

PARTS LIST:

2 EACH BAR18-AOSS CCSC-2A SHOCK/SUSPENSION
UNIT PRE-ASSEMBLED TO
27 7/8" CC LENGTH,
2,070 LBS MAX GROSS WEIGHT LIMIT

OR

2 EACH BAR18-AOSS CCSC-2A-3+3 SHOCK/
SUSPENSION UNIT PRE ASSEMBLED TO
30 7/8" CC LENGTH
2,070 LBS MAX GROSS WEIGHT LIMIT

2 EACH BAR18-5XP END FITTING

2 EACH BAR18-5R CHECK NUT

2 EACH 0075-16204 SEAL, SCRAPER TYPE, J.M.
CLIPPER CO. (OR EQUIVALENT) (SPARE)

2 EACH BAR18-14 RETAINER, SEAL (SPARE)

**THIS DOCUMENT TO BE PLACED IN THE AIRCRAFT
AFTER INSTALLATION**

6 EACH #4R X 3/8" THSS SCREW, SHEET METAL,
STAINLESS STEEL, TRUSS HEAD, RECESSED
PHILLIPS HEAD (OR EQUIVALENT) (SPARE)

THIS DOCUMENT TO BE PLACED IN THE AIRCRAFT

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**INSTRUCTION NO. BAR-1-CCSC
INSTALLATION, OPERATION
AND
MAINTENANCE INSTRUCTIONS
FOR THE
ALPHA OMEGA SUSPENSION SYSTEM
INSTALLED IN THE
CUB CRAFTERS
SPORT CUB, SPORT CUB S2,
CARBON CUB & CARBON CUB EX
U.S. PATENT NO. 6609682**

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AFTER INSTALLATION**

Revision	Description	Pages	Date
—	Original Issue	—	6-30-07
A	Replace zinc coating to add cadmium, Add insignia white powder coating	4	2-01-08
B	Add Installation and Maintenance Instructions for CCSC-2A Adjustable model	3,5,6	6-12-10
C	Add information referencing new 3+3 Landing gear lengths, add to Parts List	3, 8	2-28-11
D	Increase gross wt limit on units to 2,070 lbs Max gross weight	8	2-27-12

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AOSS LENGTH ADJUSTMENT:

RAISE THE AIRCRAFT OFF THE GROUND APPROXIMATELY 3"-4" USING SAFE AND ACCEPTED PRACTICES TO PREVENT ANY POSSIBLE PERSONAL INJURY OR DAMAGE TO THE AIRCRAFT.

USE AN 1 1/16" WRENCH TO LOOSEN THE CHECK NUT LOCKING THE END FITTING TO THE LOWER END OF THE TITANIUM STRUT TUBE. REMOVE THE LOWER ATTACH BOLT AT THE INBOARD END OF THE LANDING GEAR AXLE.

RAISE THE GEAR LEG ENOUGH TO FREE THE AOSS LOWER STRUT FITTING FROM THE GEAR AND LENGTHEN OR SHORTEN THE END FITTING AS NEEDED. (*EACH FULL TURN OF THE FITTING IS APPROXIMATELY .050"*) REINSTALL THE END FITTING INTO THE GEAR LEG, INSTALL THE ATTACH BOLT AND NUT. HOLD THE MAIN STRUT TUBE WITH A 5/8" WRENCH AND TIGHTEN THE CHECK NUT WITH AN 1 1/16" WRENCH.

FINAL NOTE:

THE AOSS UNITS ARE A SEALED UNIT. THERE IS NO MAINTENANCE TO BE PERFORMED INTERNALLY. THE CONTENTS ARE UNDER PRESSURE AND SEVERE PERSONAL INJURY CAN RESULT IF OPENED. ANY ATTEMPT TO COMPROMISE THE EPOXY SEALANT/PROTECTORANT AT THE LOWER GUIDE WILL VOID ANY WARRANTY CLAIMS OR ADJUSTMENT.

ANY INSTALLATION OF THE AOSS UNIT ON ANY AIRCRAFT OR ANY OTHER TYPE VEHICLE THAT IS NOT SPECIFICALLY APPROVED BY AOSS, LLC IS DONE SOLELY AT THE RISK OF THE INSTALLER AND/OR OWNER OF THAT AIRCRAFT OR VEHICLE. SINCE AOSS, LLC CANNOT CONTROL THE FINAL INSTALLATION OF THIS PRODUCT, AOSS, LLC WILL NOT BE RESPONSIBLE FOR ANY DAMAGE OR INJURY ARISING OUT OF ANY SUCH INSTALLATION.

CAUTION!

THESE AOSS UNITS ARE FOR INSTALLATION ON THE CUB CRAFTERS SPORT CUB SERIES AIRPLANES AND ARE APPROVED FOR A MAXIMUM GROSS WEIGHT OF UP TO 2,070 LBS, THESE UNITS ARE NOT APPROVED FOR INSTALLATION EXCEEDING THIS GROSS WEIGHT LIMITATION. INJURY AND/OR SEVERE DAMAGE COULD RESULT.

WIPER SEAL REPLACEMENT, CONTINUED:

THE NEW SCRAPER IS NOT DAMAGED AS IT SLIDES OVER THE END OF THE TUBE AND OVER THE FLATS MACHINED INTO THE SIDES OF THE TUBE.

THE NEW SEAL WILL BE FAIRLY SNUG ON THE TUBE BUT THIS IS NORMAL. THE SEAL IS PRESSED IN JUST TO THE TOP SURFACE OF THE LOWER GUIDE.

THE RECESS IS MACHINED ESPECIALLY FOR THE SEAL AND ALLOWS FOR A .031" BOTTOM CLEARANCE. **DO NOT** PRESS THE SEAL TO THE BOTTOM OF THE HOLE. WHEN INSTALLING THE NEW SEAL, CARE **MUST** BE TAKEN TO INSURE THAT YOU APPLY PRESSURE ONLY ON THE OUTER CIRCUMFERENCE OF THE SEAL.

REINSTALL THE BAR18-14 SEAL RETAINER PLATE AND SCREWS. IF THE OLD RETAINER AND SCREWS ARE SERVICEABLE IT IS PERMISSIBLE TO REUSE THEM. OTHERWISE, INSTALL THE NEW COVER AND SCREWS SUPPLIED IF THIS IS THE FIRST REPLACEMENT. REASSEMBLE THE AOSS UNITS, CHECK THE LENGTH OF THE UNITS THAT THEY ARE AT THEIR PREVIOUS SETTING AND REINSTALL ON THE AIRCRAFT.

IF THERE IS ANY OTHER DAMAGE OR WORN PARTS FOUND ON THE AOSS BODY, TUBES OR FITTINGS DURING INSPECTION THE AOSS UNIT MUST BE RETURNED TO AOSS, LLC FOR PROPER INSPECTION, REPAIR OR REPLACEMENT.

THE WIPER SEAL IS NOT A "SAFETY OF FLIGHT" ITEM. REPLACEMENT CAN BE DEFERRED UNTIL SEALS CAN BE OBTAINED. **HOWEVER, EXTENDED DELAY IN REPLACEMENT MAY ALLOW FOREIGN MATTER TO ENTER THE UNITS AND CAUSE PREMATURE WEAR OR DAMAGE ON THE LOWER GUIDE AND STRUT.**

INSTALLATION

- 1) REMOVE THE AOSS SUSPENSION UNITS FROM THEIR CONTAINER. THESE UNITS ARE PRE-SET AT 27 7/8" CENTER TO CENTER. (30 7/8" ON 3+3)
- 2) RAISE THE AIRCRAFT OFF THE GROUND APPROXIMATELY 3"-4" USING SAFE AND ACCEPTED PRACTICES TO PREVENT ANY POSSIBLE PERSONAL INJURY OR DAMAGE TO THE AIRCRAFT.
- 3) REMOVE THE ORIGINAL SUSPENSION ASSEMBLIES AND THEIR ASSOCIATED SHOCK STRUTS FROM THE VEE CABANE AND THE MAIN LANDING GEAR LEGS.
- 4) INSTALL THE UPPER END OF THE AOSS UNIT INTO THE VEE CABANE AND INSERT THE ATTACH BOLT.
- 5) USE A 5/8" OPEN END WRENCH TO ROTATE THE LOWER STRUT SHAFT TO ALIGN THE HOLE IN THE LOWER FITTING WITH THE HOLE IN THE GEAR LEG ATTACH POINT AND INSTALL THE NEW AOSS-CCSC UNITS IN PLACE OF THE ORIGINAL SYSTEM.
- 6) IT IS **RECOMMENDED** THAT A SET OF LANDING GEAR CHECK CABLES BE INSTALLED AT THIS TIME IF NOT ALREADY INSTALLED. CHECK CABLES ARE NOT REQUIRED BUT HIGHLY RECOMMENDED.
- 7) ENSURE THAT ALL THE INSTALLATION HARDWARE IS SECURED PROPERLY AND IS TIGHTENED TO PROPER SPECIFICATION. LOWER THE AIRCRAFT BACK DOWN ONTO THE GROUND.

NOTE: REFER TO AC43.13-1B, CHAPTER 7, SECTION 3, BOLTS, SECTION 4, NUTS & SECTION 5, WASHERS, AS APPLICABLE FOR GUIDANCE.

WEIGHT AND BALANCE

RECOMPUTE WEIGHT AND BALANCE USING THE ACTUAL WEIGHT OF THE SHOCK STRUT ASSEMBLIES AS THE VALUE FOR THE "ITEMS REMOVED". ADD 6.65 LBS. FOR EACH AOSS ASSEMBLY. USE THE SAME ARM AS THE UNITS THAT WERE REMOVED.

DOCUMENTATION

MAKE A LOGBOOK ENTRY REFERENCING THE INSTALLATION .

OPERATION

PREFLIGHT:

VISUALLY INSPECT THE CONDITION OF THE TITANIUM TUBING, END-FITTINGS, AND ATTACHING HARDWARE DURING PREFLIGHT. CHECK FOR FOREIGN OBJECT DAMAGE TO THE TUBING. ANY DAMAGED OR BENT COMPONENTS SHOULD BE REPLACED BEFORE FURTHER FLIGHT IS UNDERTAKEN.

MAINTENANCE

ANNUALLY:

INSPECT THE OVERALL CONDITION OF THE AOSS UNIT BODY, TUBES AND FITTINGS. PAY PARTICULAR ATTENTION TO THE CONDITION OF THE SEAL PRESSED INTO THE LOWER GUIDE. REMOVE THE THREE (3) #4R X 3/8" STAINLESS STEEL SHEET METAL SCREWS AND LOWER THE BAR18-14 ALUMINUM SEAL RETAINER PLATE. CHECK THAT THE SCRAPER SEAL IS IN GOOD CONDITION AND NOT SPLIT OR CRACKED. IF THE SEAL IS DAMAGED IN ANY WAY, REPLACE THE SEAL WITH A J.M. CLIPPER PART NO. 0075-16204 (OR EQUIVALENT) SEAL. A SPARE NEW SEAL, COVER PLATE AND SCREWS ARE SUPPLIED WITH EACH AOSS UNIT WHEN PURCHASED.

PAINTING:

THE AOSS UNIT BODIES ARE PLATED INSIDE AND OUT WITH ELECTROLESS NICKEL, TOP COATED EXTERNALLY WITH CADMIUM PLATING AND POWDERCOATED. THIS IS AN EXCELLENT CORROSION PROTECTION COATING AND ACCEPTS PAINT READILY. IF YOU WISH TO PAINT THE UNITS ONLY A GOOD GRADE OF AIRCRAFT OR AUTOMOTIVE ENAMEL SHOULD BE USED. POLYURETHANE ENAMELS ARE APPROVED.

WARNING!

DO NOT RE-POWDERCOAT THESE UNITS AFTER THEY ARE ASSEMBLED. THE HEAT USED IN THE POWDERCOAT PROCESS WILL DESTROY THE INTERNAL ELEMENT AND RENDER THE UNIT USELESS. DO NOT TRY TO DISASSEMBLE THE UNITS AT ALL.

WIPER SEAL REPLACEMENT:

RAISE THE AIRCRAFT OFF THE GROUND APPROXIMATELY 3"-4" USING SAFE AND ACCEPTED PRACTICES TO PREVENT ANY POSSIBLE PERSONAL INJURY OR DAMAGE TO THE AIRCRAFT. MEASURE AND NOTE THE AOSS LENGTHS.

REMOVE THE AOSS UNITS FROM THE AIRCRAFT. USING A SOFT JAWED VISE, CLAMP THE LOWER TUBE SECURELY TO PREVENT SLIPPING IN THE JAWS. USE A 1 1/16" WRENCH TO LOOSEN THE CHECK NUT LOCKING THE END FITTING TO THE LOWER END OF THE TITANIUM STRUT TUBE.

INSERT A LONG 3/8" BOLT OR LONG TAPERED PUNCH INTO THE HOLE IN THE FITTING AND UNSCREW THE LOWER END FITTING (RIGHT HAND THREAD) FROM THE STRUT TUBE. **BE CAREFUL NOT TO CHANGE THE CHECK NUT SETTING OR THE LENGTH OF THE AOSS WILL BE CHANGED.**

CUT A 2" PIECE OF 7/8" X .035"-.049" 4130 TUBING. DEBURR THE ENDS AND SLIP OVER THE EXPOSED END OF THE SUSPENSION UNIT TITANIUM TUBE TO PROTECT THE TUBE SURFACE FROM POSSIBLE DAMAGE.

WITH THE 2"-4130 TUBE STILL IN PLACE, TAKE A 6"-8" SHARP-POINTED HEAVY SCRIBE OR AWL AND INSERT THE POINT INTO THE GROOVE NEXT TO THE EDGE OF THE SCRAPER SEAL LIP AND FORCE THE POINT INTO THE HARD NEOPRENE OUTER BODY/EDGE OF THE SEAL. PRY UP GENTLY TO RAISE THE SEAL OUT OF ITS RECESS LEVERING OFF OF THE OUTER BOTTOM EDGE OF THE AOSS BODY. REPEAT THIS PROCESS WORKING YOUR WAY AROUND THE SEAL UNTIL IT IS LOOSENED COMPLETELY AND CAN BE REMOVED FROM THE UNIT SHAFT.

THE SEAL SHOULD SLIP FROM THE LOWER GUIDE RELATIVELY EASILY. TAKE CARE NOT TO DAMAGE THE RECESS EDGES OF THE LOWER GUIDE OR THE TITANIUM TUBE.

MAKE SURE THE RECESS IS FREE OF DEBRIS AND THE EDGES ARE FREE OF ANY DAMAGE.

SLIP THE NEW SEAL, SCRAPER EDGE UP, OVER THE END OF THE SUSPENSION UNIT TUBE VERY CAREFULLY ENSURING

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