

# FOUR-ON-THE-SNOW NEWSLETTER

NO SNOW TOO DEEP...NO ROAD TOO STEEP

Volume 15 Issue 2 · February 2023



## A TUCKER SNO-CAT® CORPORATION PUBLICATION

*History:* MODEL 400

*Service Department:* STEERING/ALIGNMENT

*Tucker Gear:* STICKERS

*Focus on Features:* 2023 MODEL 2000



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Established in 1942 by Emmitt Tucker Sr., Tucker Sno-Cat® is known worldwide for their four-tracked design, excellent performance, and efficiency. The original manufacturer of over-snow transportation, Tucker Sno-Cat® vehicles provide the ultimate traction advantage in steep terrain, while leaving a gentle footprint.



Classic Sno-Cat®  
Model 400 Series,  
Circa 1947



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STICKERS  
**STICKERS  
STICKERS!!**

Tucker Sno-Cat®  
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## Focus on Features: 2023 MODEL 2000

Introducing the 2023 Model 2000 5 Passenger Tiller Groomer with a 210 HP Stage V Cummins. This new machine is designed for western grooming, high mileage, deep snow and large mountain terrain. 12' wide, 12-way blade and a 12' wide tiller complements this machine well. Our team takes so much pride in creating these beautiful machines.



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## Service Department Notes: STEERING & ALIGNMENT PROCEDURES

THE FOLLOWING ILLUSTRATION SHOWS THE PROCEDURE FOR ALIGNING THE STEERING ON A TUCKER SNO-CAT® VEHICLE. ONE OF THE MAIN REASONS FOR KEEPING THE STEERING ALIGNED IS TO KEEP EXCESSIVE SIDE LOADS FROM STRESSING OR DAMAGING THE TIE ROD ENDS AND CARRIERS. IT IS BEST TO HAVE THE STEERING SYSTEM BALANCED. WHAT YOU ARE ATTEMPTING TO DO IS MAKE SURE THE STEERING CYLINDER IS IN THE CENTER OF ITS STROKE WITH THE TIE ROD BOSSES ON THE STEERING SWING 90 DEGREES TO THE BOTTOM OF THE FRAME (AS SHOWN IN THE ILLUSTRATION). THIS ENSURES THAT THE SWING WILL PUSH AND PULL THE SAME AMOUNT EACH DIRECTION. WITH THE CYLINDER AND SWING CENTERED, YOU THEN LOOSEN THE TIE ROD CLAMPS SO THE TIE RODS CAN BE ROTATED. THE TIE ROD AND TIE ROD ENDS HAVE OPPOSITE THREADS, THE RIGHT HAND THREAD TIE ROD IS CONNECTED TO THE SWING AND THE LEFT HAND THREAD TIE ROD IS CONNECTED TO THE FIFTH WHEEL PLATE. WHEN YOU ROTATE THE TIE ROD YOU MAKE IT LONGER OR SHORTER DEPENDING ON WHICH WAY YOU ROTATE THE ROD. BY ROTATING THE ROD PROPERLY, THE FIFTH WHEEL PLATE WILL ALIGN. YOU WANT THE FIFTH WHEEL PLATES TO BE PARALLEL TO THE FRAME. SOME FIFTH WHEEL PLATES ARE OF A TAPERED FORWARD SHAPE, SO YOU NEED TO PULL YOUR MEASUREMENT FROM FIXED POSITIONS ON THE CAT. EXAMPLE: THE SPRING EYE ON THE FIXED HANGERS TO THE CORNERS OF THE FRAME SIDES ARE GOOD PLACES TO PULL THESE MEASUREMENTS.

WHAT WE ARE TRYING TO ACHIEVE IS TO HAVE THE STEERING CYLINDER CENTERED, THE SWING CENTERED, AND THE FIFTH WHEEL PLATES PARALLEL TO THE FRAME. TO CHECK THAT THE SYSTEM IS TURNING THE SAME BOTH DIRECTIONS YOU WILL HAVE TO TURN THE VEHICLE FULL TO THE RIGHT AND MEASURE FROM A FIXED SPOT ON THE FRAME (WE USE THE BACK CORNER OF THE FRAME) TO THE BACK RIGHT HAND CORNER OF THE FRONT FIFTH WHEEL PLATE SPRING HANGER. THEN TURN THE VEHICLE FULL TO THE LEFT AND MEASURE FROM THE SAME POINTS ON THE LEFT SIDE OF THE VEHICLE. THE MEASUREMENTS SHOULD BE WITHIN 1/8" OF EACH OTHER. IF NOT YOU WILL HAVE TO ROTATE THE TIE ROD TO GET THE FIFTH WHEEL ALIGNED. THEN STRAIGHTEN THE FIFTH WHEEL OUT BY THE SAME METHOD. THE ONLY DIFFERENCE IS THIS MEASUREMENT HAS NO TOLERANCE.

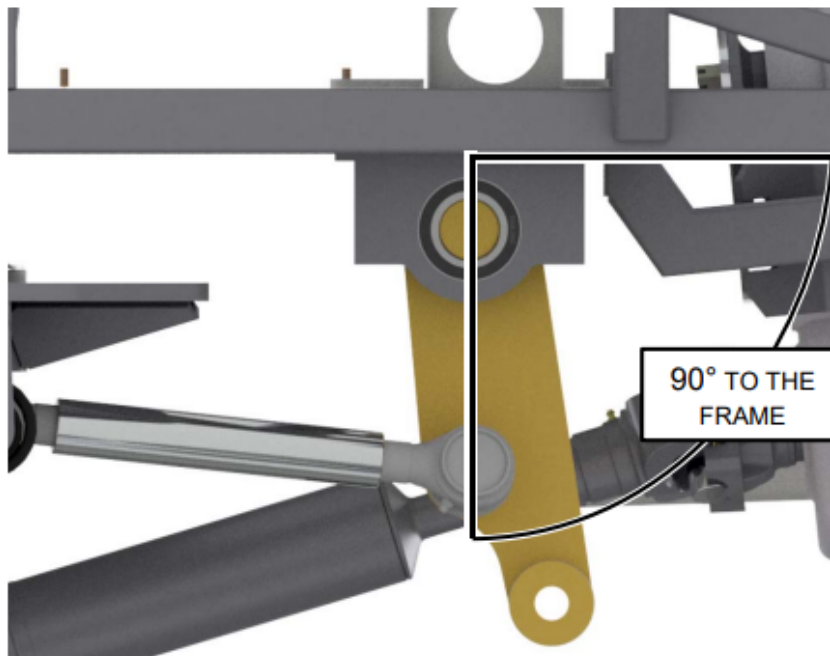
YOU USE THE SAME PROCEDURE TO CHECK OUT THE REAR FIFTH WHEEL FOR ALIGNMENT WITH THE FRONT. AT THE FACTORY, WE ARE ABLE TO JACK THE VEHICLE UP ENOUGH TO TAKE THE LOAD OFF THE TRACKS SO THE VEHICLE CAN TURN IN A STATIONARY POSITION. WE USE TWO FLOOR JACKS UNDER THE DIFFERENTIAL HOUSING CENTERS AND LIFT THE VEHICLE ENOUGH SO IT MAY BE TURNED. YOU MAY HAVE TO USE BLOCKS BETWEEN THE FRAME AND REAR FIFTH WHEEL PLATE TO KEEP IT FROM TILTING ON ITS TRUNNION PIN. AFTER YOU HAVE SET THE ALIGNMENT, YOU CAN VERIFY THE TRACKS ARE RUNNING TRUE BY DRIVING THE VEHICLE FORWARD IN A STRAIGHT LINE AND CHECK TO SEE THAT THE REAR TRACKS ARE FOLLOWING EXACTLY IN THE PATH OF THE FRONT TRACKS. ALSO AFTER DRIVING FORWARD AND RUNNING THE VEHICLE IN A STRAIGHT LINE, STOP THE VEHICLE AND RECHECK THE DISTANCE FROM FIFTH WHEEL TO FIFTH WHEEL AT STATIONARY POINTS, LIKE THE CENTER OF THE FIXED HANGERS SPRING EYE ON THE FRONT FIFTH WHEEL TO CENTER OF THE SPRING EYE ON THE REAR FIFTH WHEEL.

WE RECOMMEND THIS PROCEDURE BE DONE AT THE BEGINNING OF EACH SEASON OR AFTER ANY REPAIRS TO THE STEERING SYSTEM. IT MAY SEEM A LITTLE COMPLEX AT FIRST BUT ONCE YOU HAVE DONE THE ALIGNMENT, AND GET THE IDEA OF WHAT TO DO IT SHOULD GO QUICKLY FOR ANY FUTURE ALIGNMENTS.

THE FIRST THING THAT NEEDS TO BE DONE IS BOTH THE STEERING SWING AND CYLINDER NEED TO BE SET IN PLACE. TO DO THIS THE SWING SHOULD BE PLACED WITH THE TIE ROD BOSS 90° FROM THE BOTTOM OF THE FRAME. THIS NEEDS TO BE DONE WITH THE SWING BEARING BOSS AND THE TIE ROD BOSS INLINE TO EACH OTHER. THIS MUST BE DONE WITH AS MUCH ACCURACY AS POSSIBLE. WHEN DONE PROPERLY, THIS WILL CENTER THE CYLINDERS THROW. REMEMBER THE CLOSER YOU GET THE SWING AND STEERING CYLINDER ALIGNED, THE EASIER AND BETTER THE OVERALL ALIGNMENT IS GOING TO BE.

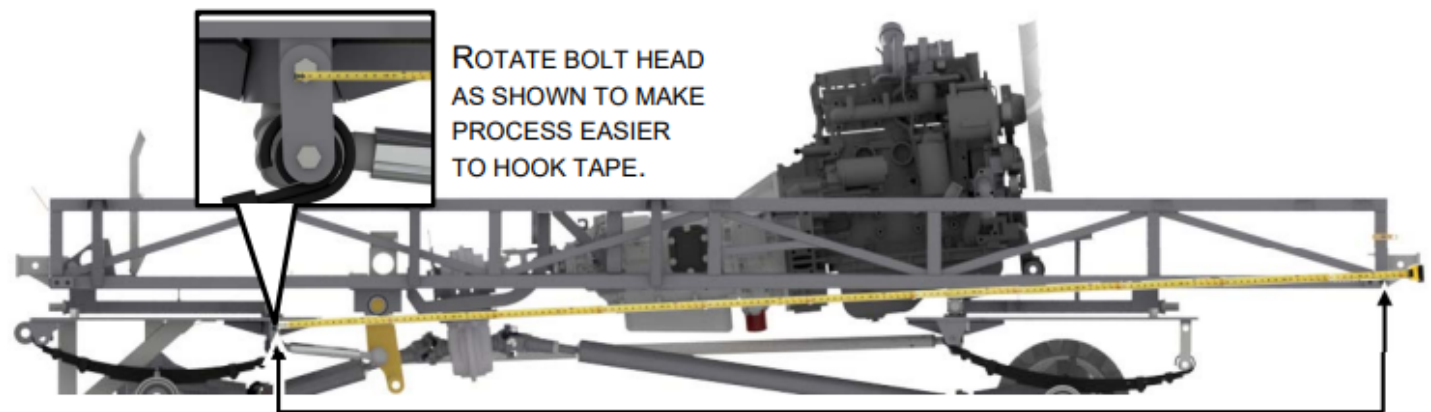






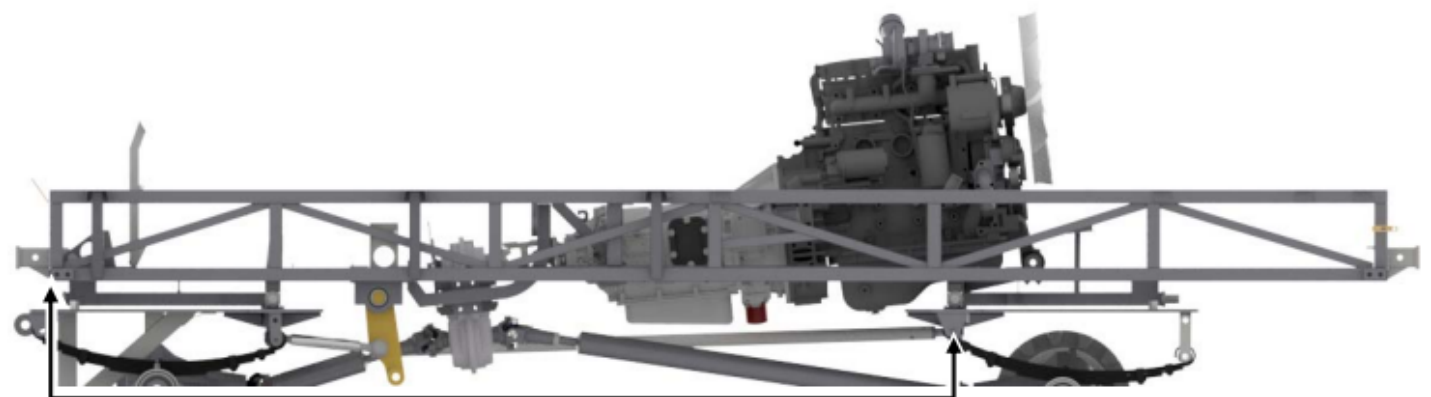
IT MAY BE OF BENEFIT TO USE A FRAMING SQUARE TO INSURE THAT THE TIE ROD BOSS AND THE SWING BEARING ARE IN LINE WITH EACH OTHER AND CREATE A 90° ANGLE TO THE BOTTOM OF THE FRAME. THIS FIRST STEP IS CRITICAL TO THE REST OF THE ALIGNMENT.

THIS MEASUREMENT (SHOWN BELOW) IS DESIGNED TO ALIGN THE FRONT FIFTH WHEEL TO THE FRAME AND SHOULD BE DONE WITH AS MUCH ACCURACY AS POSSIBLE. PULL A TAPE MEASURE FROM THE FRONT FIFTH WHEEL'S FIXED POSITION SPRING HANGER TOP BOLT, TO THE LOWER CORNER THE FRAME RAIL AT THE REAR OF THE FRAME. DO THIS ON BOTH SIDES OF THE FRAME UNTIL THEY ARE THE SAME. ONCE THE FIFTH WHEEL IS ALIGNED LOCK THE FRONT TIE ROD DOWN BY TIGHTENING THE CLAMP UNTIL THE TIE ROD NO LONGER IS ABLE TO MOVE.



ROTATE BOLT HEAD AS SHOWN TO MAKE PROCESS EASIER TO HOOK TAPE.

MEASUREMENT POINTS (BELOW) ARE DESIGNED TO ALIGN THE REAR FIFTH WHEEL. PULL A TAPE MEASURE FROM THE FRONT FIFTH WHEEL'S FIXED POSITION SPRING HANGER TOP BOLT, TO THE LOWER CORNER THE FRAME RAIL AT THE FRONT OF THE FRAME. REPEAT THE PROCESS ABOVE.





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## FACES AROUND THE FACTORY

Our company's success is a direct result of our employees' efforts, grit and grace. An organization is only as good as its employees, and we are fortunate to have a great team.

**VICE PRESIDENT-  
PURCHASING MANAGER**



Steven Tucker



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## FOR SALE

### 2021 2000G-38-6 300HP Tucker Sno-Cat®

- Cummins 6.7L 300HP Tier 4i
- Allison 3000 Transmission
- 38" x 200" Steel Tracks
- 5-Passenger Cab
- HD 12-Way Grooming Blade
- Triple Rear Hydraulics
- Air Lockers on Differentials
- 950 Hours



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## FOR SALE 2018 MODEL 1600AG TUCKER SNO-CAT®

- CUMMINS 6.7L 173HP TIER 4I (NO DEF)
- ALLISON TRANSMISSION
- LOCKING DIFFERENTIALS
- AIR CONDITIONING
- 2-PASS AG CAB (HIGH VISIBILITY)
- 30" AG TRACKS



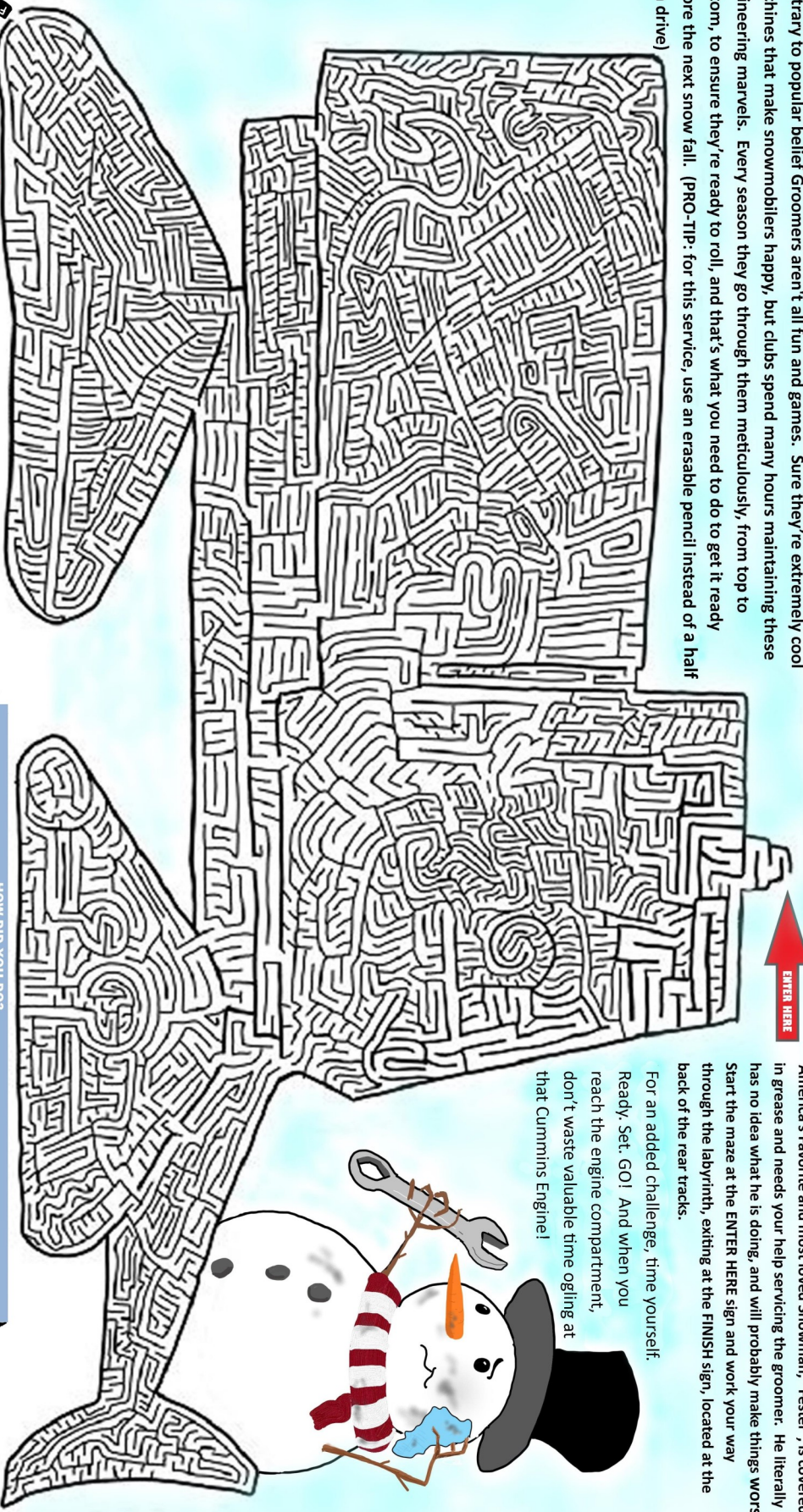
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# GROOMER MAZE-TENANCE

Contrary to popular belief Groomers aren't all fun and games. Sure they're extremely cool machines that make snowmobilers happy, but clubs spend many hours maintaining these engineering marvels. Every season they go through them meticulously, from top to bottom, to ensure they're ready to roll, and that's what you need to do to get it ready before the next snow fall. (PRO-TIP: for this service, use an erasable pencil instead of a half inch drive)



America's Favorite and most loved Snowman, "Faster", is covered in grease and needs your help servicing the groomer. He literally has no idea what he is doing, and will probably make things worse. Start the maze at the ENTER HERE sign and work your way through the labyrinth, exiting at the FINISH sign, located at the back of the rear tracks.

For an added challenge, time yourself. Ready. Set. GO! And when you reach the engine compartment, don't waste valuable time ogling at that Cummins Engine!



### HOW DID YOU DO?

- MORE THAN 10 MINUTES:** Yaaaay! You did it! Nice work, but the snow has melted and its now May.
- 5-10 MINUTES:** Good job, you completed the task and avoided The Labyrinth's Minotaur and Jareth The Goblin King.
- 3-5 MINUTES:** Wow! You grabbed the Pisten Bully by the horns!
- 1-3 MINUTES:** Impressive, most impressive.
- 30 SECONDS - 1 MINUTE:** Dang! Incredible! Hear that? That's me clapping for you, and if by chance you do hear me clapping, please know your hearing rivals your maze-solving skills.
- 0-30 SECONDS:** YOU ARE A MAZE-NGI! The MazeMaster, (assuming you didn't cheat and jump a wall or two, or seven) You crushed this thing big time, I mean like "pack the bags and get the kids we are going DisneyWorld" big time. Take tomorrow off, call the boss and tell 'em you just destroyed the VAST Groomer Maze in less than half a minute, he'll understand, and maybe give you a raise or promotion.