, FLUOROSILICONE	2
15	10232M	SEAL WASHER, 5/16"	2
16	10235M	SCREW, M8 X 20	10
17	10265M	POPPET	2
18	10240M	O-RING, NITRILE	2
19	10783M	O-RING, VITON	2
20	10202M	CYLINDER END PLATE	2
21	10243M	O-RING NITRILE	2
22	10238M	WIPER SEAL, VITON GF	2
23	10520M	O-RING, FLUOROSILICONE	2
24	10207M	INDICATOR ROD	2
25	10772M	CARRIER, SIGHT GLASS	2
26	10537M	BLANKING PLATE, RETURN SPOUT	2
27	10276M	SCREW, M8 X 25	1
28	10277M	SCREW, M8 X 35	2
29	10263M	WASHER, M8 FLAT PLATED	3
30	10262M	NUT, M8 HEX PLATED	2
31	10269M	O-RING, NITRILE	1

CIVACON™

REV 1 1SEP05

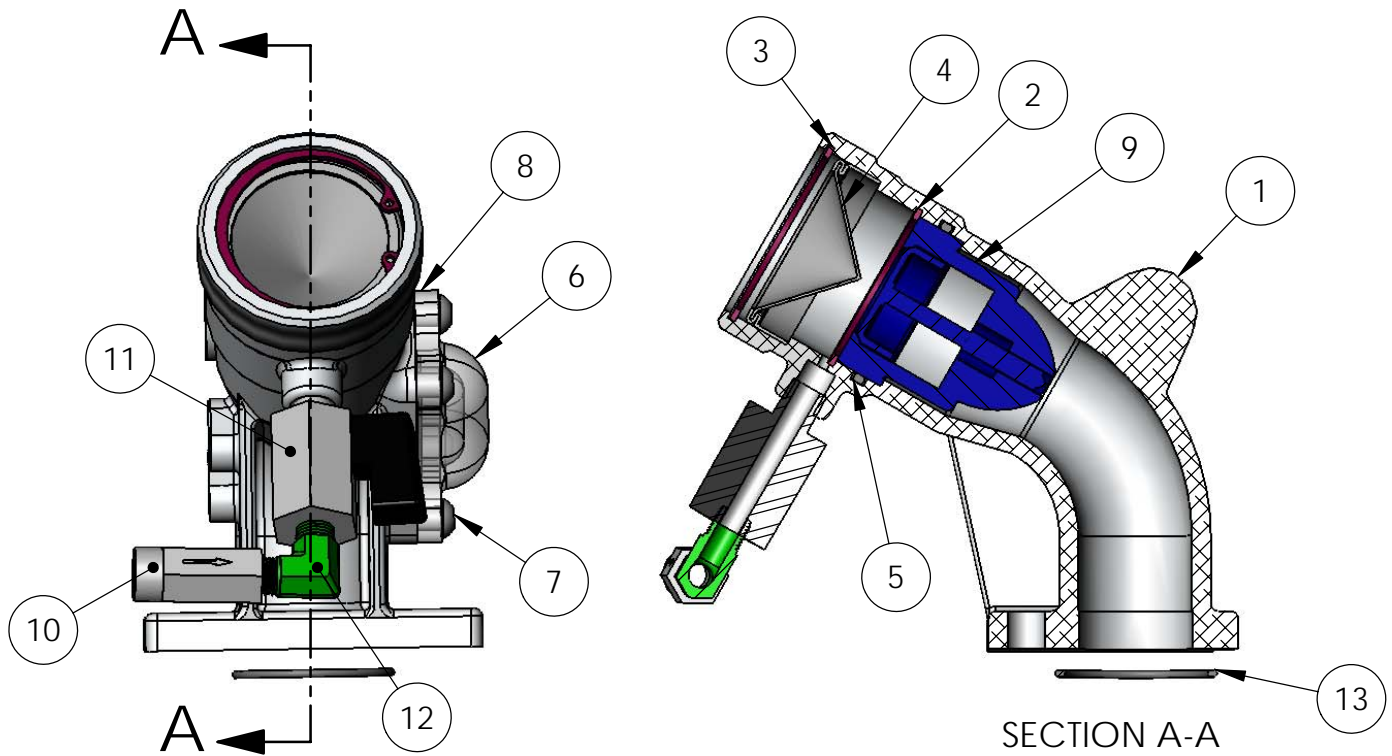
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10544M GUARD BAR LOCKING VALVE ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10221M	BODY, ANODIZED ALUMINUM	1
2	10222M	PISTON	1
3	10223M	END CAP	1
4	10224M	WIPER SEAL, NITRILE	1
5	10225M	O-RING, NITRILE	2
6	10226M	O-RING, NITRILE	1
7	10227M	O-RING, NITRILE	1
8	10228M	RETAINING RING, 1-1/16"	1
9	10233M	SPRING, COMPRESSION	1

10546M NPT RETURN SPOUT ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10539M	BODY, RETURN SPOUT NPT, MACH.	1
2	10249M	RETAINING RING, 1-3/4"	1
3	10250M	RETAINING RING, 2"	1
4	10251M	STRAINER, SS	1
5	10252M	O-RING, NITRILE	1
6	CIVMANBRK	SIGHT GLASS	1
7	Manifold bubble sight glass kit contains no's 6, 7 and 8	SCREW, SS (METRIC)	4
8		O-RING, SIGHT GLASS, NITRILE	1
9	12580M	CHECK VALVE, RETURN SPOUT	1
10	10765M	CHECK VALVE, BLOW-DOWN	1
11	10766M	BALL VALVE, BLOW-DOWN	1
12	10767M	FITTING, BRASS ELBOW	1
13	10269M	O-RING, NITRILE	1
-	10276M	SCREW, M8 X 1.25 X 25	1
-	10277M	SCREW, M8 X 1.25 X 35	2
-	10263M	WASHER, M8 FLAT	2
-	10262M	NUT, M8	2

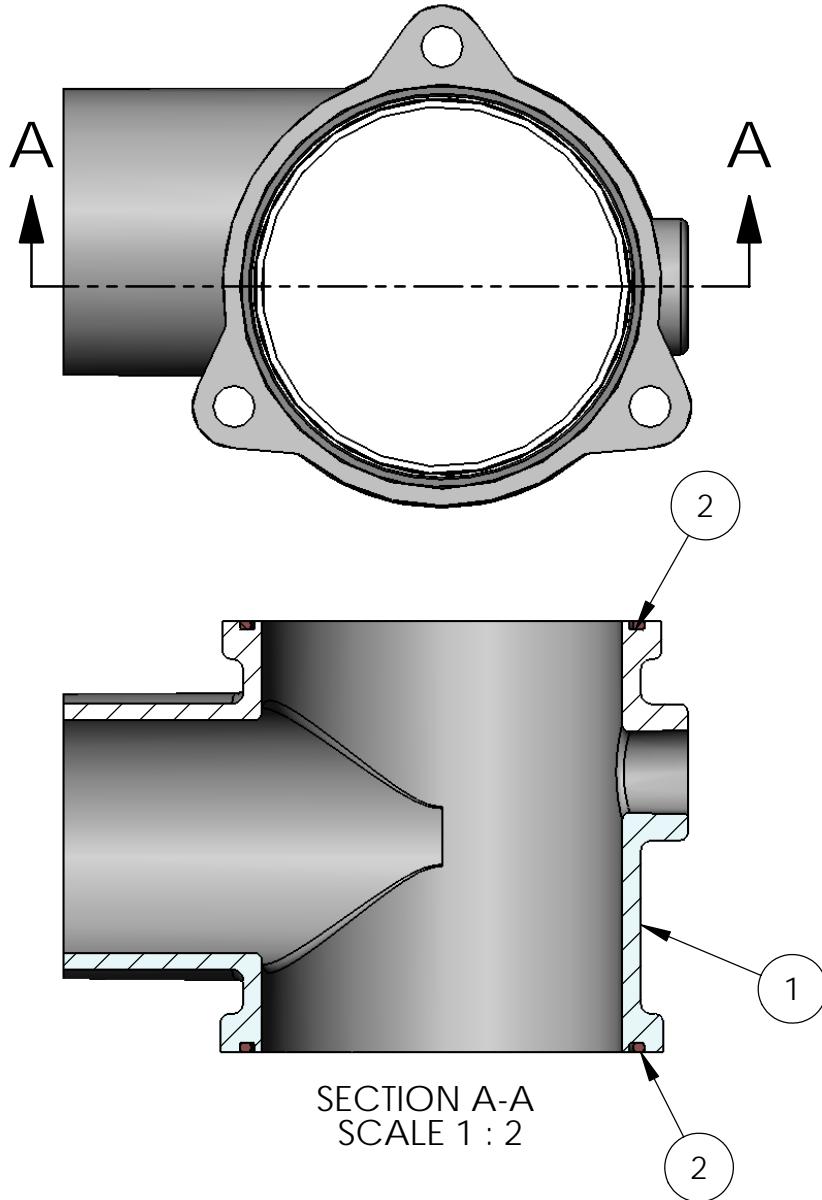
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**10557M COLLECTOR TEE ASSEMBLY
FOR 14" CENTERS**

**10556M COLLECTOR TEE ASSEMBLY
FOR 11" CENTERS**



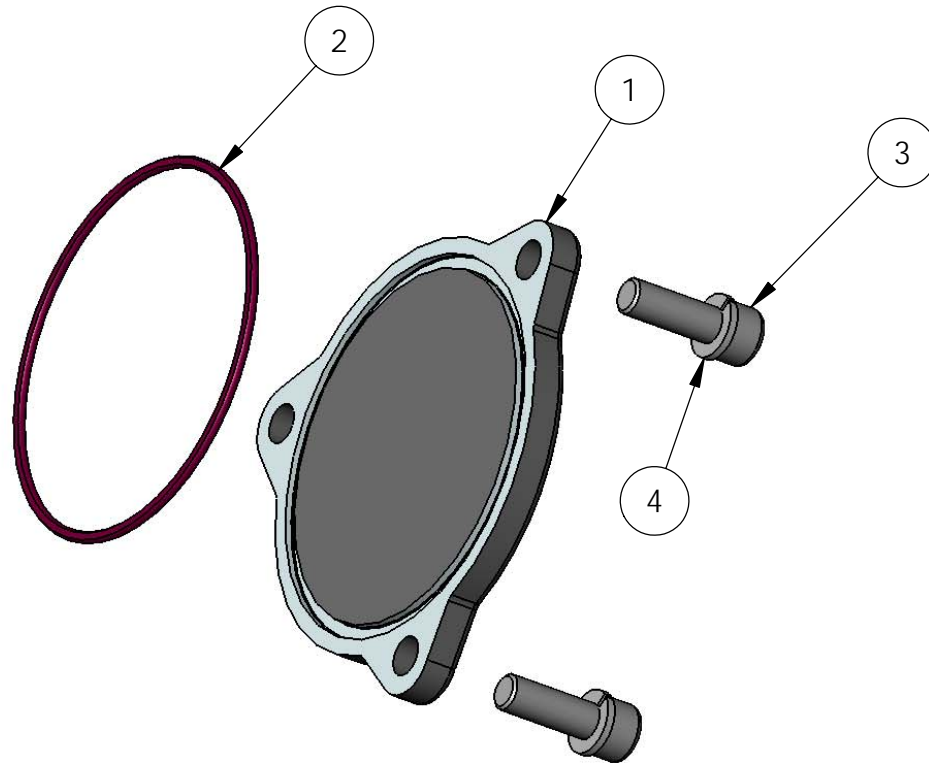
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10797M	COLLECTOR TEE FOR 14" CENTERS	1
1	10755M	COLLECTOR TEE FOR 11" CENTERS	1
2	10494M	O-RING, VITON	2

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10558M END CAP ASSEMBLY



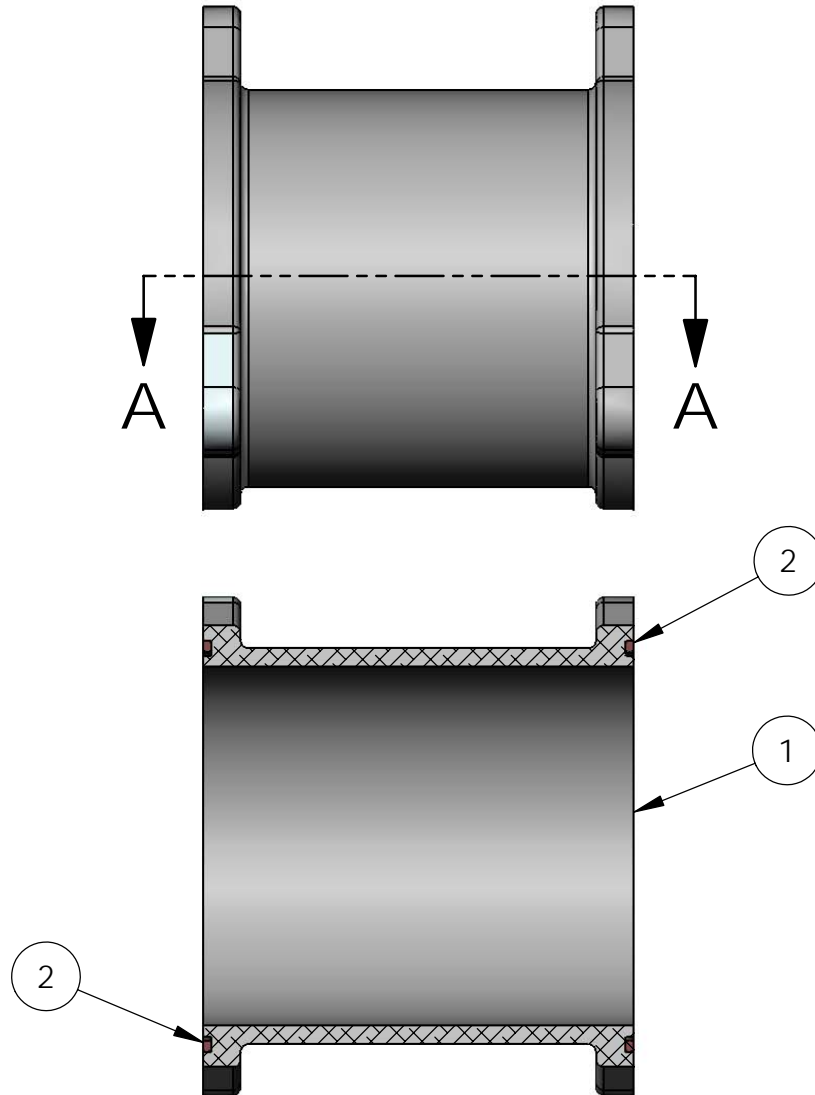
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10506M	END CAP, MANIFOLD COLLECTOR	1
2	10494M	O-RING, NITRILE	1
3	10521M	SCREW, M10 X 1.5 X 30, ZINC PLATED	3
4	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	3

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REV 1 29AUG05

**10562M COLLECTOR PIPE ASSEMBLY
FOR 14" CENTERS**

**10561M COLLECTOR PIPE ASSEMBLY
FOR 11" CENTERS**

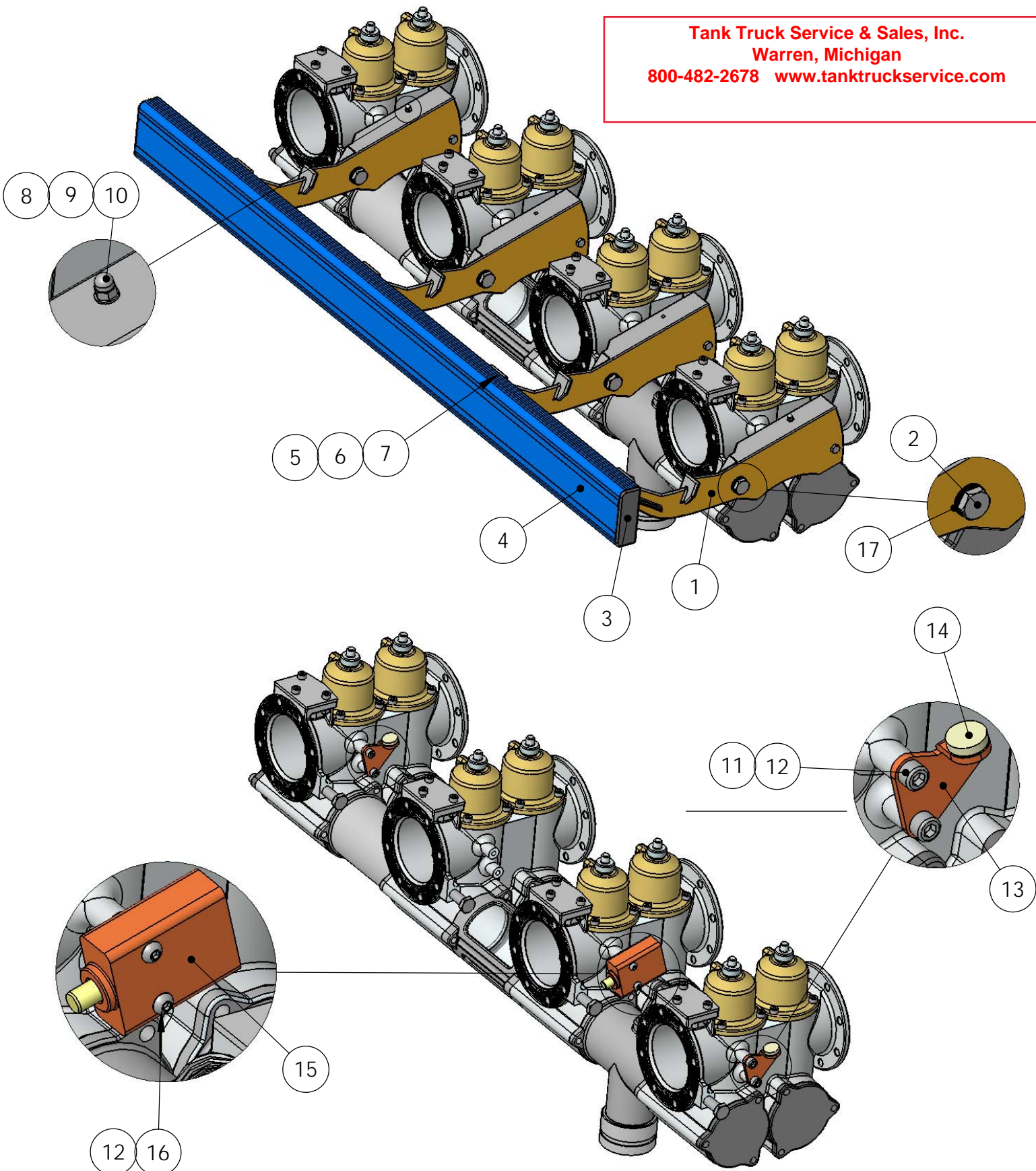


SECTION A-A
SCALE 1 : 2

ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10571M	COLLECTOR PIPE FOR 14" CENTERS	1
1	10570M	COLLECTOR PIPE FOR 11" CENTERS	1
2	10494M	O-RING, VITON	2
-	10576M	SCREW, M10 X 1. 5 X 35 LONG, ZINC PLATED	6
-	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	6

10641M API GUARD BAR ASSEMBLY

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(GUARD BAR NOT SHOWN IN THIS VIEW)

CIVACONTM

REV 1 29AUG05

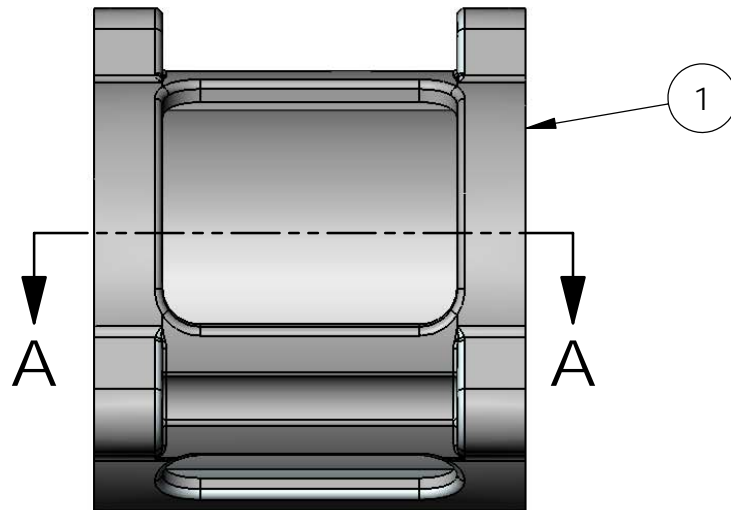
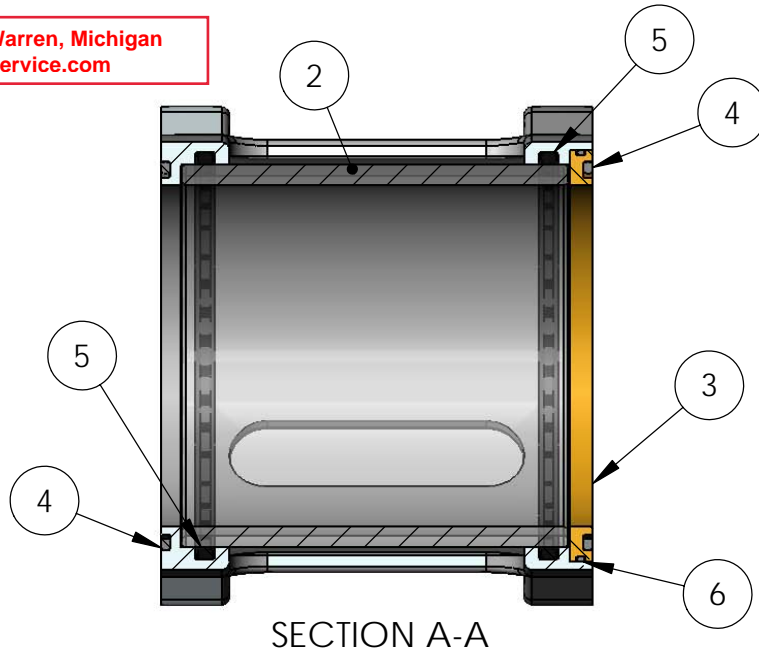
10641M API GUARD BAR ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION
1	10542M	ASSEMBLY, API GUARD BAR ARM
2	10213M	SHOULDER BOLT, GUARD BAR ARM
3	10745M	CAP, GUARD BAR ARM
4	10643M-LENGTH	GUARD BAR EXTRUSION
5	1228	SCREW, 1/4-20 X 1" ZINC PLATED
6	1691	WASHER, 1/4 FLAT ZINC PLATED
7	10807M	NUT, 1/4-20 NYLON LOCKING
8	10274M	NUT, M5 ACORN, PLATED
9	10255M	WASHER, M5 PLATED
10	10258M	MAGNET BUTTON, PLATED
11	10264M	SCREW, M8 X 40 ZINC PLATED
12	10263M	WASHER, M8 FLAT PLATED
13	10534M	MAGNET BRACKET
14	10270M	MAGNET
15	10544M	GUARD BAR LOCK
16	10280M	SCREW, M8 X 45 ZINC PLATED
17	10245M	BUSHING, GUARD BAR ARM

10644M SIGHT GLASS ASSEMBLY FOR 14" CENTERS

10698M SIGHT GLASS ASSEMBLY FOR 11" CENTERS

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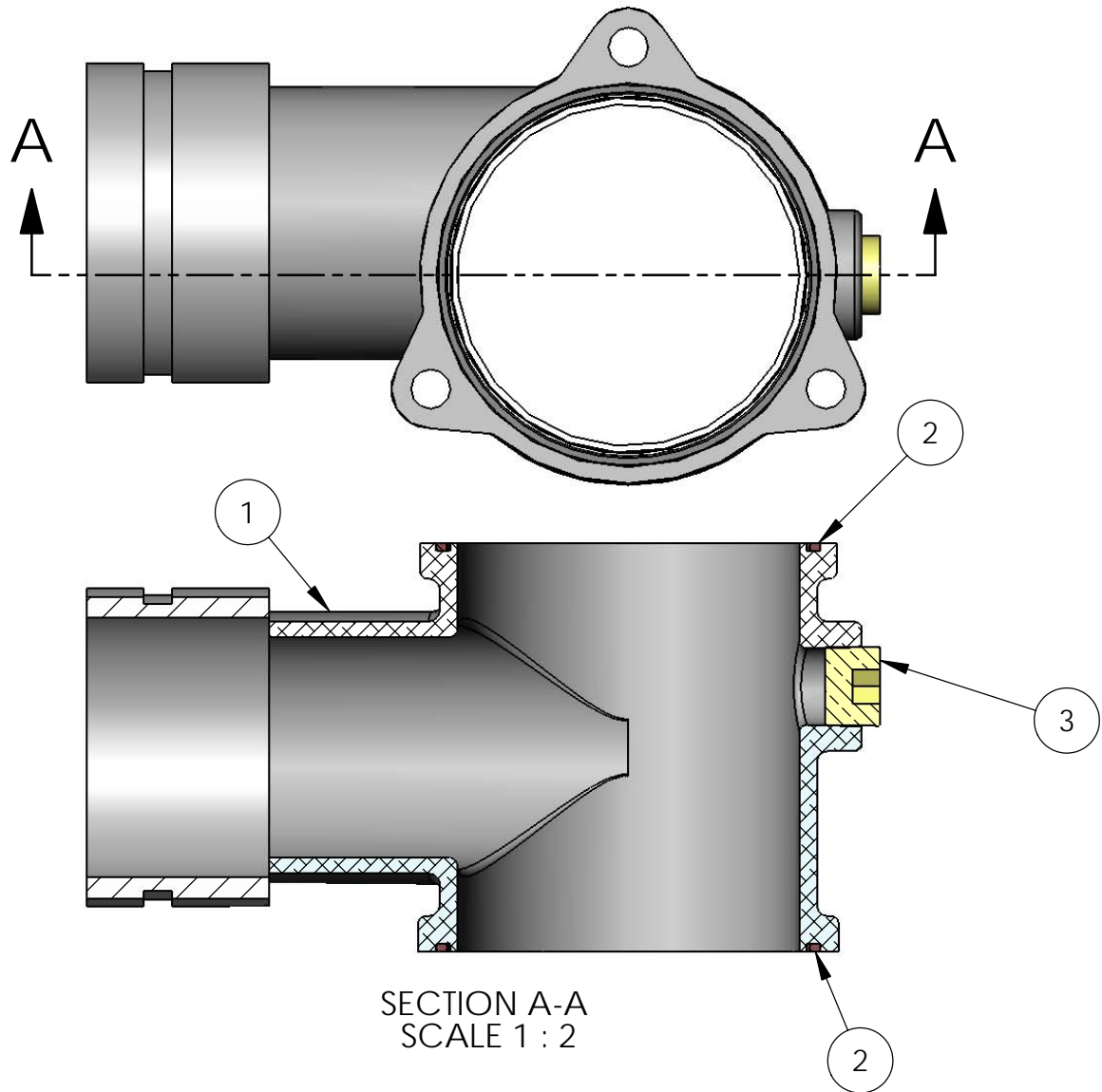
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10569M	COLLECTOR SIGHT GLASS HOUSING, 14" CENTERS	1
1	10568M	COLLECTOR SIGHT GLASS HOUSING, 11" CENTERS	1
2	10525M	SIGHT GLASS FOR 14" CENTERS	1
2	10524M	SIGHT GLASS, 11" CENTERS	1
3	10507M	ALUMINUM SEAL RING, COLLECTOR SIGHT GLASS	1
4	10494M	O-RING, VITON, BODY TO MANIFOLD VALVE	2
5	10495M	O-RING, GLASS SEALING	2
6	10496M	O-RING, VITON SEAL RING	1
-	10576M	SCREW, M10 X 1. 5 X 35 LONG, ZINC PLATED	6
-	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	6

CIVACONTM

REV 1 29AUG05

10798M COLLECTOR TEE ASSEMBLY
FOR 14" CENTERS with 3" VICTAULIC OUTLET

10697M COLLECTOR TEE ASSEMBLY
FOR 11" CENTERS with 3" VICTAULIC OUTLET



SECTION A-A
SCALE 1 : 2

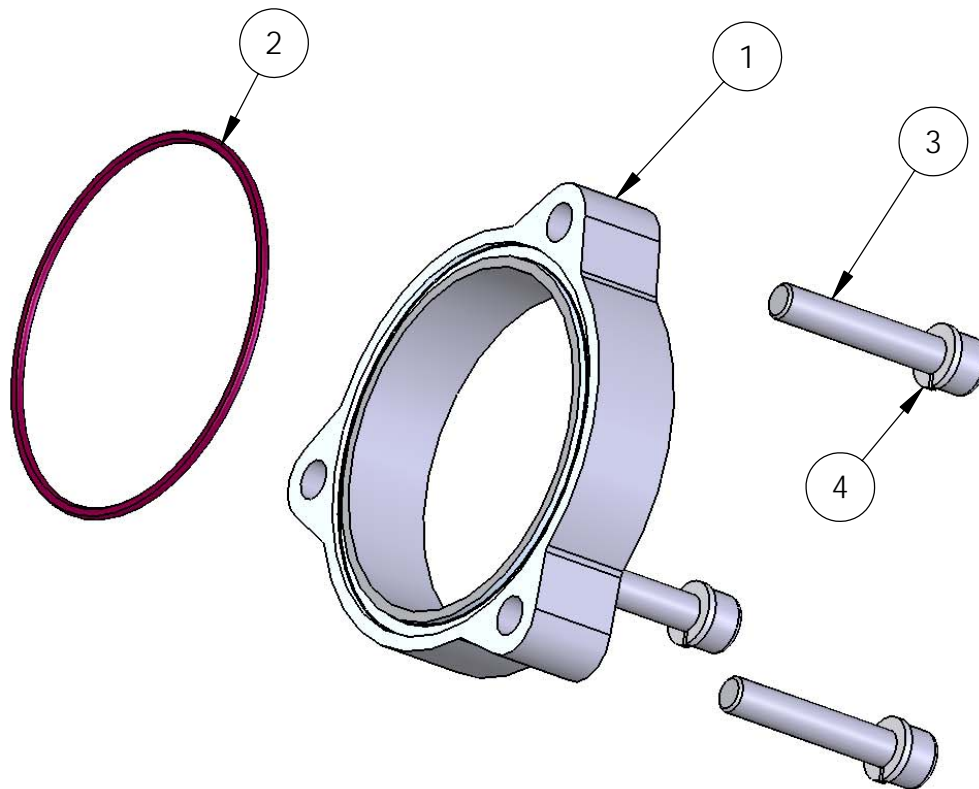
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10797M	COLLECTOR TEE FOR 14" CENTERS	1
1	10755M	COLLECTOR TEE FOR 11" CENTERS	1
2	10494M	O-RING, VITON	2
3	9901	PLUG, 1/2 NPT BRASS	1
-	10576M	SCREW, M10 X 1.5 X 35 LONG, ZINC PLATED	6
-	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	6

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REV 1 29AUG05

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10982M 1" COLLECTOR SPACER ASSEMBLY



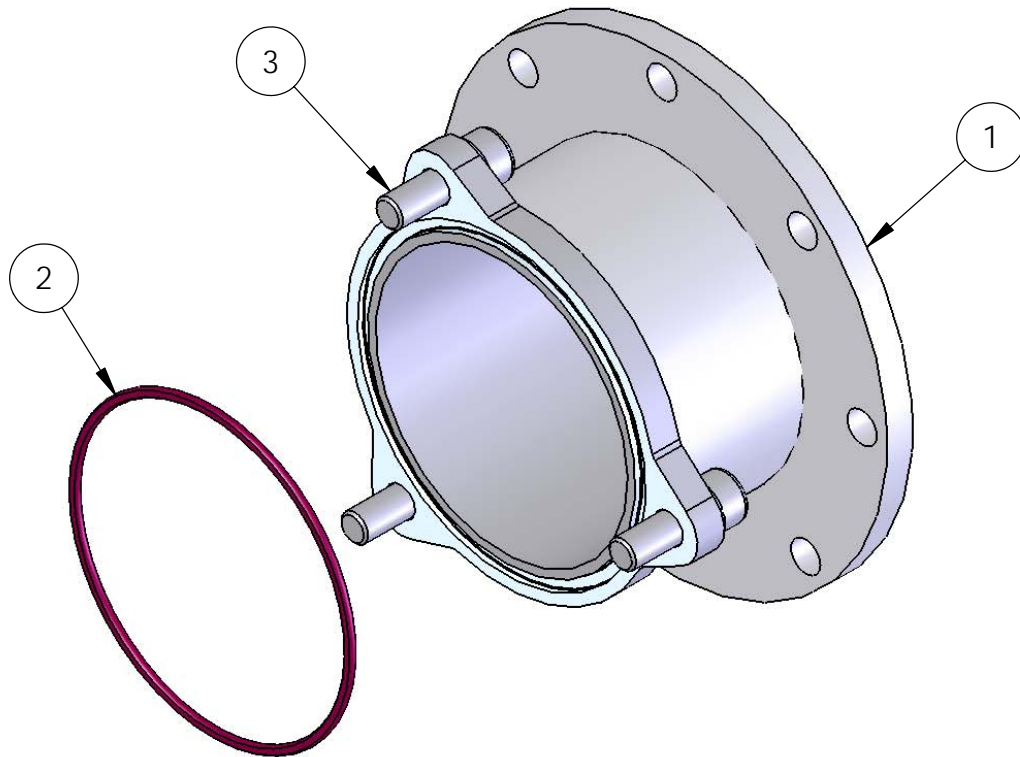
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10751M	SPACER, 1" WIDE FOR COLLECTOR	1
2	10494M	O-RING, NITRILE	1
3	10750M	SCREW, M10 X 1.5 X 55, ZINC PLATED	1
4	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	1

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REV 1 29AUG05

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10983M 4" TTMA ADAPTER ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	10974M	4" TTMA FLANGE WELDMENT (2-3/4" LONG)	1
2	10494M	O-RING, NITRILE	1
3	10521M	SCREW, M10 X 1.5 X 30, ZINC PLATED	3
4	10740M	WASHER, M10 SPRING LOCK, ZINC PLATED	3

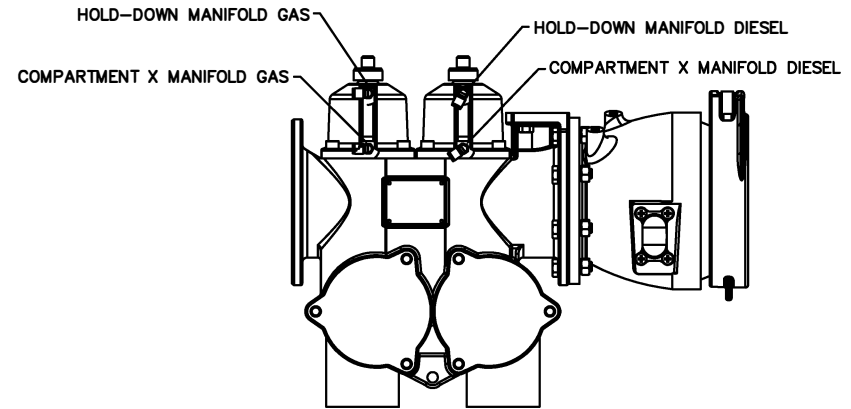
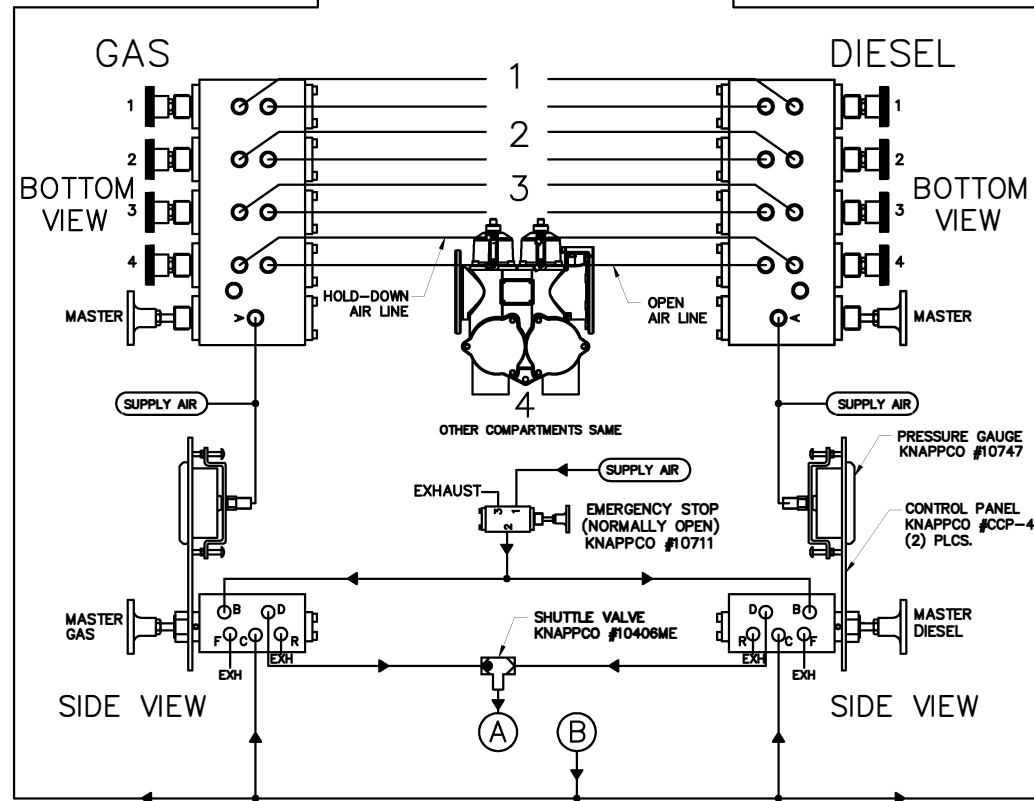
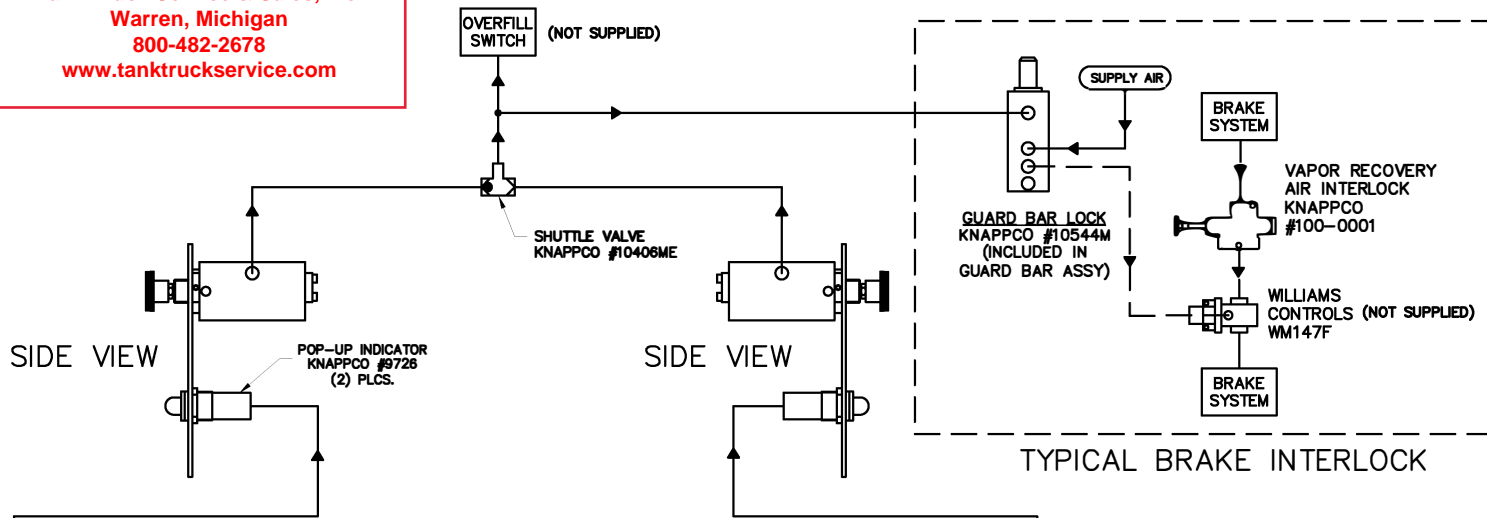
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REV 1 29AUG05

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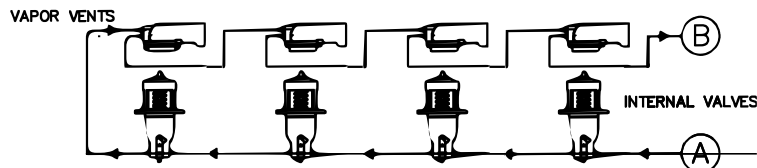
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REVISION			
REV:	DESCRIPTION:	BY:	DATE:
1	ENGINEERING REVISION	MH	5/25/05
2	REMOVED SHUTTLE VALVE AT PORTS "B"	MH	5/26/05
3	REVISED E-STOP PORTS	MH	6/21/05
4	ADDED OVERFILL SWITCH	MH	9/1/05



OPERATION:

- PULL EITHER MASTER TO OPEN ALL VAPOR VENTS AND INTERNAL VALVES. COMPARTMENT MANIFOLD VALVES ARE LOCKED.
- PULL EITHER MASTER TO UNLOCK GAS MANIFOLD VALVES
- PULL EITHER MASTER TO UNLOCK DIESEL MANIFOLD VALVES
- OPERATOR MAY OPEN GAS & DIESEL VALVES AT THE SAME TIME
- E-STOP SHUTS ALL VALVES
- MOUNT SHUTTLE VALVES IN AN ACCESSIBLE LOCATION.



MATERIAL:		 KNAPPCO CORPORATION	
TOLERANCES UNLESS OTHERWISE SPECIFIED			
SURFACE FINISH 63 μIN.		TITLE:	
FRACTIONAL: ± 1/16		CIVACONTROL MANIFOLD 2-CCP-4	
ITEM	DWG NO.	REQ'D	DECIMAL: .00 ± .030 .000 ± .010
NEXT ASSEMBLY		ANGLE: ± 1°	
DRAWN BY:		DATE:	SCALE:
M. HOLT		5/25/05	NA
P/N:		PT1654-12	



A DIVISION OF KNAPPCO CORPORATION

“CIVACONTROL” OPERATION MANUAL

The purpose of this document is to explain how the CIVACONTROL® air control system operates and to communicate the capabilities of this system. Each air connection has been identified with descriptions below. A photograph of the air control manifold has been included as a reference, as well as a suggested plumbing schematic.

The air control manifold is designed with a master air valve that is used to control the individual compartment valves for the emergency (internal) loading valves. One of the safety features of this air control manifold is that the master can be closed (Knob pushed in) and will automatically close all the other compartment valves. Not only does this close off all (internal) loading valves, it pneumatically locks the loading valves in the closed position with air pressure. The system can be plumbed in such a manner to allow the same automatic shut off from a remote location at the front of the tank using an emergency stop valve.

This air control system has been designed to protect the tank during loading or unloading. The master valve, pull out, sends an automatic diagnostic signal to sequential vapor vents, or sequentially plumbed vapor vents, to open. The signal is then returned to air control manifold. At this point, an indicator can be plumbed into the system to physically show the signal has been returned to manifold. Compartment valves can't be opened until it has received the automatic diagnostic confirmation that the vapor recovery vents from each compartment have been opened.

This air control system has the ability to enable access to the API loading adaptors with the use of our guard bar lock. A protective bar is positioned over the ends of the API loading adaptors and cannot be rotated out of the way until an air valve that is located in a locked cabinet is actuated. This allows the guard bar to be lifted to load or unload. The guard bar lock is released after the master valve is pulled open and the have been opened. Below is the basic identification of some of the key ports and how to connect this system.

WARNING:

Never lubricate or introduce non-recommended oils or solvents (WD40® or alcohol) into the CIVACONTROL® air control system. Please lubricate the system only with the recommended oils that are made for air controls on vehicles. The non-recommended oils or solvents can attack seals and cause damage to the valves resulting in excessive wear, leaking valves and even premature failures.

A

This air connection is the main or constant air supply to the master valve of the CIVACONTROL® air control system.

B

Air supply from the emergency shut off valve that would be located at the front of the trailer. In an emergency situation, the emergency shut off valve would be actuated and would close the master valve on the manifold. This would in turn close and pneumatically lock the other valves on the manifold that are controlling the emergency (internal) loading valves.

C

This air connection is the return from the sequential vapor recovery vents and also functions as the primary air supply for the compartment valves.

D

This connection is for the air supply to the sequential vapor recover vents. Air is supplied to the first sequential vapor recovery vent which in turn will open and send air to the next vapor recovery vent. This continues until all vapor recovery vents are open then the air is allowed to return to air connection gallery C.

E

When the first valve on the manifold is actuated this air connection allows air to travel to the emergency (internal) loading valve in the number (1) compartment, opening this loading valve.

F

This is an exhaust port for the pilot reset gallery.

G

When the second valve on the manifold is actuated this air connection allows air to travel to the emergency (internal) loading valve in the number (2) compartment, opening this loading valve.

H

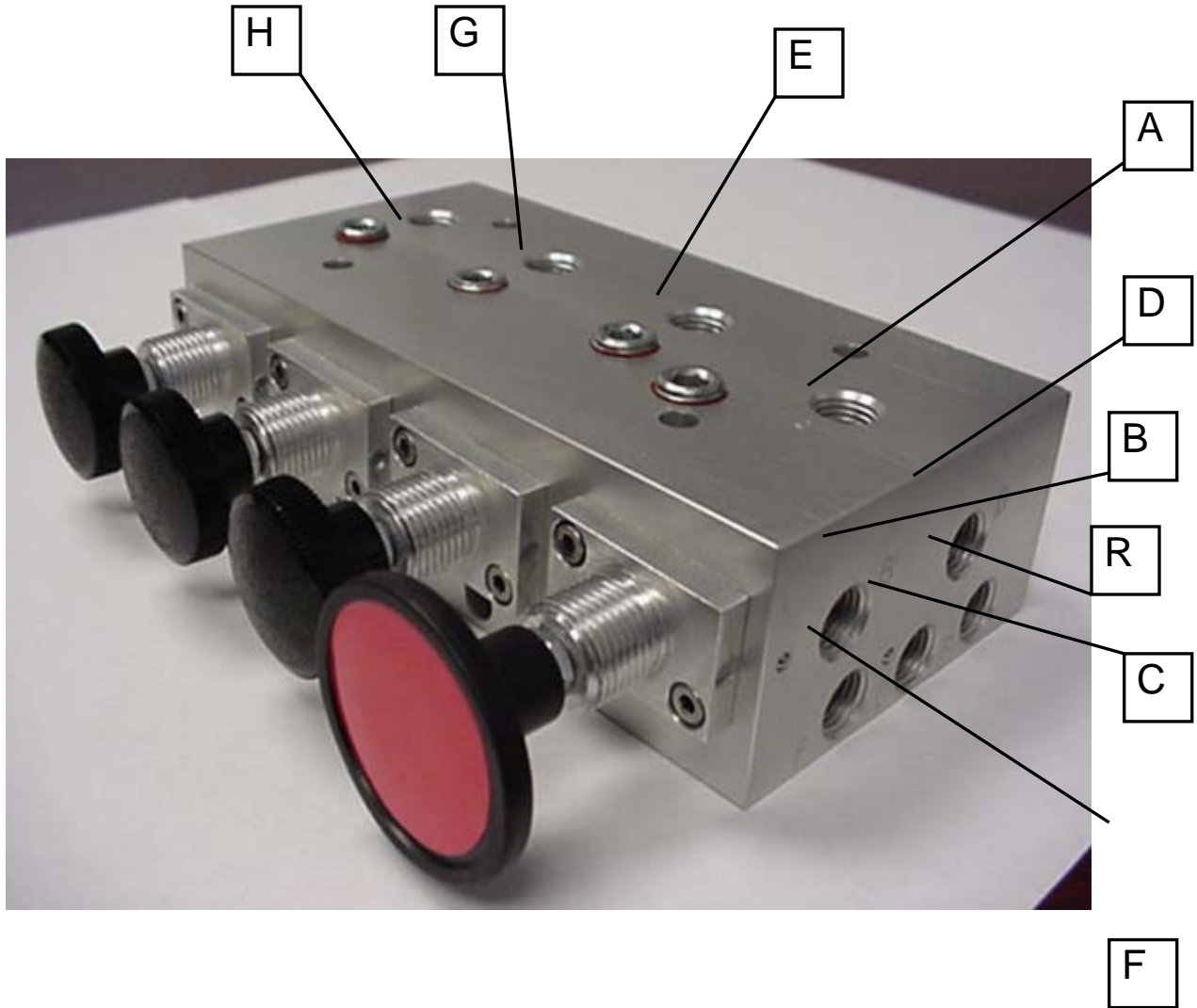
When the third valve on the manifold is actuated this air connection allows air to travel to the emergency (internal) loading valve in the number (3) compartment, opening this loading valve.

R

This is an exhaust port.

The older 'CCP' style Air Control Panel is obsolete. It had a single aluminum air block/manifold for the number of compartments the tank has plus a master air spool. The only part available for repairing these manifold blocks is CIV12875 which is the 'spool' assembly (operating shaft, o-rings, fastening plate and knob) that is the same for every section of the air block. Please see two pages down for other parts available on the old CCP air panel.

Please see the following page for information on the new 'MCP' style Air Control Panel.

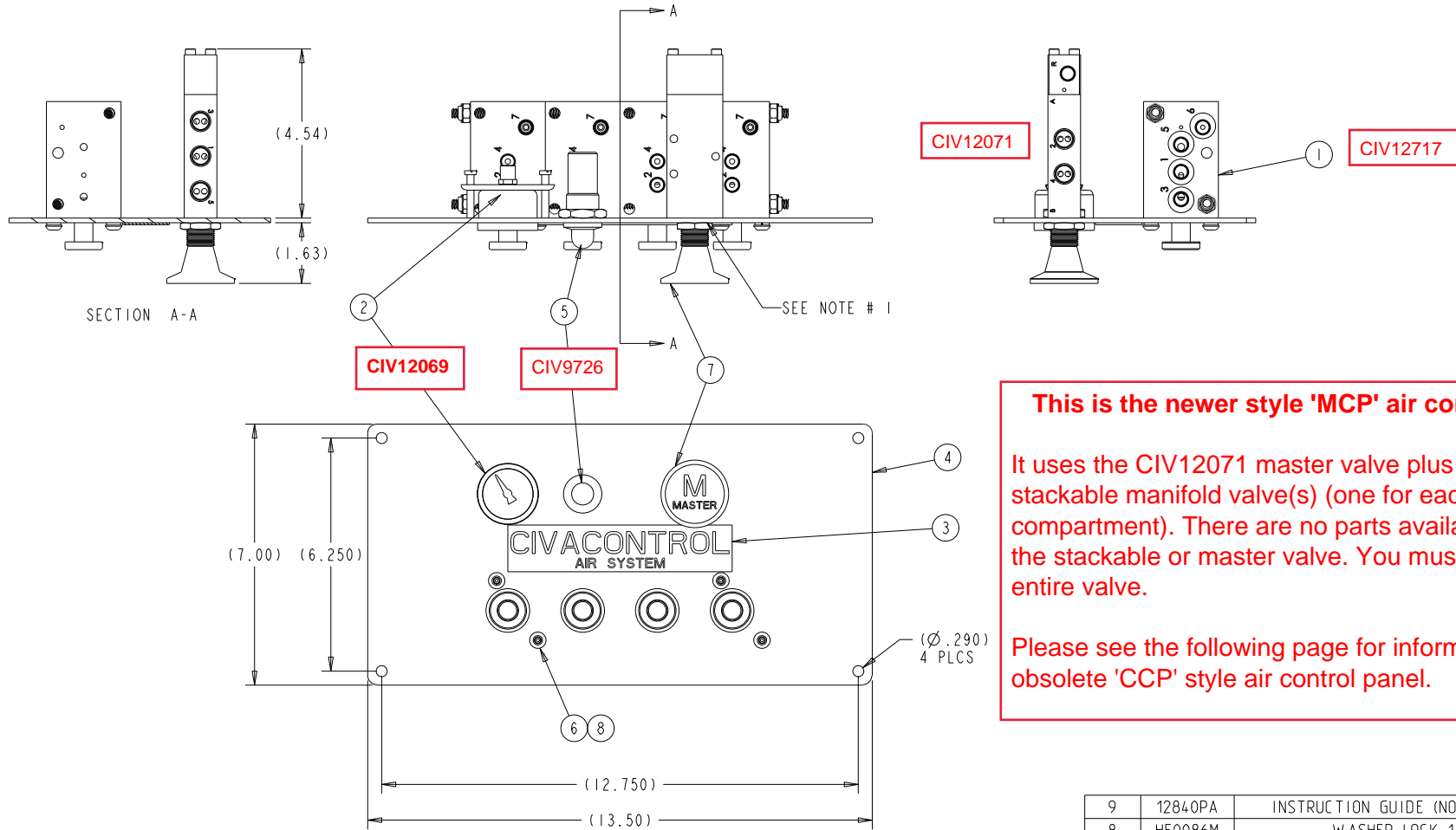


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New 'MCP' style air control panel assembly

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REV	ESR NUMBER	DESCRIPTION	BY	CHKD	DATE
-	041315-03	RELEASED TO PRODUCTION	JJB	SDG	4/13/15



This is the newer style 'MCP' air control panel.

It uses the CIV12071 master valve plus CIV12717 stackable manifold valve(s) (one for each tank compartment). There are no parts available to repair the stackable or master valve. You must replace the entire valve.

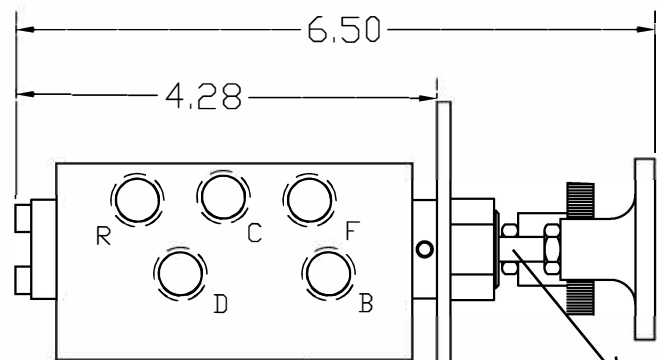
Please see the following page for information on the obsolete 'CCP' style air control panel.

- NOTES:
1. USE BLUE LOCTITE 242.
 2. APPLY CIVA CONTROL AND MASTER LABELS, PLACE REMAINING LABELS IN SHIPPING CONTAINER

9	12840PA	INSTRUCTION GUIDE (NOT SHOWN)	1
8	H50086M	WASHER LOCK 1/4	4
7	12071-A	SINGLE COMPARTMENT VALVE	1
6	12076	SCREW BUT HD CAP 1/4-20 X 3/8	4
5	9726	POP UP INDICATOR	1
4	12070-4	PANEL	1
3	12073	LABEL	1
2	12069	AIR GAUGE	1
1	12717-4	4-COMP STACKING VALVE SUB-ASSY	1
ITEM	PART NUMBER	DESCRIPTION	REQD

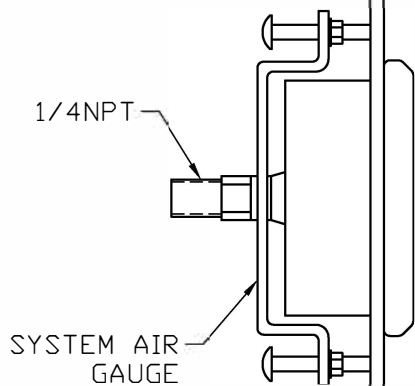
TOLERANCES UNLESS OTHERWISE SPECIFIED SURFACE FINISH 63 μIN FRACTIONAL ± 1/16 DECIMAL: .00 ± .03 ANGLE: ± 1°	MATL:	-	 KNAPPCO CORPORATION 4304 MATTOX ROAD, KANSAS CITY, MO 64150 PHONE: (816)-741-6600 FAX: (816)-741-1061	TITLE: AIR CONTROL PANEL, MCP 4-COMPARTMENT		
	WGHT:	-		DATE: 4/13/15	SCALE: .50	P/N:
	ENGR:	SDG		SHT#: MCP-4		1 OF 1
	DRAWN BY:	JJB				
CHECKED BY:	SDG					

This older 'CCP' style control panel is obsolete. It has a single aluminum air block/manifold for the number of compartments the tank has which includes a master air spool. The only part available for repairing these manifold blocks is CIV12875 which is the 'spool' assembly (operating shaft, o-rings, fastening plate and knob) that is the same for every section of the air block.



AIR CONTROLLER

CIV12875

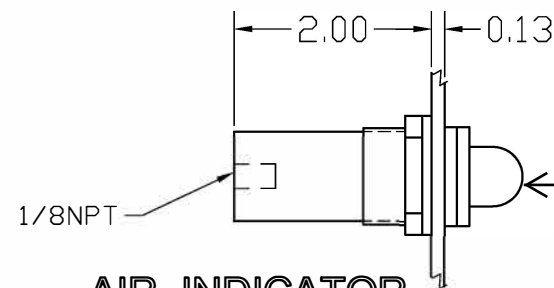


1/4 NPT

SYSTEM AIR GAUGE

10 GA. (0.135")
STAINLESS STEEL
MOUNTING PANEL

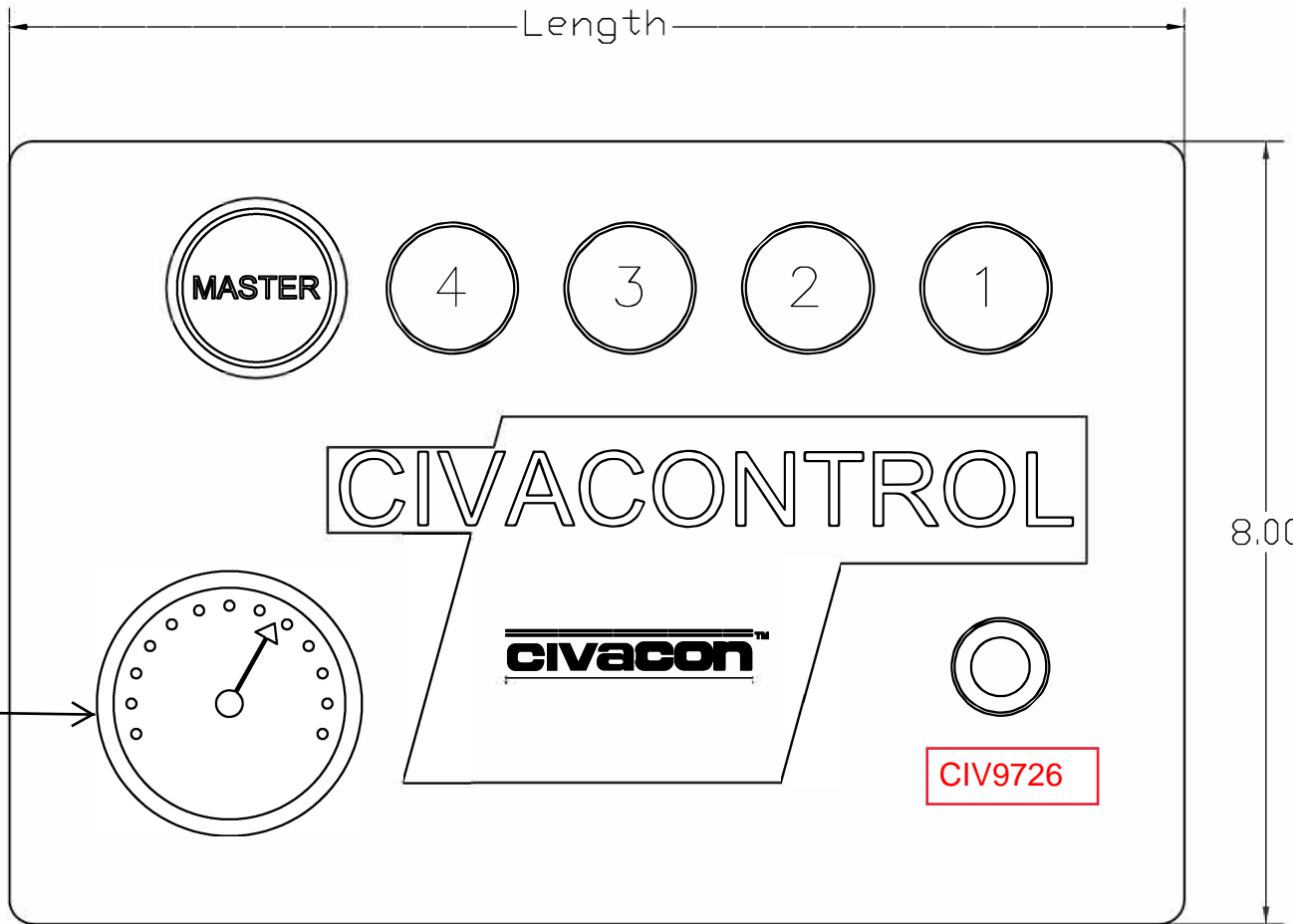
CIV10747



1/8 NPT

AIR INDICATOR

CIV9726




	Length	Weight
CCP-4	12.0"	10.6 lbs.
CCP-5	12.0"	12.1 lbs.
CCP-6	13.8"	13.6 lbs.

Tank Truck Service & Sales, Inc.
Warren, Michigan
800-482-2678 www.tanktruckservice.com

CCP-4 SHOWN

ALL DIMENSIONS ARE REFERENCE ONLY

			MATERIAL:		 KNAPPCO CORPORATION			
			TOLERANCES UNLESS OTHERWISE SPECIFIED					
			SURFACE FINISH 63 μIN.		TITLE: CIVACONTROL PANEL ASS'Y			
			FRACTIONAL: ± 1/16					
ITEM	DWG NO.	REQ'D	DECIMAL: .00 ± .030 .000 ± .010	ANGLE: ± 1°	DRAWN BY: M. HOLT	DATE: 9/2/05	SCALE: NONE	P/N: CCP-X
NEXT ASSEMBLY								

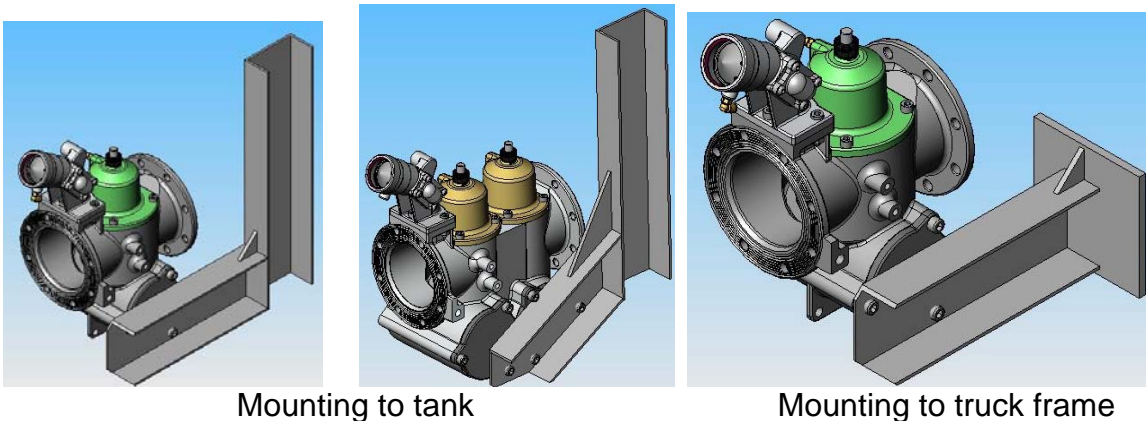
Suggested Mounting Arrangements

The Civacon manifold must be supported by dedicated structural supports. The supporting brackets may be bolted to the frame or welded to the tank, as shown below.

CAUTION: The manifold cannot be supported by product piping alone.

CAUTION: Mounting configurations are provided as suggestions only. Securing the manifold to the truck is the sole responsibility of the installer. Civacon assumes no responsibility for the attachment of the manifold.

Suggested Installation Configurations



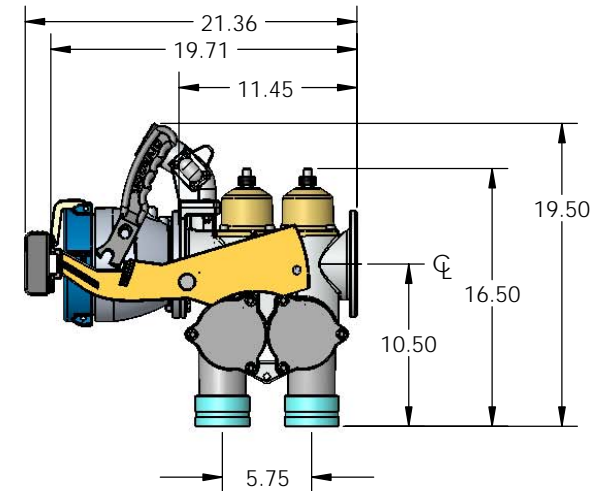
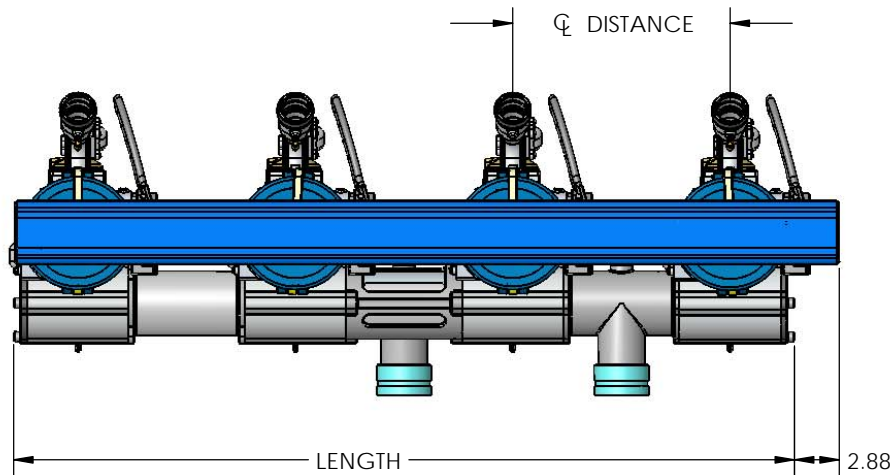
Mounting to tank

Mounting to truck frame

- Mounting illustrated uses 4 x .150 aluminum channel.
- At least $\frac{3}{4}$ " (19mm) of thread engagement is required in the manifold body. Six M10-1.5 x 35 long, Class 8.8 zinc-plated steel socket-head cap screws (Civacon p/n 10576M) are supplied for this purpose. These longer screws will replace the standard M10-1.5 x 30 long screws that are used to fasten the end caps at the factory.
- If the supporting material is thicker than $\frac{3}{16}$ ", then longer M10-1.5 Class 8.8 screws must be used.

DUAL MANIFOLD ASSEMBLY

REVISION			
REV:	DESCRIPTION:	BY:	DATE:
1	DRAWING RELEASE	MH	8/29/05



	# Compartments	2	3	4	5	6	7
Length, (in.)	11" Centers	19.5	30.5	41.5	52.5	63.5	74.5
Length, (in.)	14" Centers	22.5	36.5	50.5	64.5	78.5	92.5
Weight (lbs.)	11" Centers	68	102	136	170	204	238
Weight (lbs.)	14" Centers	70	105	140	175	210	245

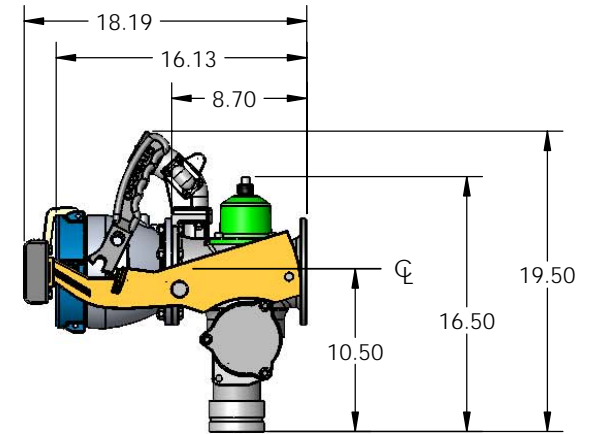
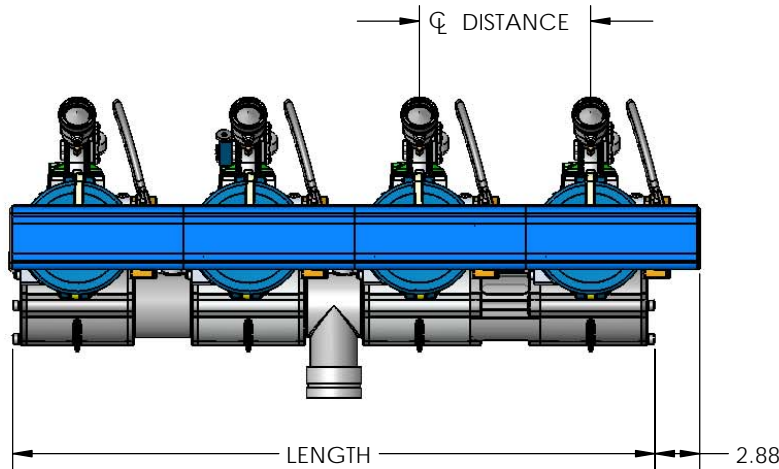
NOTES:

- All weights and dimensions are for reference only.

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	TOLERANCES UNLESS OTHERWISE SPECIFIED		DUAL MANIFOLD ASSEMBLY				
	SURFACE FINISH 63 μIN.						
	FRACTIONAL: ± 1/16						
DECIMAL: .0 ± .030 .00 ± .010 .000 ± .005	ANGLE: ± 1°	TITLE:	DRAWN BY:	DATE:	SCALE:	P/N:	SHT#:
		M. HOLT	8/26/05	NA	CF24- XX- XXX- XXX	1/1	

SINGLE MANIFOLD ASSEMBLY

REVISION			
REV:	DESCRIPTION:	BY:	DATE:
1	DRAWING RELEASE	MH	8/29/05



	# Compartments	2	3	4	5	6	7
Length, (in.)	11" Centers	19.5	30.5	41.5	52.5	63.5	74.5
Length, (in.)	14" Centers	22.5	36.5	50.5	64.5	78.5	92.5
Weight (lbs.)	11" Centers	42	64	85	106	128	149
Weight (lbs.)	14" Centers	43	65	87	109	131	153

NOTES:

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	TOLERANCES UNLESS OTHERWISE SPECIFIED		TITLE: SINGLE MANIFOLD ASSEMBLY			
	SURFACE FINISH 63 μIN.					
	FRACTIONAL: ± 1/16					
DECIMAL: .0 ± .030 .00 ± .010 .000 ± .005	ANGLE: ± 1°	DRAWN BY:	DATE:	SCALE:	P/N:	SHT#:
		M. HOLT	8/26/05	NA	CF14- XX- XXX- XXX	1/1