



# Air-Oil Tank Installation Instructions

## Magnum Group Shock Absorbers

**ACE MCA, MCS 33, 36, 45 and 64 Self-Compensating Series**

**ACE MAA, MAS, MLA, MLS 33, 36, 45 and 64 Adjustable Series**

Maximum efficiency of operation can be obtained by carefully following these instructions:

### AIR-OIL TANK INSTALLATION (Figure 1)

Self-compensating models MCA and MCS as well as adjustable models MAA, MAS, MLA and MLS are pre-filled with ATF but **must be connected to an air-oil tank** before use.

Install the proper ACE air-oil tank as close as possible to, and physically higher than, the shock absorber. The line connecting the shock absorber to the air-oil tank must be free of kinks and loops. The inside diameter of this line must be equal to, or greater than, that of the port in the shock absorber.

**Do not put a shut-off valve between the shock absorber and the air-oil tank.** Install a check valve in the air line to the air-oil tank and plug the extra ports of the tank. Fill the tank with ATF to the fill mark, with the rod extended, and charge the system to between 50-100 psi (3.4 - 6.8 bar)

### AIR EXHAUST CIRCUIT FOR MODELS MCA, MAA and MLA SHOCK ABSORBERS (Figure 2)

If the rod is to remain in the shock absorber after decelerating the load, this type of installation is necessary. If not built in, a special ACE check valve should be used to eliminate *misting* of oil out of the air-oil tank.

### PROPER AIR-OIL TANK SIZE

Refer to the chart below for proper air-oil tank size in relation to the specific Magnum Group series.

Series	Air-Oil Tank	Air-Oil Tank (Re-circulating Circuit)
33, 36	AO-1	AO-3
45	AO-1	AO-3
64	AO-3	AO-6-91

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Figure 1

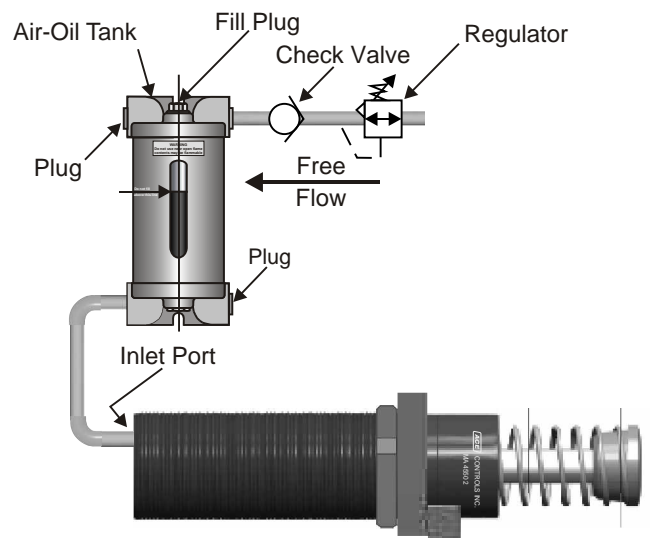
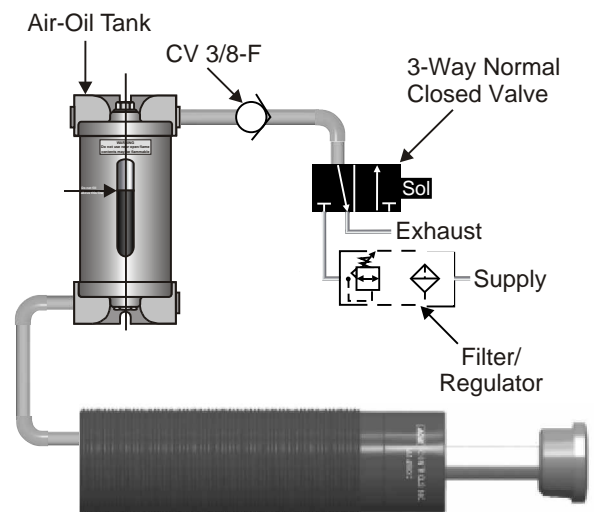


Figure 2



## RE-CIRCULATING COOLING CIRCUIT FOR MODELS MCA, MCS, MAA, MAS, MLA and MLS (Figure 3)

This type of installation may be required when ambient temperatures and/or cycle rates cause the shock absorber to heat up beyond 150°F (65°C).

Use high pressure 1,000 psi (69 bar) check valves with a low cracking pressure of 5 psi (0.34 bar). If a filter is to be used in this circuit, a 30 to 40 micron filter element with a 5 psi (0.34 bar) by-pass is recommended. Consult factory for assistance.

## LOCK NUT TORQUE SPECIFICATIONS

Refer to the chart below when installing shock absorber lock nut.

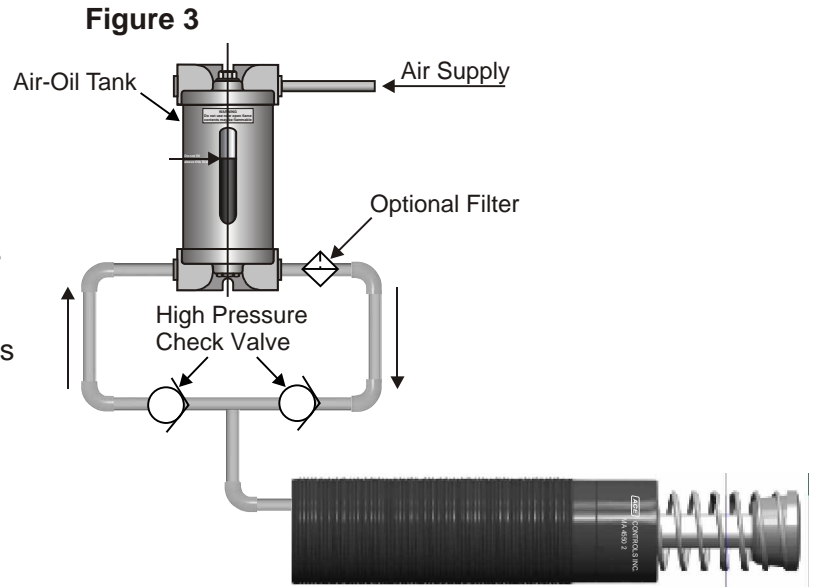
Model	Torque/Lock Nut
MC, MA, ML 33, 36 Series	54 - 59 ft-lbs (74 - 81 Nm)
MC, MA, ML 45 Series	167 - 183 ft-lbs (225 - 250 Nm)
MC, MA, ML 64 Series	560 - 610 ft-lbs (755 - 830 Nm)

## APPLYING APPROPRIATE TORQUE WITHOUT CALIBRATED TOOLING

The following procedure may be utilized if calibrated tooling is not available to torque lock nut.

Note: it is assumed that all necessary installation instructions have been followed prior to this procedure.

1. After positioning the shock properly in relation to the accessory (i.e. flange, collar, etc.) or mounting surface, with the proper adhesive (if applicable), finger tighten the lock nut against the accessory or mounting surface until it can no longer be turned.
2. Using appropriate equipment, tighten the lock nut until it rotates 1/8 to 1/4 of a full rotation (45 to 90 degrees) from the finger tight position. ACE has determined that a lock nut secured in this manner meets the torque specifications listed in the chart above.



## Notice

For Magnum Group 33 & 36 models the torque specification for the male connector, shipped loose, is 6-10 in-lbs (0.68 - 1.13 Nm)

## Side Port Torque Notice

For Magnum Group 33 & 36 Series 1/8" NPT, Torque 25-30 in-lbs (2.82-3.38 Nm)

For Magnum Group 45 & 64 Series 1/4" NPT, Torque 30-35 in-lbs (3.38-3.95 Nm)

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ACE Form 17, Air-Oil Tank, Magnum  
04/01/2004