

# COMANCHE GEAR



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## RAMS HORN YOKES INSTALLATION

### THE SWAP IS SIMPLE, HERE'S HOW IT'S DONE

AFTER REMOVING THE MEDALLION TRY USING A LARGE PAIR OF SIDE CUTTERS TO PINCH THE ROLL PIN THAT SECURES THE OLD YOKE TO THE COLUMN TUBE AND LEVER IT OUT TOWARD THE BOTTOM. IF THAT DOESN'T WORK, USE A **LONG** #40 BIT TO DRILL COMPLETELY UP THROUGH THE CENTER OF THE ROLL PIN. ENLARGE THAT HOLE FROM THE TOP WITH A **LONG** 3/16" BIT UNTIL YOU JUST TOUCH THE PIN. NOW GET SOME SPARE LUMBER, ONE PIECE ACROSS THE SEAT RAILS, ANOTHER FROM THAT PIECE TO THE COLUMN FOR SUPPORT. WITH A **LONG** PUNCH, DRIVE THE ROLL PIN DOWN AND OUT OF THE GRIP. SQUIRT A SHORT BURST OF SOME WD40 OR PB-BLASTER TO THE CENTER AREA TO HELP WITH REMOVAL. NEXT APPLY A HEAT GUN TO THAT SAME AREA AND LEAVE IT THERE FOR A COUPLE MINUTES. I HAVEN'T TRIED A HAIR DRIER FOR THIS BUT I FEAR IT WOULD BE INADEQUATE. THE HEAT GUN I USE IS SUGGESTED FOR HEAT SHRINK TUBING, \$40 OR SO. THE HEAT WILL NOT HURT A POWDER-COATED YOKE, IT WILL THE PLASTIC FINISH ON THE ORIGINAL. THE **LONG** DRILL BITS ARE NECESSARY FOR THE DRILL CHUCK TO CLEAR THE TOP OF THE *Comanche* YOKE.

THIS NEXT SOUNDS A BIT CRUDE BUT IT WORKS FOR THE REMOVAL PHASE, SO FAR YOU HAVE JUST BEEN GETTING READY. USING A PIECE OF HEAVY LUMBER A FOOT AND A HALF LONG, I USE A YELLOW PINE 2X4, BUT NOT LIGHT-WEIGHT WHITE PINE, HAVE YOUR HELPER [WHO WILL PROBABLY BE SITTING ON THE WING OUT OF YOUR WAY, OR AT THE STABILATOR] POSITION THE COLUMNS ALMOST FULLY AFT BUT NOT QUITE AGAINST THE STOP. LAY THE AFOREMENTIONED CRUDE IMPLEMENT ON TOP OF AND IN CONSTANT CONTACT WITH THE COLUMN, SHARPLY SLIDING IT FROM FORWARD TO REAR WHICH WILL IMPART SUFFICIENT ENERGY TO THE GRIP TO REMOVE IT. IT WILL TAKE SEVERAL SHARP BLOWS TO REMOVE THE YOKE; YOU MOST LIKELY WON'T GET IT OFF BY TWISTING AND PULLING ACTION.

COMPARE THE DISTANCE [HOLE-TO-END-OF-THE-TUBE] BETWEEN THE NEW YOKE AND THE OLD TUBE BEFORE YOU START THE INSTALLATION, YOUR COLUMN TUBE MAY NEED TO BE SHORTENED. THE INSTALLATION IS TO HEAT THE YOKE AFTER APPLYING SOME OF THE CHOSEN SPRAY STUFF TO THE YOKE BORE AND COLUMN. A HELPER CAN HOLD THE OPPOSITE GRIP WHILE ONE QUICKLY INSTALLS THE NEW YOKE WITH A TWISTING MOTION, ALIGNING THE PIN HOLES. DRIVE THE ROLL PIN UPWARD INTO THE ALIGNED HOLES, BUT USE SOME INERTIA-ABSORBING MASS ON TOP OF THE COLUMN SO AS TO AVOID TRANSFERRING THAT SHOCK LOAD TO THE AIRFRAME. I USE A 25-LB SHOT BAG WHICH HANGS THERE NICELY BY ITSELF.

### POSSIBLE PROBLEMS TO WATCH FOR

WHILE REMOVING NAVAJO YOKES FROM THEIR TUBES I HAVE SEEN "LOC-TITE" USED BY PIPER WHICH SUGGESTS THAT SOME MAY AGAIN NEED THIS. IF YOU DISCOVER YOU HAVE A LESS-THAN TIGHT FIT, USE THE "LOC-TITE" BUT CLEAN THE SHAFT AND BORE AND LEAVE OUT THE WD-40 STUFF. YOU'LL HAVE TO BE SWIFT WITH THE PIN-TO-HOLE ALIGNMENT!

ANOTHER POSSIBLE PROBLEM IS HOLE MISALIGNMENT LIKE THE TUBE IS TOO LONG. IF YOU NEED TO SHORTEN THE TUBE TO MAKE THE HOLES ALIGN TRY THIS. TO AVOID A MESS INSIDE THE AIRPLANE YOU'LL NEED A 5-GALLON PLASTIC PAIL, 1-3/4" OR LARGER HOLE SAW, AND A SANDING DISC FOR YOUR ELECTRIC DRILL. USE THE HOLE SAW TO CUT A HOLE IN THE BOTTOM OF THE PAIL, PLACE THE PAIL OVER THE COLUMN TUBE, USE THE SANDING DISC INSIDE THE PAIL [WHICH WILL RETAIN THE TRASH] TO REMOVE MATERIAL FROM THE END OF THE TUBE. BE SURE TO PUT A MARK ON THE TUBE TO INDICATE THE STOPPING POINT FOR MATERIAL REMOVAL. **DE-BURR** THE EDGE OF THE TUBE AND CONTINUE. MEASURE THE HOLE LOCATION BEFORE YOU START THE INSTALLATION AND YOU WON'T HAVE A LEARNING CURVE REPEAT SESSION.

BE SURE TO LEAVE THE "BUCKET WITH THE HOLE IN IT" SOMEWHERE INSIDE THE HANGAR SO AS TO GENERATE AN OCCASIONAL QUESTION. **METHYL ETHYL KETONE AKA MEK MAY DAMAGE THE POWDER COAT FINISH.**

GOOD LUCK, MATT KURKE

## RAMS HORN YOKES



COMANCHE VERSUS NAVAJO YOKE – NOTICE WIDTH COMPARISON



NAVAJO RAMS HORN STYLE YOKE WITH DOUBLE HOLLOW GRIPS,  
SHOWN HERE POWDER COATED GLOSSY BLACK



**THE ORIGINAL NAVAJO MEDALLIONS [LEFT] ARE NO LONGER AVAILABLE; THE BLUE APPEARANCE OF THE NEW STYLE PIPER MEDALLION IS THE WRAPPER**



**SETUP FOR SHORTENING THE COLUMN TUBE IF NECESSARY**