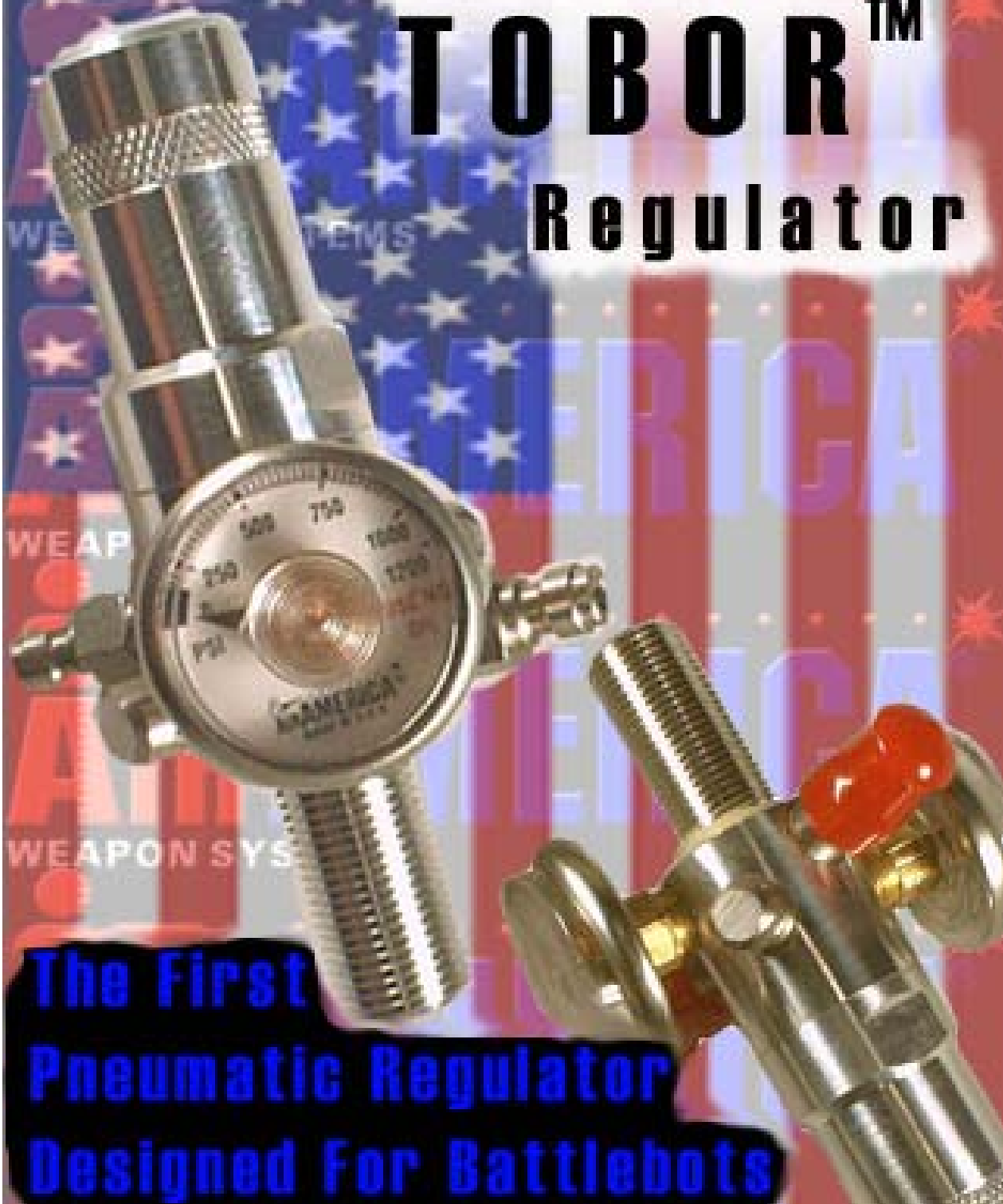



AIR AMERICA[®]
WEAPON SYSTEMS

TOBOR[™]
Regulator



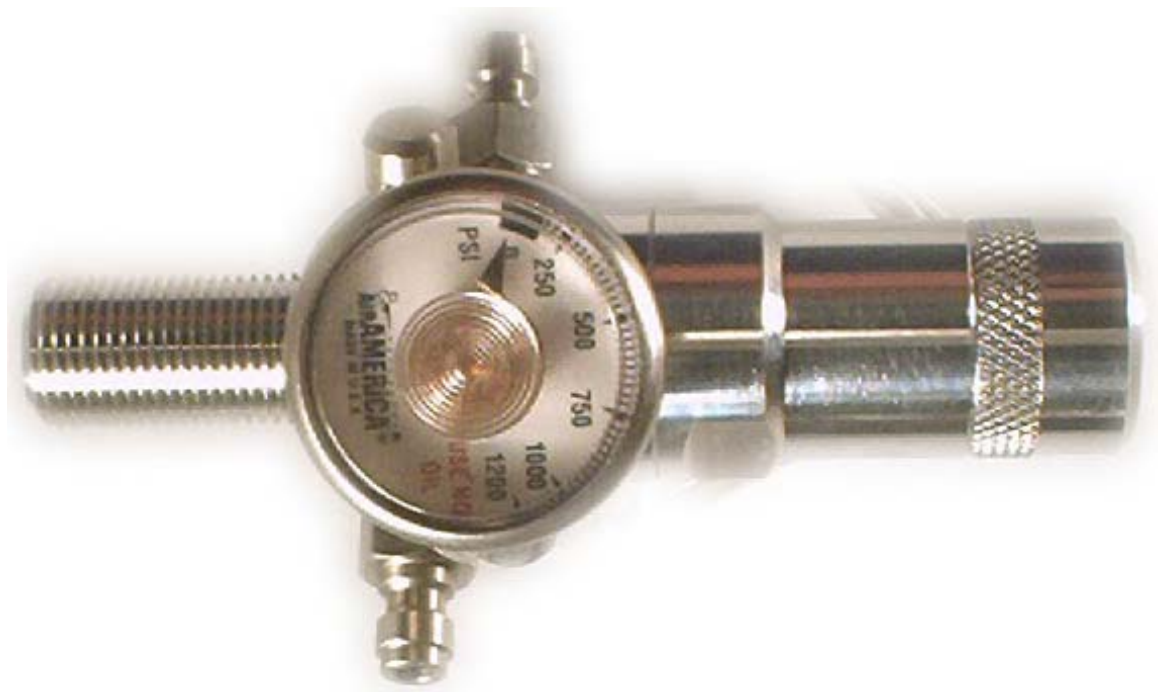
**The First
Pneumatic Regulator
Designed For Battlebots**

Installing the Tobor Regulator

Caution: Assembling the Tobor Regulator and setting up a tank/regulator system should be done under the direction of a qualified person. One particularly good source of expertise would be your local paintball air smith or welding service and supply company. Search the yellow pages in your area for businesses close to you.

Table of Contents:

		Page
Part 1	Work area and required tools	1
Part 2	Inspection	3
Part 3	Preparation procedure	4
Part 4	Mating the regular to the pressure vessel	6
Part 5	BattleBot safety modifications	7
Regulator	Regulator Components	



Installation Procedure for TOBOR™ Regulator

Part 1

Work area and required tools

The Work Area

The work area should be well lit, flat and free of dust, dirt, metal shavings and other foreign objects.

Caution: Foreign objects can enter the regulator/tank assembly and adversely affect performance.

The work area or table top should be a large clear space, and free of all other objects. It is recommended that the work table be covered with a soft absorbent material (*Clean rug padding works well*) that can absorb impact and protect the regulator and components if they are accidentally dropped.

Required Tools

The following is a suggested list of tools that will make installation and assembly safe, easy and efficient.

1. 3/16 Allen hex head wrench
 2. 7/16 open end wrench or socket driver
 - 3 6” adjustable jaw wrench
 4. Carved dental pick
 5. Single sided razor blade
 6. 3/8-24 tap and die
 7. Padded vise
 8. Lint free cloth
 - 9.Q-tip Cotton swabs
 - 10.Alcohol
 - 11.Chemplex 710
 12. Loctite 242
 13. Loctite 271
 - 14.Spray bottle with soap water
- (See next page for pictures of tools)



14

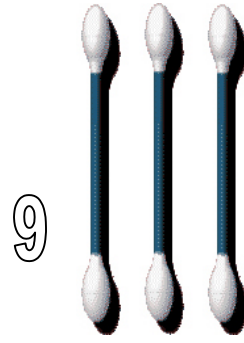


7

PADDED VISE



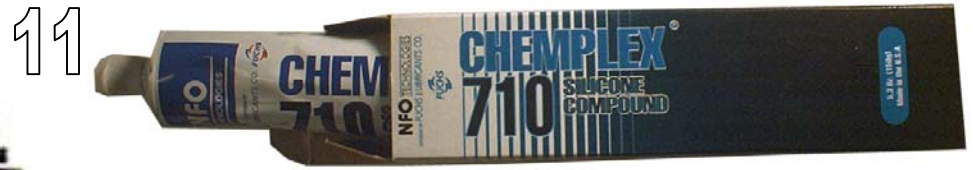
6



9



10



11



1



4



5



12



13



3



8

Lint Free Cloth



2

Installing Procedure for the TOBOR™ Regulator

Part 2 *Inspection*

General Inspection

Develop the habit of inspecting the regulator components throughout the assembly procedure. Each component should be free of obvious physical defects.

Caution: If any pneumatic component is found to be defective, or if there is a question as to the degree of the defect, the item should be set aside and well-marked for further inspection by a qualified person.

Refer all questionable defects to Air America® USA.

All components shall be inspected for the following prior to use:

1. Dirt, debris or other foreign matter
2. Chips, metal shavings or burrs
3. Oil, solvents or grease.
4. Flashing.
5. Scratches, scrapes, nicks, gouges or dents.
6. Obvious physical defects (out of round, incomplete threading, etc.)

Installing Procedure for the TOBOR™ Regulator

Part 3

Preparation procedure

Gather the following items: Pressure vessel (bottle), regulator, padded vise, single edge razor blade, installation tool (see specialty tool section), alcohol, cotton swabs (Q-tips)

Prepare the Pressure Vessel (bottle)

CAUTION: NEVER USE OIL ON OR ANYWHERE NEAR THE PNEUMATIC COMPONENTS!

Caution: Use only rated and inspected pressure vessels intended for HPA storage . Suitable pressure vessels are available from Air America Weapons Systems; <http://www.airamerica.com> . Your local paintball supplier can provide advice on obtaining pressure storage vessels.

1.) Clamp the pressure vessel in a padded vice. Allow for clear access to the female threads of the pressure vessel. Use caution not to damage the bottle with the jaws of the vise. Tighten the vice to prevent the rotation of the pressure vessel during installation of the Tobor Regulator.

2.) Inspect the thread area and o-ring gland for any type of burrs, malformation of thread and/or any obstruction that may impede the proper engagement of the thread and the o-ring.

3.) Inspect the pressure vessel mating face for any excess of coating material. If material is present use the single sided razor blade to gently scrape the residue from the pressure vessel.

Caution: Take care to not damage the sealing area or the o-ring gland. Damage to the pressure vessel sealing surface will result in an improper seal between the regulator and the pressure vessel.

4.) After the surfaces have been scrapped of excess material, clean them with alcohol. Dip a cotton swap in the alcohol solution and use it to clean the face of the pressure vessel. Repeat this procedure until the swap comes out clean.

5.) Dip the swap in the alcohol solution and use it to clean the female threads on the pressure vessel. Repeat until the swab comes out clean.

6.) Allow all clean surfaces to air-dry before proceeding.

Prepare the Regulator

- 1.) Support the regulator assembly in such as to have its male threads exposed and free from contact with other foreign objects.
- 2.) Dip the cotton swab in the alcohol solution and use it to clean the male threads of the regulator. Repeat until the swab comes out clean.
- 3.) Wipe down the thread area with a lint free cloth.
- 4.) Inspect the O-ring. Be careful not to damage o-ring. DO NOT introduce alcohol into the air inlet area of the regulator. Introduction of foreign solutions will impede the performance of the regulator.
- 5.) Allow all clean surface to air-dry before proceeding.

Installation Procedure for TOBOR™ Regulator

Part 4

Mating the Regular to the Pressure Vessel

Prepare the Regulator and Pressure Vessel

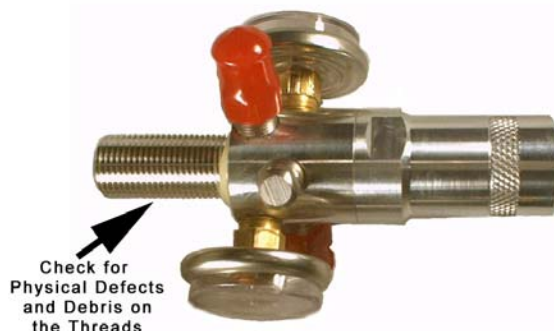
- 1.) Be certain the regulator and tank mating surfaces are clean and dry.
- 2.) Install a small amount of thread sealant to the first three (3) threads of the regulator. The sealant should be applied to the end farthest from the o-ring.

Caution: DO NOT introduce thread sealant into the air inlet area of the regulator. Introduction of foreign solutions into this area will impede the performance of the regulator.

- 3.) Set the regulator in the same position as described during the cleaning procedure. (Section 307) and allow the thread sealant to “wick” itself around the threads completely. This should only take a few minutes. Do not allow the regulator to stand for excessive amount of time. This will allow the thread sealant to harden or “Set up”. Any type of “Set up” will impede the gap filling and sealing capability of the sealant.

Install the Regulator

- 1.) Hand screw the regulator into the pressure vessel in a clockwise rotation. Be careful to notice any resistance during the installation. ***If the installer meets with any resistance STOP the install immediately. Remove regulator and inspect the regulator threads and pressure vessel threads for foreign material or damage. If damage is evident, repair or replace the damaged unit.***
- 2.) Once the Regulator is secured “hand tight”, place the installation tool (see specially tool section) over the fill nipple assembly and snug the regulator into its final position. **DO NOT over torque the regulator. Damage to fill nipple assembly and or the regulator main body will result if excessive force is used.**
- 3.) Allow the assembly to sit overnight so the thread sealant will dry undisturbed.



Installation Procedure for TOBOR™ Regulator

Part 5

BattleBot Safety modifications

The **TOBOR™ Regulator** from Air America Weapon Systems must be specially modified for use in BattleBots IQ competitions.

Consult the BattleBots IQ Rules and Regulations as well as this lesson for a listing of the necessary modifications. See www.battlebotsiq.com.

Exploded View Of Regulator

