



## PRESS MAINTENANCE TIP-1

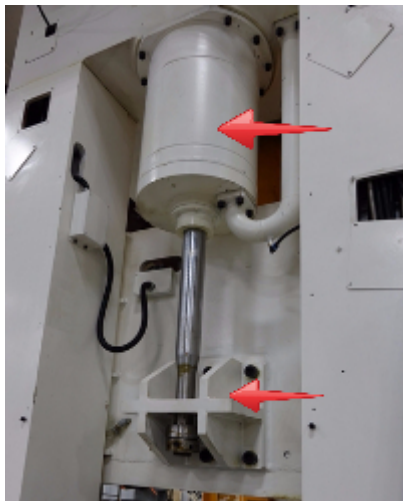
### ACB / AIR COUNTER BALANCE 101

#### **PASS THIS ON TO YOUR MAINTENANCE TEAMS YOUR PRESSES & CFO WILL BE GLAD YOU DID**

One of the most common areas overlooked on stamping presses is the proper pressure setting of the [ACB / Air Counter Balance System](#). The effects are staggering, worn connection points, bushings, ball seats, suspension points, thread damage in slide adjustment, gear wear and what turns out to be excess play in the press drive train.

[Air Counter Balance Cylinders](#) (1 of 2 on a 440 ton press shown below) are designed to pull up / equalize the upper die weight and the weight of the slide and all of the stack up clearances in the connection points mentioned above and shown below.

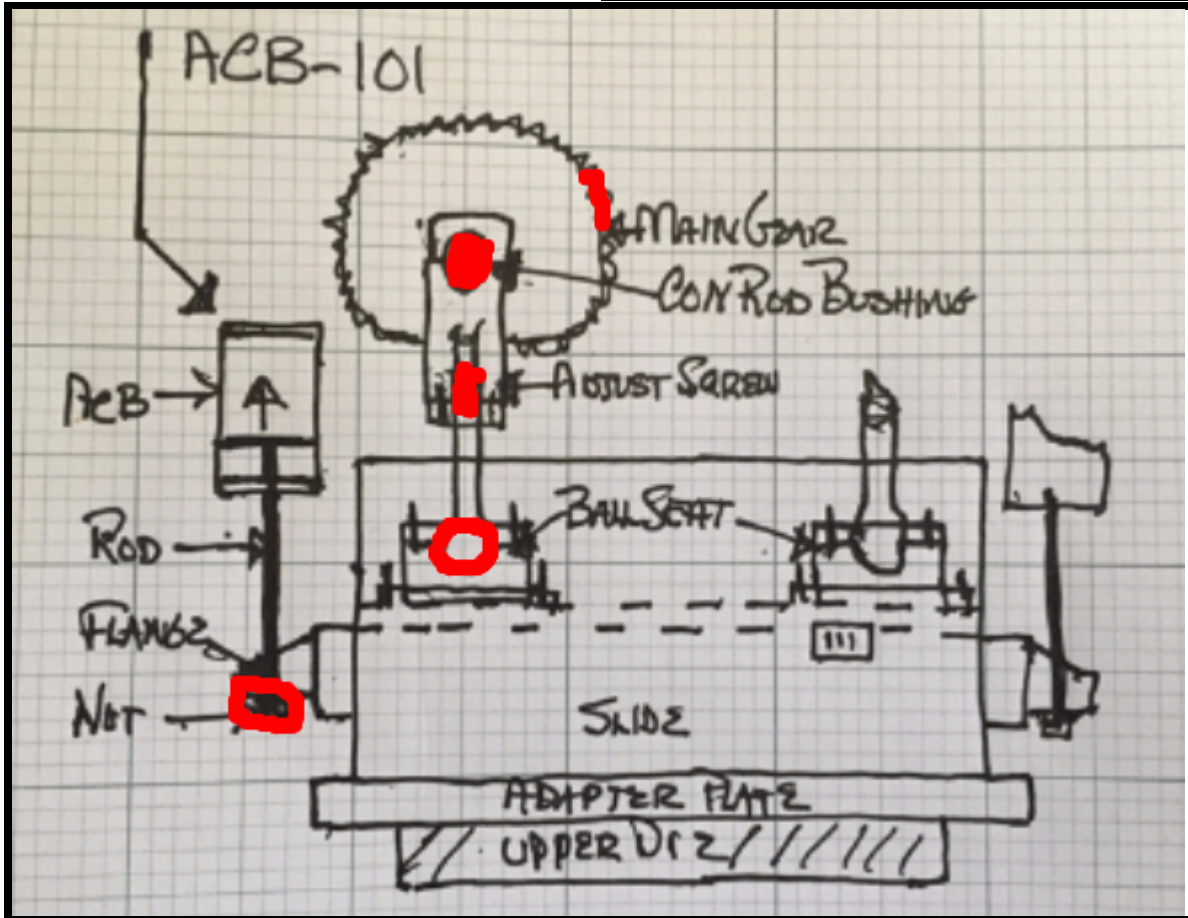
Consideration must be given to static weight (slide not cycling) and dynamic weight (slide in motion). The air pressure setting will need to be increased as SPM / Strokes per Minute is increased.



Top Section is the pressurized [ACB cylinder](#) with air inlet at bottom to push slide connections "up".

Lower Section is the piston rod that connects to slide for secure connection. Important to check all connections, especially if your press is exposed to damaging reverse / snap thru tonnage.

In sketch (below), items marked in "red" are connection points stack up clearance in the press drive train.

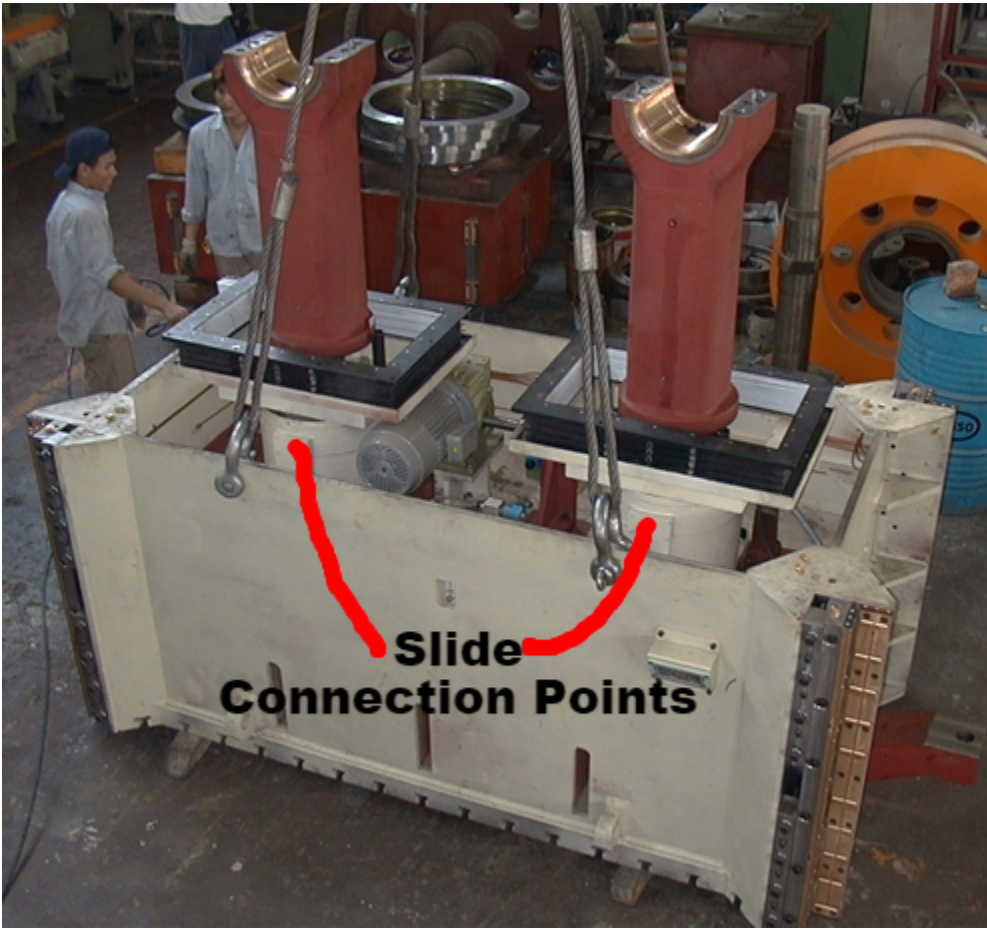


Die Sets (shown below) should be marked with metal id plates that show total die weight and upper die weight. This will give your set up teams a good starting point on proper air pressure setting for counter balance system. It is recommended to use an ["amp meter"](#) that monitors amp draw on your main motor to fine tune proper pressure settings. By adjusting ACB pressure to a point where the amp meter has minimal fluctuation is normally the optimum setting. Too much pressure and amp meter will go "up" on the down stroke, Not enough pressure and amp meter will go "up" on the up stroke.



It is critical to know how much total stack up clearance you have in your press as a benchmark to monitor press wear and the need for proper ACB settings. The 330 ton slide / press (below) when new had a total stack up clearance of .027" as shown in our JIS Inspection documents that come with each machine. After 14 years of run time and improper [ACB settings](#) the stack up clearance had increased to .110" on the right side and .090" on the left side. This unbalanced wear can cause the slide to come out of level which will contribute to faster die wear.

We encourage all of our clients to have us come in annually for [PMP / Preventative Maintenance Program](#) to inspect, document and adjust where needed. Our extensive PMP programs are the lowest cost insurance to keep your press in optimum running condition. We go where most maintenance departments don't bother to inspect. CALL +1-310-453-6981





No matter if your press is new or old, you cannot afford to run your press with improper settings. The old adage of "Penny Wise ~ Pound Foolish" applies to die set up and ACB Settings.

We can come in and perform our PMP and at the same time train or retrain your team on best press practices.

The [HDP-121 ton two point small straight side](#) (left) is a good example of how a press should be cared for.

This is one of five that are equipped with our [I-PRESS AB PLUS](#) press and automation control. If you would like to upgrade your controls, this is a great option. CALL +1-310-453-6981

**MAINTENANCE SCHEDULE / GOOD HOUSEKEEPING**

**ONLY PERFORMED BY AUTHORIZED MAINTENANCE TEAM / LOCK OUT - TAG OUT**

**EVERY DAY**

- 1) PRIOR TO STARTING PRESS DO A COMPLETE WALK AROUND INSPECTION, LOOK & LISTEN.
- 2) NO OBSTRUCTIONS IN DIE AREA.
- 3) AREA AROUND PRESS IS CLEAN.
- 4) GUARDS IN PLACE WITH PROPER FUNCTION.
- 5) ALL ELECTRICAL PANELS ARE CLOSED / LOCKED.
- 6) NO AIR LEAKS.
- 7) NO OIL LEAKS.
- 8) NO UNUSUAL ELECTRICAL NOISES.
- 9) AUTO GREASE TANK LEVEL IS CORRECT.
- 10) ACB OIL TANK IS FULL.
- 11) ACB PRESSURE SET UP FOR UPPER DIE WEIGHT.
- 12) TURN SPEED TO MINIMUM BEFORE STARTING MAIN MOTOR.
- 13) PRESS START UP AND CONTROL TEST:
  - INCH MODE
  - SINGLE STROKE MODE
  - CONTINUOUS MODE
  - RAM STOP
  - TOP STOP
  - EMERGENCY STOP
- 14) MAKE SURE SLIDE STOPS AT OR NEAR TDC IN INCH AND SINGLE STROKE MODE.

**WEEKLY**

- 1) SAME AS EVERYDAY.
- 2) INSPECT AIR LINE LUBRICATOR NEAR DSV VALVE AND CLUTCH AND FILL AS NEEDED (SEE LUBE CHART FOR OIL TYPE).
- 3) DRAIN AIR TANKS OF ANY MOISTURE AND EMPTY COLLECTION TRAY.
- 4) CHECK INLINE AIR FILTER AND DRAIN AS NEEDED.
- 5) RELEASE HOLP / HYDRAULIC OVERLOAD AND RE-PRESURIZE (SEE HOLP INSTRUCTIONS).

**MONTHLY**

- 1) SAME AS EVERYDAY.
- 2) SAME AS WEEKLY.
- 3) RUN SLIDE ADJUST TO UPPER AND LOWER LIMITS AND BE SURE LIMIT SWITCHES PREVENT OVER TRAVEL AS STAMPED ON INDICATOR. **DO NOT RUN SLIDE ADJUST MOTOR WHEN DIES ARE COMPRESSED AS THIS WILL DAMAGE THE SLIDE ADJUST SYSTEM AND TRIP THE THERMAL OVERLOAD FOR SLIDE ADJUST MOTOR.**
- 4) CHECK ALL AIR HOSES TO CLUTCH & BRAKE AND COUNTER BALANCE CYLINDERS.
- 5) CHECK UPPER LUBRICATION AND DISTRIBUTOR BLOCKS ARE IN NO LEAK CONDITION.

**IF YOU WOULD LIKE ANNUAL PREVENTATIVE MAINTENANCE PROGRAMS CALL SUTHERLAND 310-453-6981**

**EVERY 6 MONTHS**

- 1) CHECK AND TIGHTEN INTERNAL SLIDE BOLTS.
- 2) CHECK AND TIGHTEN CON ROD BOLTS.
- 3) ADD OIL TO CONNECTING ROD THREAD THROUGH WEEP HOLE IN FRONT OF CASTING (SAME OIL AS MAIN MAIN TANK).
- 4) CLEAN OUT INTERIOR OF SLIDE.
- 5) CHECK SLIDE GIB AND CRANK BUSHING DISTRIBUTOR BLOCK BEHIND SLIDE AND MAKE SURE IN NO LEAK CONDITION.

**EVERY 12 MONTHS**

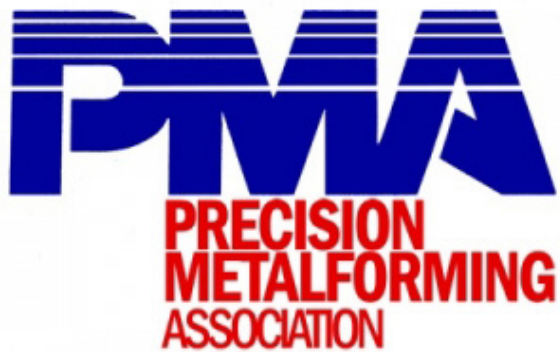
- 1) CHECK PARALLELISM OF SLIDE TO BOLSTER AT 90-18-270 DEGREES.
- 2) CHECK SLIDE GIBS FOR CLEARANCE AND ANY SIGN OF WEAR.
- 3) JACK UP OF OVERALL STACK CLEARANCE TO BE COMPARED TO JIS ST CLASS INSPECTION DOCUMENT FROM WHEN PRESS WAS NEW.
- 4) CHECK FLYWHEEL BELT TENSION.
- 5) CONFIRM CODER MOUNT IS SECURE.
- 6) CONFIRM OVERRUN SENSOR AND MECHANICAL CAM IN ENCODER HOUSING IS SECURE.
- 7) CONFIRM ENCODER BELT, PULLIES AND KEYWAYS ARE SECURE.
- 8) LUBRICATE FLYWHEEL BEARING (SEE LUBE INSTR)
- 9) CLEAN PRESS INSIDE AND OUT.
- 10) CHECK ALL BOLTS AND CAP SCREWS AND MAKE SURE EVERYTHING IS SECURE.



If you need service, maintenance, equipment or financing, call on [Team Sutherland](#) to assist in the solution. 2016 represents our 70th year in the metal forming business and we have the talent and resources to contribute to problem solving and increased up-time. CALL +1-310-453-6981

If you found TIP-1 / ACB Air Counter Balance helpful and would like to receive more maintenance tips, shoot our technical analyst [Sam@SutherlandPresses.com](mailto:Sam@SutherlandPresses.com) an e-mail and we will keep them coming.

**PRESS ON...**



About Sutherland Presses

Sutherland Small Press Factory