

TRIMAX 30 CONVERSION KIT



INSTALLATION MANUAL

May 1, 2009

INTRODUCTION

MANUFACTURER:

- a. The TRI-MAX 30 Conversion Kit is manufactured by:

Kingsway Industries Inc.
6680 Lockheed Drive, Suite B,
Redding, CA 96002
Phone: (530) 722-0272
Fax: (530)722-0450
E-mail: support@trimax.us
Website: www.trimax.us

- b. The manufacturer is totally committed to supporting the owners and installers of the TRI-MAX 30 Conversion Kit. Don't hesitate to contact the factory either by telephone, E-Mail, FAX, or the Website if you have a problem that you can't solve.

WARRANTY:

The Tri-Max 30 Conversion Kit has a 2-year limited warranty to be free from defects in material and workmanship beginning on the date of delivery. The manufacturer's liability is limited solely to the repair or replacement of the defective part and does not include labor. The warranty card that accompanies the unit should be returned to the manufacturer. The manufacturer shall in no way be liable for any incidental or consequential damages which may result from any defects in material or workmanship, from the breach of any express or implied warranty and deficiencies in user installation. Also the manufacturer does not warranty the performance of the system impacted by environmental conditions, abuse, lack of maintenance or end user competence.

FIGURE NAMING CONVENTION:

Please note, the figure number associated with each diagram references the step which correlates to that figure. For example Figure 1.1.a is the diagram that is associated with Step 1.1.a.

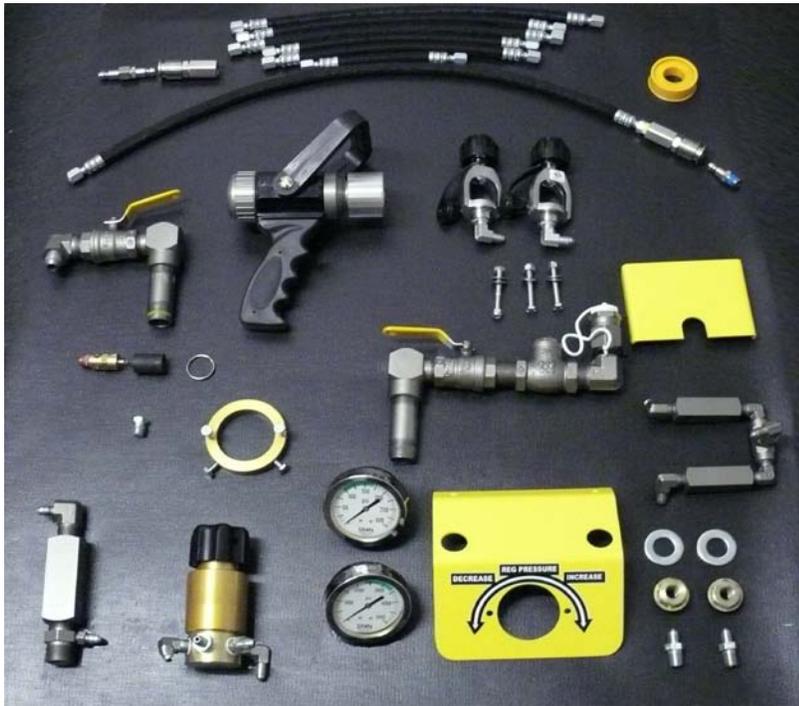
BEFORE STARTING:

Ensure system Pre-Mix tank has been drained.

Several methods may be used to drain your system. Before draining it must be determined if the Foam Solution will be recovered and reused. Ensure that the foam manufacturer's specifications and any applicable regulations are followed for replacement and disposal.

Pre-Mix Tank Drainage:

- 1) If your system(s) are still operational and the foam solution will not be retained then the Pre-Mix Tank can be easily drained by discharging the system through normal operation.
- 2) Remove the 1/4" plug from the bottom of the tank to drain the solution and dispose of properly. It may be necessary to elevate the system with a forklift or similar to drain into a drum if the solution is going to be retained.
- 3) Remove the air cylinders from the air cylinder rack and place the system in an upright or 90 degree position as shown in figure 1.7.a. Then open the pressure vent valve to drain the foam solution. This method does not drain all of the solution in the tank, but is enough to allow the Upgrade Kit to be installed.



UPGRADE KIT COMPONENTS

1. Gauge Plate
2. Increase-Decrease Decal
3. Bulk Head Fittings w/washers (2)
4. 1/4" x 1/4" JIC Straight (2)
5. 1/4"-20 x 2" Bolts (3)
6. 1/4" Flat Washers (6)
7. 1/4" Nylock Nuts (3)
8. High Pressure Gauge 0-5000 PSI
9. Low Pressure Gauge 0-300 PSI
10. Check Valve Hold Down Plate
11. High Pressure Check Valve Assembly
12. Low Pressure Check Valve Assembly
13. Pressure Vent Valve Assembly w/ Relief Valve
14. Regulator and mounting Ring with 1/4" - 20T x 1" Bolts
15. Pistol grip with Tip
16. 26" Airline
17. 15 1/2" Airline
18. 10 3/4" Airlines (2)
19. 13 1/2" Airlines (2)
20. 5 1/4" Airline
21. Male Female Quick Release Coupling
22. Bottle Yokes (2) and 90 degree JIC Fitting
23. 1/4" Hose Plug
24. Manifold Airline Purge fitting
(male – male quick connect adapter)
NOT PICTURED
25. Water/Chemical Fill Valve Assembly
26. Tri-Max 30 Conversion Kit Manual (NOT PICTURED)

UPGRADE TOOLS REQUIRED

- A. 15" Crescent Wrench
- B. 1 3/8" Wrench
- C. 1" Wrenches (2)
- D. 7/8" Wrench
- E. 9/16" Wrenches (2)
- F. 7/16" Wrench
- G. 7/16" Socket
- H. 10" x 1/4" Long Adapter for Ratchet
- I. 1/4" Ratchet
- J. One Roll Gas Line Thread Tape
- K. 1 1/8" Open End Wrench

UPGRADE TOOLS OPTIONAL

- L. Large Channel Lock Pliers: for hose removal if necessary.
- M. Liquid Wrench – WD-40 or similar
- N. Pipe Wrench
- O. Wire Cutters: for user installed safety wires is necessary



1. Gauge Plate (Shown with decal installed)



7. 1/4" Nylock Nuts (3)



13. Pressure Vent Valve Assembly w/ Relief Valve



19. 13 1/2" Airlines (2)



2. Increase-Decrease Decal



8. High Pressure Gauge 0-5000 PSI



14. Regulator and mounting Ring



20. 14 1/2" Airline



3. Bulk Head Fittings w/washers (x2)



9. Low Pressure Gauge 0-300 PSI



15. Pistol grip with Tip



21. Male Female Quick Release Coupling



4. 1/4" x 1/4" JIC Straight (2)



10. Check Valve Hold Down Plate



16. 24" Airline



22. Bottle Yokes (2) and 90 degree JIC Fitting (2)



5. 1/4" -20 x 2" Bolts (3)



11. High Pressure Check Valve Assembly



17. 5" Airline



23. 1/4" Hose Plug



6. 1/4" Flat Washers (6)



12. Low Pressure Check Valve Assembly



18. 10 3/4" Airlines (2)



25. Water/Chemical Fill Valve Assembly

1. System disassembly:

1. Ensure system is completely depressurized.
 - a) Slowly open pressure relief valve and foam/chemical fill valve. (Figure 1.1.a)
 - b) Ensure air cylinder valves are closed. (See Figure 1.1.b)



Figure 1.1.a



Figure 1.1.b

2. Remove Air Cylinders and bottle racks.
 - a) Unscrew 3 point knob and set aside.
 - b) Remove bottle hold down plate and set aside.
 - c) Unscrew knob from regulators holding yokes (See Figure 1.2.c)
 - d) Lift air bottles from system. Set aside.
 - e) Remove Booster Hose. If no spanner wrench is available lay hose off to side. (See Figure 1.2.e)



Figure 1.2.c



Figure 1.2.e

3. Remove regulators and Bottle Rack.
 - a) Disconnect airlines from low pressure check valve assembly with 9/16" wrench. (See Figure 1.3.a)
 - b) Remove six bolts from bottle rack with 7/16" wrench and 7/16" socket with extension. Remove all the nuts. (See Figure 1.3.b)



Figure 1.3.a



Figure 1.3.b

4. Remove Pressure Vent Valve Assembly and Water/Chemical Fill Valve Assembly.
 - a) Remove Vent Hose from Pressure Vent Valve assembly with 7/8" wrench. Set Aside.
 - b) Using a 1 3/8" wrench remove pressure vent valve assembly. (See Figure 1.4.b)
 - c) Repeat procedure "b" for Water/Chemical Fill Valve Assembly



Figure 1.4.b



Figure 1.5.b

5. Remove low pressure vent valve assembly.
 - a) Remove middle airline with a 9/16" wrench.
 - b) Use 1" wrench to unscrew entire assembly. (See Figure 1.5.c)
 - c) If reducer does not come out with Low pressure check valve assembly. Inset 1/2 plug into fitting and use a 1 1/16 box end wrench to remove from tank.



Figure 1.5.c



Figure 1.6

6. Inspect interior of tank with a small flashlight (Figure 1.6) and contact the manufacturer if tank lining is coming off.

7. Remove Manifold Airline
 - a) Lift unit at tongue to 90 deg position. (Figure 1.7.a)
 - b) Remove airline on side of manifold with 9/16" wrench.
 - c) Remove JIC fitting from manifold with 9/16" wrench.
 - d) Use heavy gauge wire to ensure no debris is inside opening where JIC fitting was removed. (Figure 1.7.d.)
 - e) Blow out opening with compressed air by inserting end of air nozzle into opening to blow air through the manifold. (See Figure 1.7.e)



Figure 1.7.a



Figure 1.7.d



Figure 1.7.e

2. Installation of New Components.

1. Install Quick release fitting into manifold.
 - a) Wrap male quick release fitting threads 3 times with thread tape.
 - b) Insert wrapped fitting into manifold where JIC fitting was removed. Tighten with 9/16" wrench. Tighten till firm, (Figure 2.1.b) **DO NOT OVERTIGHTEN.**
 - c) Tape male end of 26" airline with 3 wraps of thread tape.
 - d) Screw taped male threads of 26" airline into female quick release fitting. Tighten with 9/16" wrench.
 - e) Attach female fitting of quick release to male fitting on manifold. (Figure 2.1.e)



Figure 2.1.b



Figure 2.1.e

2. Install pressure vent valve assembly and Water/Chemical Fill Valve
 - a) Wrap lower threads 3 times with thread tape.
 - b) Screw into back hole of tank hand tight and tighten using a 1 3/8" wrench until firm. **DO NOT OVERTIGHTEN.** Ensure plumbing is parallel with the premix-tank and facing forward. (Figure 2.2.b)
 - c) Re-install pressure vent hose with 7/8" wrench. **DO NOT OVERTIGHTEN.**
 - d) Wrap pressure relief with thread tape if thread sealant is not present.
 - e) Tighten in hole on back of 90 deg fitting with 11/16" wrench. **DO NOT OVERTIGHTEN.** (Figure 2.2.e)
 - f) Repeat installation procedure for Water/Chemical Fill Valve Assembly

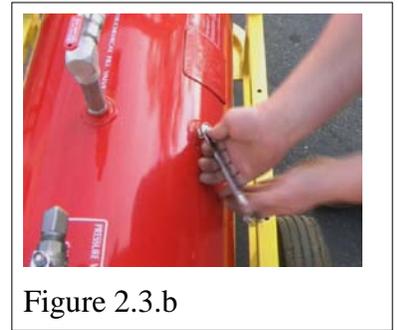
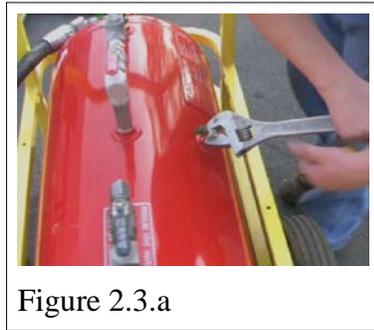


Figure 2.2.b



Figure 2.2.e

3. Remove old pressure relief valve and install plug.
 - a) With crescent wrench, remove old pressure relief valve and 90 deg fitting. (Figure 2.3.a)
 - b) Wrap 1/4" plug 3 times with thread tape. Insert into hole where old pressure relief valve was removed. Tighten with 9/16" wrench. (Figure 2.3.b)



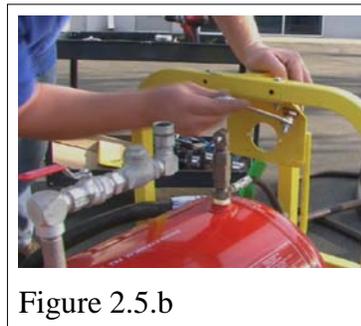
4. Install pressure gauge plate.

NOTE: If existing holes are present it may be necessary to offset the plate to the left or right.

 - a) Center plate on front of frame. To get placement of holes(Figure 2.4.a)
 - b) Drill holes with 1/4" drill bit. (Figure 2.4.b)
 - c) Insert 1/4" x 2" bolts into frame through holes drilled.
 - d) Thread washers and nuts, and tighten with 7/16" wrench and socket. Tighten until snug. **DO NOT OVERTIGHTEN.** (Figure 2.4.d)
 - e) Install bulk head fittings into large holes with nut and one washer on top side of plate and the lock washer on the bottom side of the plate. (Figure 2.4.e)
 - f) Tighten bulkheads with two 1" box end wrenches.



5. Install pressure gauges onto pressure gauge plate.
 - a) Wrap two 1/4" JIC fittings 3 times with thread tape.
 - b) Install two 1/4" JIC fittings into bottom of bulkheads and tighten with 9/16" wrench. **DO NOT OVERTIGHTEN.** (Figure 2.5.b)
 - c) Wrap threads on back of gauges 3 times with thread tape.
 - d) Hand tighten gauges into front of bulkhead fittings with Low pressure gauge on the left side. Finish tightening until firm with 9/16 wrench. **DO NOT OVERTIGHTEN.** Gauges should be orientated right-side-up (Figure 2.5.d)



6. Mount Air Pressure Regulator.
 - a) Install two 1/4" 20T x 1 inch bolts into

the two bottom mounting holes on the retaining ring and install retaining ring onto the large opening of the pressure gauge plate. (Figure 2.6.a)

- b) Install two bolts on flat side of retaining ring through the front of the gauge plate. Hand tighten and finish with 7/16 wrench.
- c) Remove knob from regulator. (Figure 2.6.c)
- d) Insert regulator through backside of plate. (Figure 2.6.d)
- e) Hand Tighten two bottom bolts of regulator retaining ring (These will be tightened later in process).
- f) Re-install knob. DO NOT OVERTIGHTEN. (Figure 2.6.f)

7. Re-install bottle rack

- a) Place straight down onto frame. Re-Use original rubber washers between bottle rack and frame. (It may help to move side plate back and forward to free bolts down into holes) (Figure 2.7.a)
- b) Fasten three 1/4" washers and three 1/4" lock-nuts onto bolts of side plates by hand. Repeat for other side.
- c) Tighten all six bolts and nuts with 7/16" wrench and 7/16" socket with extension. DO NOT OVERTIGHTEN. (Figure 2.7.c)

8. Install new Low Pressure Check Valve Assembly.

- a) Return unit to flat position.
- b) Wrap lower threads three times with thread tape. (Figure 2.8.b)
- c) Insert into front hole of tank where old low pressure check valve assembly was removed.
- d) Hand tighten then tighten until firm with 1 1/8" wrench until firm. DO NOT OVERTIGHTEN. Ensure JIC fitting on base of assembly is facing forward on system. (Figure 2.8.d)
- e) Connect 26" airline female fitting to JIC fitting that is facing forward on the base of the low pressure check valve assembly. Tighten with 9/16" wrench. DO NOT



Figure 2.6.a



Figure 2.6.c



Figure 2.6.d



Figure 2.7.a



Figure 2.7.c



Figure 2.8.b



Figure 2.8.d

OVERTIGHTEN. (Tighten until firm and secure with final 1/4 turn to snug.)

9. Install High Pressure check valve assembly.

- a) Place a block of wood underneath front center of bottle rack.
- b) Drill hole with 1/4" drill bit in front center of the bottle rack. USE CAUTION TO ENSURE NO DAMAGE TO THE TANK. (Figure 2.9.b)
- c) Place High pressure check valve assembly on bottle rack spaced evenly with JIC fitting facing away from bottle rack. (Figure 2.9.c)
- d) Place High Pressure Check Valve Assembly hold down plate over the assembly and mark for drilling. Drill 1/4" hole in plate.
- e) Place washer on bolt and place through hole on plate and through hole just drilled in bottle rack. Fasten washer and nut onto bolt. (Figure 2.9.e)
- f) Tighten with 7/16" wrench and 7/16" socket. DO NOT OVERTIGHTEN. (Figure 2.9.f)



Figure 2.9.b



Figure 2.9.c



Figure 2.9.e



Figure 2.9.f

10. Install 5" Air line.

NOTE: The 5" Air Line comes assembled with a reusable fitting on one end. If the line is too long and the regulator cannot be adjusted forward in the mounting ring, then the reusable fitting should be removed and the line cut to length and the fitting re-attached. The re-useable fitting is threaded onto the hose, and the collar is screwed on with a reverse thread.

- a) Loosen two bolts on bottom of Air Regulator Retaining Ring.
- b) Install 5" airline onto JIC fitting located on the base of the low pressure check valve assembly, and onto the 90 deg JIC elbow fitting located on the left side of regulator ("In" side). (Figure 2.10.b)
- c) Tighten with 9/16" wrench. (It may be necessary to use a second 9/16" wrench to hold the 90 deg JIC fitting on regulator while tightening the airline.)
- d) Tighten bolts on bottom of retaining ring until snug with 7/16" wrench. (Figure



Figure 2.10.d



Figure 2.10.b

2.10.d)

11. Install 10 3/4" airlines.

- a) Attach the first 10 3/4" airline to the first strait JIC fitting on the left side of regulator just below the 90 deg fitting. This is located on the "In" side of regulator. (Figure 2.11.a)
- b) Install the other side of first 10 3/4" airline to the High Pressure Gauge.
- c) Hand Tighten until snug with 9/16" wrench.
- d) Attach one side of the other 10 3/4" airline to the strait JIC fitting on the "OUT" side of regulator. And the other side to the Low Pressure Gauge. (Figure 2.11.d)



Figure 2.11.a



Figure 2.11.d

12. Install 1/4" airline.

- a) Route between Bottle rack and tank.
- b) Attach one end to the remaining 90 deg JIC fitting on "Out" side of regulator. Hand tighten. (Figure 2.12.b)
- c) Attach other end to the 90 deg JIC fitting on the top of the Low pressure check valve assembly. Hand tighten. (Figure 2.12.c)
- d) Tighten both ends with 9/16" wrench until snug.



Figure 2.12.b

13. Install Yoke assembly and airlines.

- a) Lightly attach one end of 1/2" airline onto 90 deg JIC fitting on Air Bottle Yoke, leave loose. Repeat for second yoke. (Figure 2.13.a)
- b) Attach other end of airline to 90 deg JIC fitting from High Pressure Check Valve assembly. Repeat for other side. (Figure 2.13.b)
- c) Tighten both sides till snug, with 9/16" wrench.
- d) Re-install Booster hose by following natural twist to hose. (Figure 2.13.d)
- e) Gently place air bottles back onto bottle rack. Ensure Air Cylinder valve is pointing strait up. (Figure 2.13.e)
- f) Tighten air cylinder yokes onto Air Cylinder Valves until snug. DO NOT OVERTIGHTEN.
- g) Tighten both airline fittings on yoke side with 9/16" wrench. (Figure 2.13.g)



Figure 2.13.a



Figure 2.13.d



Figure 2.13.g

14. Re-Install bottle hold-down plate with three point knob. (Figure 2.14)
15. Ensure all valves are closed and pressurize the system by opening one air cylinder. A solution of soap and water can be used to spray all new fittings and connections to test for leaks.
16. Rotate the Regulator knob clockwise to increase the pressure to 150-160psi on the low pressure air gauge.
17. Ensure all Air Cylinder valves are closed once the leak check and system pressure setting is completed.
18. Open the pressure vent valve slowly to vent the pressure from the system.