

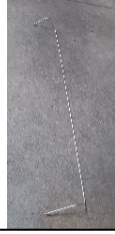



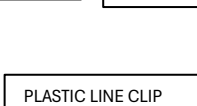
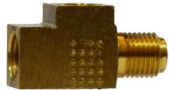

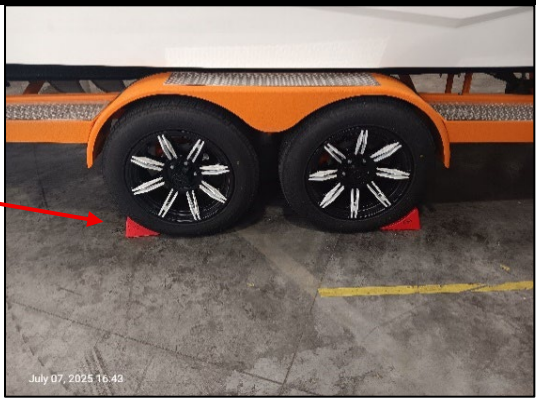


TOOLS	
DRILL + #29 DRILL BIT	BRAKE FLUID - DOT 3
DRILL BIT TO ASSIST SELF TAP SCREWS	FUNNEL
SELF TAPPING SCREWS	RAGS
SOCKET FOR SELP TAP SCREWS	CATCH CAN
(2) 5/8" WRENCHES	WHEEL CHOCKS
(2) 9/16" WRENCHES	
(1) 3/8" WRENCH AND (1) 1/2" WRENCH	
HAMMER	
SCREW DRIVER - FLAT	

PARTS	
 BOLT ON BRAKE TAB	 SELF TAPPING SCREW
 3/16" BRAKE LINE	 18" BRAKE HOSE
 GALV. CLIP	 METAL LINE CLIP
 PLASTIC LINE CLIP	 1 MALE 2 FEMALE BRASS FITTING
	 3 FEMALE BRASS FITTING

**STEP #1**

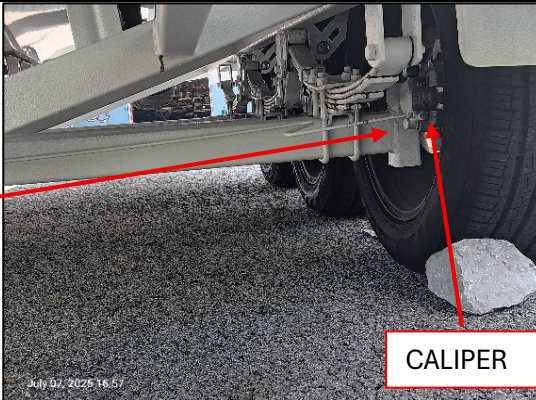
CHOCK THE WHEELS TO MAKE SURE THE TRAILER IS SAFE TO BE UNDER.



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**STEP #2**

USE 3/8" WRENCH TO LOOSEN AND REMOVE THE BRAKE LINE FROM THE CALIPER FITTING. USE CATCH CAN TO CATCH ANY BRAKE FLUID THAT MAY LEAK OUT.

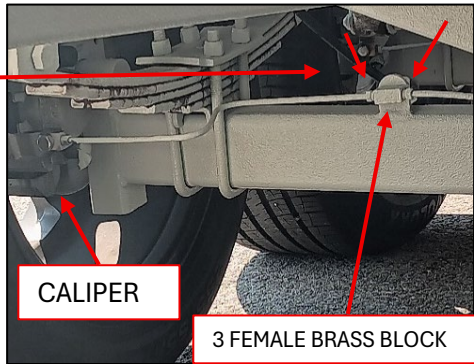


CALIPER

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**STEP #3**

USE 1/2" WRENCH TO HOLD BRASS BLOCK, THEN LOOSEN AND REMOVE THE BRAKE LINES USING 3/8" WRENCH.



CALIPER

3 FEMALE BRASS BLOCK

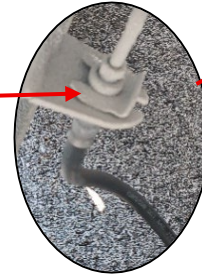
STEP #4

USE DRILL WITH #29 DRILL BIT TO DRILL THRU POP RIVET. REMOVE BRAKE LINE.



STEP #5

ON THE PORT SIDE USE HAMMER AND FLAT HEAD SCREWDRIVER TO REMOVE THE GALV. CLIP. USE 3/8" WRENCH AND 5/8" WRENCH TO LOOSEN THE CONNECTION BETWEEN METAL BRAKE LINE AND RUBBER HOSE. **LOOSEN BUT DO NOT REMOVE THE HOSE.** REMEMBER TO RETIGHTEN AND ADD THE CLIP WHEN FINISHED.



REMOVE GALV. CLIP, THEN LOOSEN CONNECTION BETWEEN THE RUBBER HOSE AND BRASS BLOCK USING 1/2" AND 5/8" WRENCH. REMOVE THE 3-FEMALE BRASS BLOCK.

STEP #6

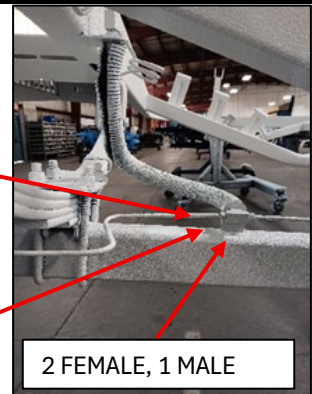
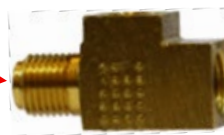


3 FEMALE BRASS BLOCK

REPLACE THE 3-FEMALE BRASS BLOCK WITH A 2-FEMALE 1-MALE BRASS BLOCK.

STEP #7

TURN THE MALE END TOWARDS THE OUTSIDE OF THE TRAILER



2 FEMALE, 1 MALE

STEP #8

SCREW THE MALE END OF THE RUBBER HOSE INTO THE FITTING ON THE CALIPER. SCREW THE 2-FEMALE 1-MALE BLOCK ON THE END OF THE HOSE. SCREW THE VERTICAL HOSE COMING FROM THE FRAME THRU THE BRACKET INTO THE 2-FEMALE 1-MALE BLOCK. THE HOSE SHOULD SPIN SO IT CAN BE TIGHTENED. **RE-TIGHTEN THE CONNECTION LOOSED IN STEP 5.**

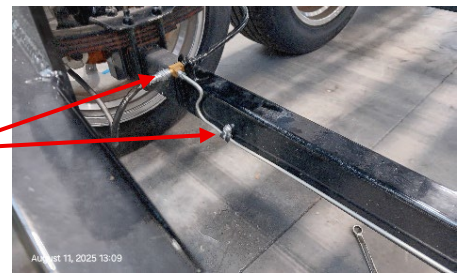


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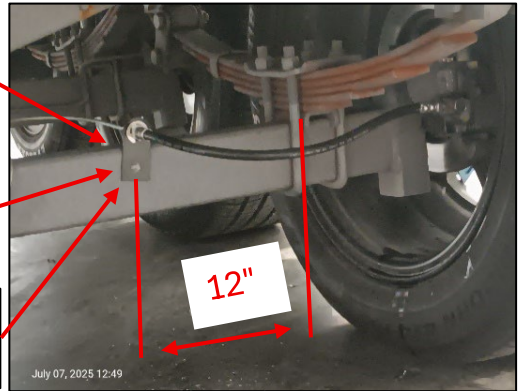
STEP #9



INSTALL THE METAL BRAKE LINE INTO THE BRASS BLOCK. LOOP TO TAKE OUT ANY SLACK IN THE BRAKE LINE IN A SMOOTH LARGE RADIUS. BE SURE NOT TO KINK OR CRIMP THE LINE. DRILL PILOT HOLE WITH #29 DRILL BIT AND INSTALL METAL CLIP WITH SELF TAPPING SCREW ADD SILICONE OR SEALANT TO THREADS.



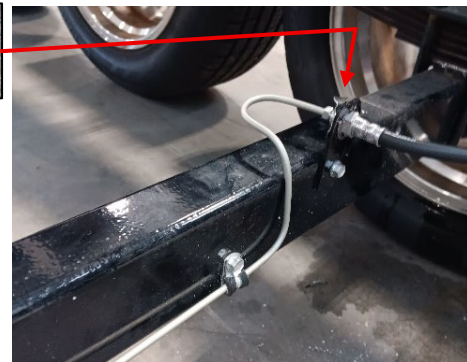
ON THE STARBOARD SIDE, MEASURE 12" FROM THE SPRINGS TO DETERMINE WHERE BOLT THE CENTER OF THE BRAKE TAB. PRE-DRILL A HOLE, THEN ATTACH BRACKET TO AXLE WITH SELF-TAPPING SCREW WITH SILICONE ON THE THREADS. INSTALL THE MALE END OF THE HOSE INTO THE CALIPER AND TIGHTEN WITH 5/8" WRENCH.



STEP #10

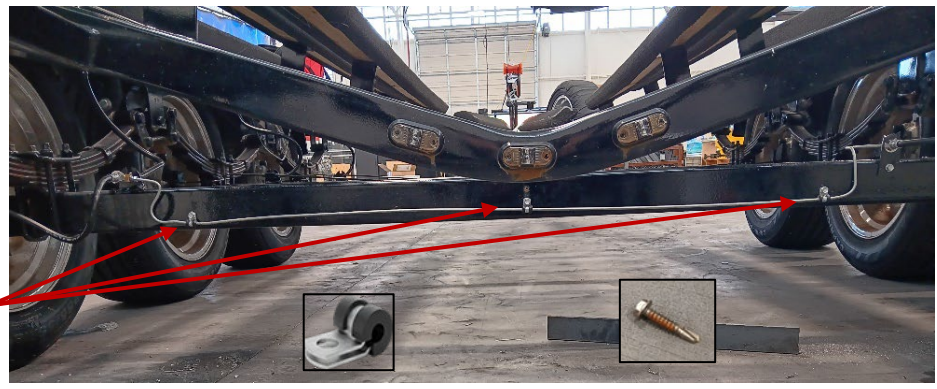
STEP #11

INSTALL THE METAL BRAKE LINE, LOOPING IT AS SHOWN. BE SURE NOT TO KINK IT. ROUTE THE FEMALE END OF THE RUBBER HOSE THRU THE BRACKET AND INSTALL THE GALV. CLIP ON THE METAL BRAKE LINE SIDE WITH THE TOP OF THE FLANGE FACING FORWARD. SCREW THE HOSE AND LINE TOGETHER WITH 3/8" AND 5/8" WRENCHES.



STEP #12

DRILL PILOT HOLE WITH #29 DRILL BIT AND INSTALL METAL CLIPS WITH SELF-TAPPING SCREWS WITH SILICONE ON THE THREADS. PLACE CLIPS AS SHOWN. REPEAT FOR REMAINING AXLES.



STEP #13

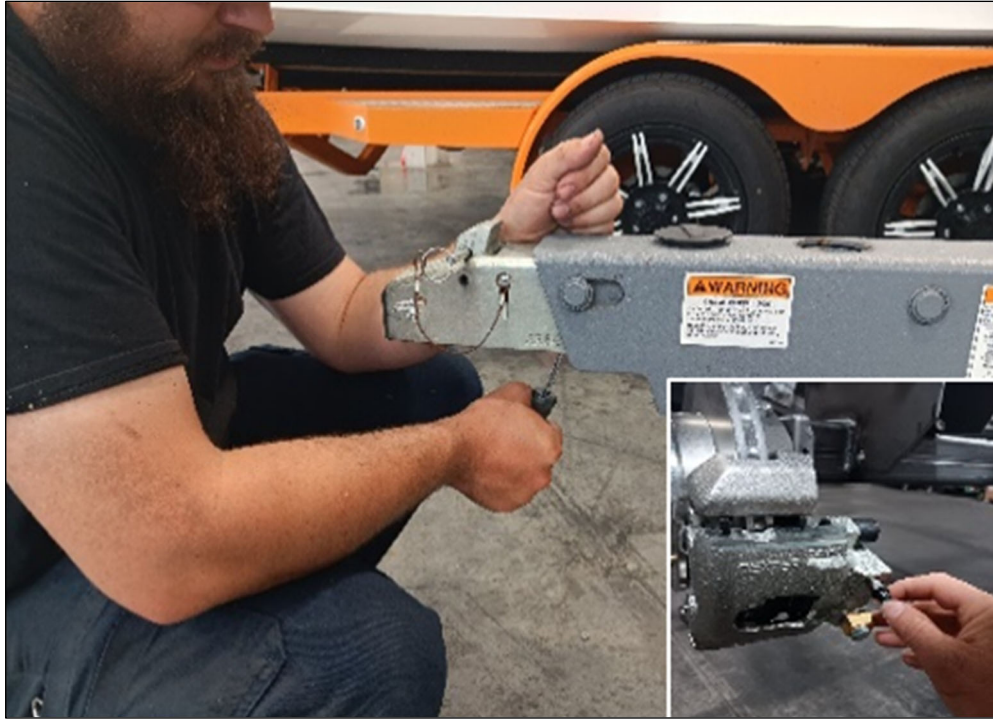
ONCE ALL THE LINES AND HOSES HAVE BEEN CHANGED AND TIGHTENED **ON ALL THE AXLES**, IT IS TIME TO BLEED THE BRAKES. SEE INSTRUCTIONS ON FOLLOWING PAGES.

## WORK INSTRUCTIONS: MANUAL BLEEDING OF THE BRAKE SYSTEM

1. Remove the reservoir plug and fill the reservoir with brake fluid. Use DOT 3 automotive brake fluid. Follow instructions on brake fluid container. Avoid shaking brake fluid container and pour fluid slowly to minimize air entrapment. Let fluid in reservoir stand until completely free of air bubbles. *If the reservoir runs dry, the bleeding process will need to start over because it may have drawn air into the braking system. Also, be extra careful to keep the brake fluid from getting on the paint; if it does, immediately clean with soap and water.*
2. IMPORTANT: Before bleeding brake lines, bleed the main cylinder. Insert screwdriver through hole in bottom of inner member and use short pumps to pry on plunger (while holding safety release bracket up) until no air bubbles are seen coming from small hole in the bottom of the main cylinder reservoir.



3. Start bleeding procedure on the brake furthest from main actuator (rear starboard).
4. At the rear starboard brake caliper, connect a transparent bleeder hose to bleed screw fitting on wheel cylinder and submerge free end into catch can partially filled with brake fluid. Do not reuse this fluid.
5. The first person pumps the plunger slowly while holding safety release bracket up. The second person opens the bleed screw fitting, then closes the bleed screw fitting BEFORE the first person SLOWLY releases the plunger. Repeat this procedure until the fluid expelled from the bleeder hose is free of air bubbles. Remember to always tighten the bleeder screw before releasing plunger. During this procedure, the reservoir fluid level must be maintained at no less than 1/2 full.



6. Repeat steps 4 and 5 for opposite side caliper, then move on to next axle up.
7. Bleed all calipers again, repeating Steps 3–6, to ensure all air is purged from the system.
8. As a final check after bleeding is completed, pump the plunger and verify pressurization of the brake system by attempting to rotate a tire.
9. Push up on the safety release bracket to ensure that plunger is in released position.
10. After bleeding has been completed, re-check fluid level in main cylinder. Fill the master cylinder reservoir up to indicator on reservoir plug. Do not overfill.

STEP 1

# Work Instructions - Bleeding Brake System w/ Portable Hand Bleeder

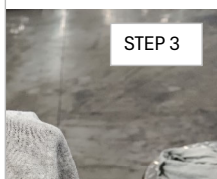
**BE CAREFUL WITH BRAKE FLUID IT IS CORROSIVE TO PAINT AND SLIPPERY WHEN ON CONCRETE. MAKE EVERY EFFORT TO BE SAFE.**

STEP 2

**REMOVE THE OUTER CAP TO GAIN ACCESS TO THE ACTUATOR RESERVOIR**

TO PROTECT THE PAINT, TAKE AN OLD PIECE OF CLOTH AND CUT A 2" HOLE IN THE

STEP 3



CENTER



PRY THE RUBBER CAP LOOSE WITH A FLAT HEAD SCREW DRIVER. THEN REMOVE THE CAP.



PLACE THE CLOTH ON THE ACTUATOR AROUND THE OPENING



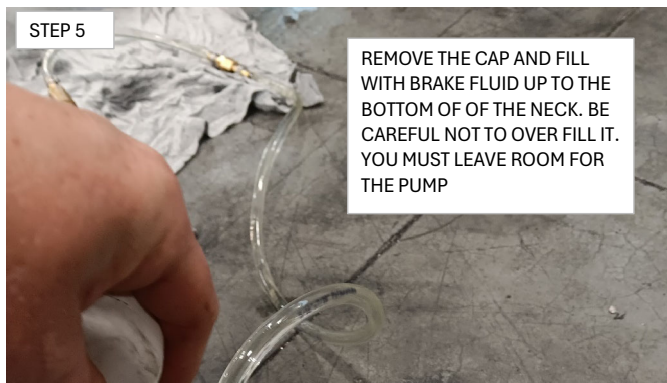
STEP 4

REMOVE THE PORTABLE HAND BLEEDER FROM THE BOX.



STEP 5

REMOVE THE CAP AND FILL WITH BRAKE FLUID UP TO THE BOTTOM OF OF THE NECK. BE CAREFUL NOT TO OVER FILL IT. YOU MUST LEAVE ROOM FOR THE PUMP





MAX FILL LINE

August 08, 2025 08:26



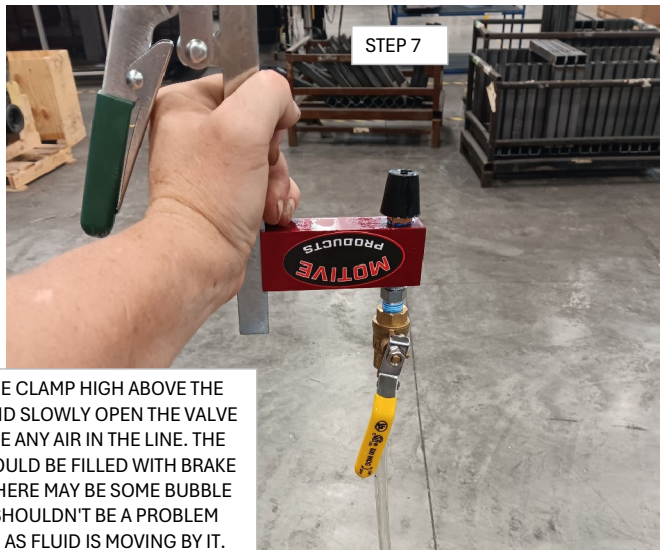
STEP 6

August 08, 2025 08:20



INSTALL THE PUMP. TIGHTEN THE CAP. USE THE HANDLE AND PUMP IT UNTIL THE GAUGE SHOWS A MINIMUM OF 15PSI FOR TANDEM AND 25PSI FOR TRIPLE AXLE

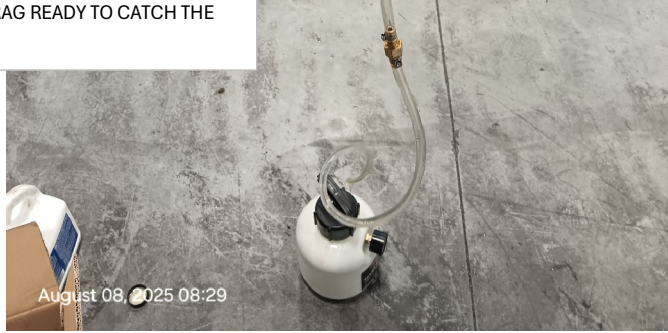
August 08, 2025 08:20



STEP 7

HOLD THE CLAMP HIGH ABOVE THE PUMP AND SLOWLY OPEN THE VALVE TO PURGE ANY AIR IN THE LINE. THE LINE SHOULD BE FILLED WITH BRAKE FLUID. THERE MAY BE SOME BUBBLE WHICH SHOULDN'T BE A PROBLEM AS LONG AS FLUID IS MOVING BY IT.

HAVE A RAG READY TO CATCH THE FLUID.



STEP 8



PLACE THE RUBBER TIP IN THE RESEVOIR ACCESS HOLE.

STEP 9

THE CLAMP WILL NEED TO BE ADJUSTED TO FIT THE ACTUATOR BEING BLED. SEE THE HOLE LOCATION FOR XR-84 (8400 X 2" BALL) ACTUATOR



August 11, 2025 07:31

STEP 10

THIS LOCATION FITS THE A160 16K 2-5/16" ACTUATOR

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STEP 11

MAKE SURE THE HOSE DOESN'T PINCH CLOSE

ONCE THE CLAMP HAS BEEN ADJUSTED USE THE SCREW AT THE BOTTOM FOR FINAL ADJUSTMENT. THE CLAMP DOESN'T NEED TO BE EXTREMELY TIGHT.

August 08, 2025 08:18

STEP 12

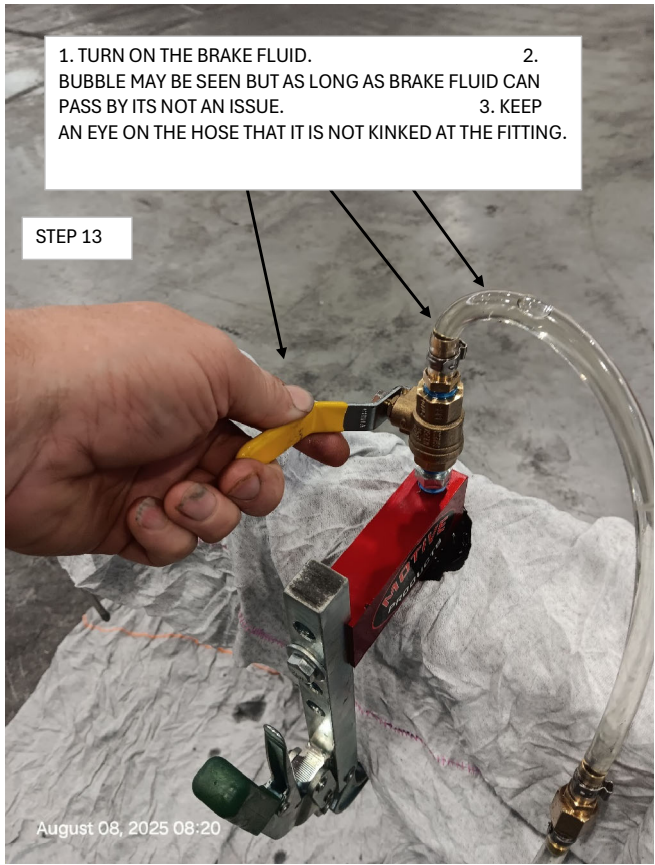
ONCE THE BOTTOM SCREW HAD BEEN ADJUSTED, THE CLAMP IS READY TO BE INSTALLED. BE CAREFUL NOT TO OVER TIGHTEN OR IT MAY PUSH THE RESERVIOR SEAL INTO THE RESERVIOR



August 08, 2025 03:19

1. TURN ON THE BRAKE FLUID.
2. BUBBLE MAY BE SEEN BUT AS LONG AS BRAKE FLUID CAN PASS BY ITS NOT AN ISSUE.
3. KEEP AN EYE ON THE HOSE THAT IT IS NOT KINKED AT THE FITTING.

STEP 13



August 08, 2025 08:20

STEP 14





**BLEED THE BRAKE SYSTEM:**

THE BLEEDER ON THE CALIPER THATS THE FARTHEST AWAY FROM THE ACTUATOR. BE SURE TO CATCH THE FLUID, A FUNNEL MAY BE NEEDED.  
COME OUT IN THE TIME IT TAKES TO SAY A SLOW 10 COUNT.  
OUT OF THE BLEEDER START THE 10 COUNT OVER AGAIN.  
STARTING WITH THE NEXT FARTHEST AWAY FROM THE ACTUATOR

1. OPEN
2. ALLOW FLUID TO
3. IF AIR BUBBLES COME
4. DO THIS TO EACH CALIPER

STEP 15

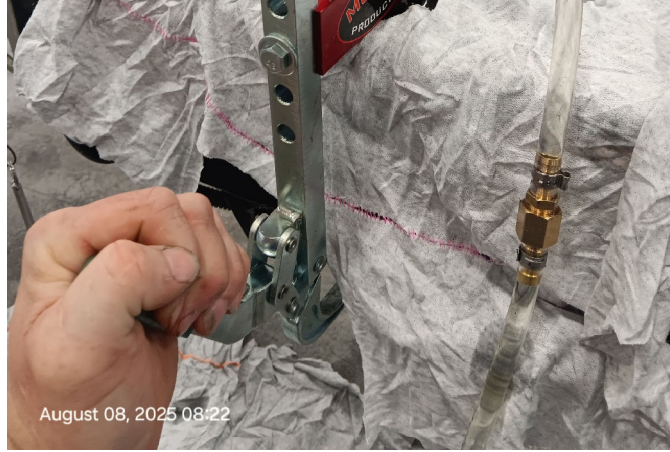


ONCE ALL THE CALIPERS HAVE BEEN BLED. TURN OFF VALVE.

STEP 16



RELEASE THE CLAMP



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**STEP 17**

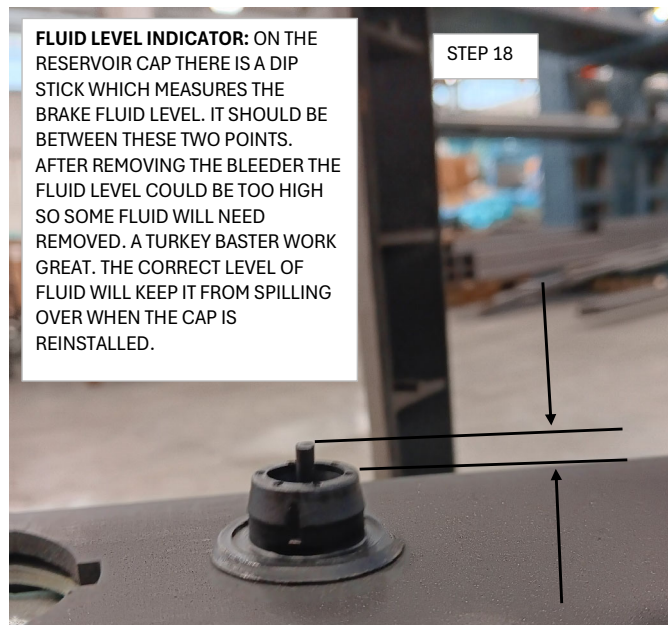
REMOVE THE CLAMP. TAKE YOUR TIME REMOVING IT AND BE CAREFUL BRAKE FLUID WILL DRIP FROM THE NOZZLE.



August 08, 2025 08:23

**FLUID LEVEL INDICATOR:** ON THE RESERVOIR CAP THERE IS A DIP STICK WHICH MEASURES THE BRAKE FLUID LEVEL. IT SHOULD BE BETWEEN THESE TWO POINTS. AFTER REMOVING THE BLEEDER THE FLUID LEVEL COULD BE TOO HIGH SO SOME FLUID WILL NEED REMOVED. A TURKEY BASTER WORK GREAT. THE CORRECT LEVEL OF FLUID WILL KEEP IT FROM SPILLING OVER WHEN THE CAP IS REINSTALLED.

**STEP 18**



August 11, 2025 07:25

CONFIRM THE RESERVOIR IS NOT OVER FULL BEFORE ADDING THE RUBBER CAP.

STEP 19

August 08, 2025 08:16

CLEAN ANY BRAKE FLUID WITH WATER AS SOON AS POSSIBLE.

STEP 20

August 08, 2025 08:23

