



FAA Aging Aircraft Conference

Kansas City, MO

International Comanche Society

Hanger 3, Wiley Post Airport, Bethany, OK 73008

(405) 491-0321

Hans Neubert, Technical Committee, FAA Liaison

DERT-605393-NM

Mar 22-23, 2006

22-23 Mar 2006

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Fleet Statistics

Piper Comanche and Twin Comanche Fleet Size

Model	Produced	US Registered Fleet
PA 24-180	1143	284
PA 24-250	2537	1687
PA 24-260	1628	704
PA 24-400	148	105
PA 30	1998	1214
PA 39	145	89
Comanche's In Foreign Registry		719
	Total	4802



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Fleet Problem Areas

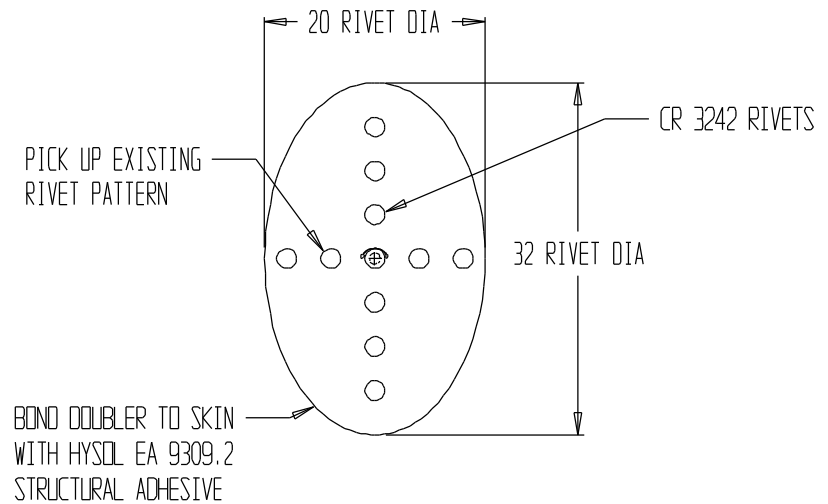
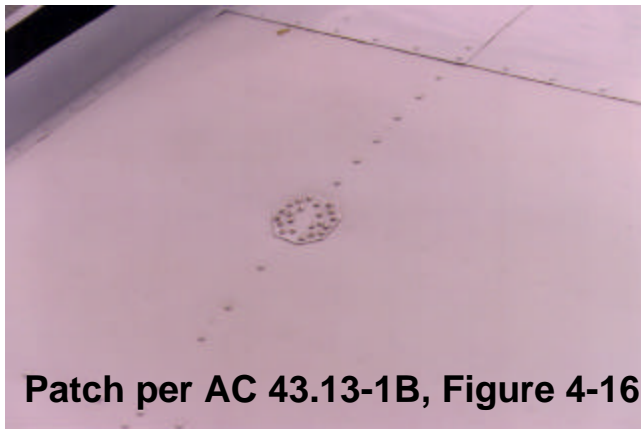
- All models have zinc chromate primer inside and outside
 - **One of the few makes having this treatment**
- Sporadic minor wing skin cracks – Stop drilling mitigates
 - **Ugly patch of Fig 4-16, AC 43.13-1B not required**
- Sporadic minor firewall cracks—Repair/Replace as req'd
- Stabilator Torque Tube Corrosion
 - **SAIB CE-04-08 issued 9-15-04, Piper SB 1160 issued 12-26-05**
 - **ICS Survey - 58% none, 23% minor, <2% major, 16% bolts only**
- Out of production parts and accessories
 - **Turbo scavenge pumps, Cyl. head temp probes, some instruments**



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Typical Wing Skin Cracks



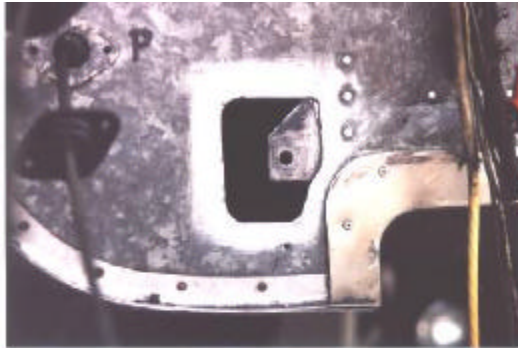
Example Only



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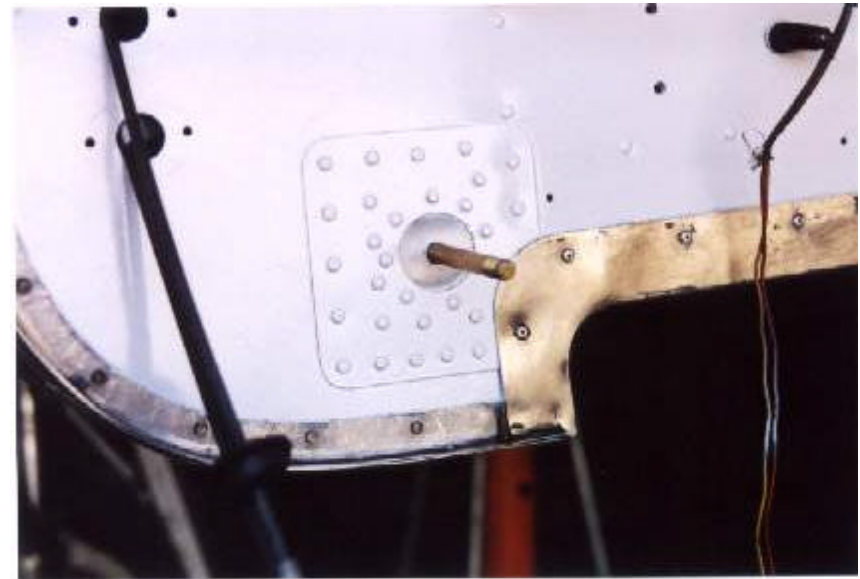
Typical Firewall Repair



Damaged Section Removed from Firewall Exposing Engine Mount
Right Hand Engine Firewall Shown - Left Hand Firewall Similar.



Initial Fit Up of Flush Patch using Bolt for Centering - Left Hand Engine Firewall Shown - Right Hand Firewall Similar.



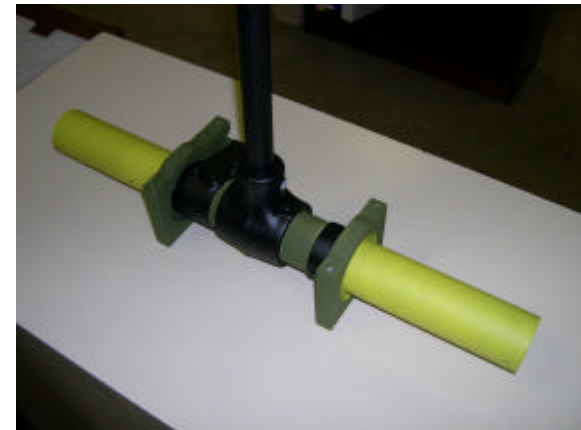
Firewall Repair Complete - Left Hand Firewall Shown - Right Hand Firewall Similar - Firewall Cleaned and Painted except on Flush patch at engine mount pad for electrical continuity.



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Torque Tube Corrosion



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Torque Tube Evaluation by Analysis & Test



- Combined bending & torque testing to be performed to DLL and DUL conditions
- Bending loads from forward CG condition
- Torque loads from 200 lb. requirement at wheel
- Loads and reactions using load cells
- Tri-ax strain gages at root
- Displacements using laser tracker

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Red Herring AD's

- Janitrol Heater
 - All PA-30/39 have fuel shut-off valves
 - Operating fuel pressure is one-half of other affected models
 - Residual fuel after shut-off is less than one teaspoon
- Turbo Models Hose Replacement Cycle
 - Requires replacement of ALL hoses in nacelle
 - No credit when using PTFE TSO-C140 hose assemblies



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Proposal 1 – Approved Repair Library

- Problem – Airframe repair approval varies by FSDO. Some parts have no repair approval, i.e., torque tube
- ICS proposes to initiate an approved repair documentation library available to the membership
- Approved repair documentation and Form 337 sufficient for Field Approval by FSDO
- FAA to establish an ACO focal point for repair submission and approval



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Proposal 2 – Streamlined PMA Approvals

- Problem – Out-of-Production parts availability due to decreasing fleet size and vendor interest
- ICS proposes to obtain engineering PMA approvals by identity, when necessary, with manufacturing performed by a qualified facility (i.e., Webco)
- Equivalent to owner produced part under 21.303, except done at the Type Club level
- All parts become approved parts
- FAA to provide ACO focal point for streamlined PMA approvals for simple, uncomplicated parts



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Proposal 3 – Grant Funding for Significant Issues

- Problem – Major aging aircraft airworthiness issues by test and analysis is expensive – Type Clubs need help
- ICS proposes that the FAA, or in conjunction with NASA, provide Grant funding to deal with significant aging aircraft issues for Part 23 aircraft
- Technical proposal describing purpose, methodology, and expected outcome
- Contracted through Type Club or authorized individual
- Typical size might be \$20K to \$30K
- FAA to establish focal point for proposal submission



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Conclusion

- ICS is the Type Club supporting owners having Piper PA 24/30/39 aircraft
- Except for out-of-production parts, aging aircraft issues have been dealt with (so far)
- Decreasing fleet size will reduce availability of future spare parts – PMA parts approval by identity needs to be streamlined, on a case-by-case basis
- Approved repair documentation at the Type Club level minimizes FSDO approval variability
- Grant funding for significant issues