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The Accu-Balance Converter Balancer

Operator's Manual

Part #850000-2 P1W2

220 Volt
Single Phase
2 Wire

Read Page 2 for unpacking, tooling removal and wiring!

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Uncrating and Installation

Remove the screws at the bottom of the crate marked with black rings.

Lift off the four sides of the crate as an assembly. Save crate.

Remove the front panel and left side panel of the machine.

Remove the box with the tooling from the inside of the machine frame and the bubble wrapped package, located at the rear of the machine. This contains the O-Ring and Weight Kit, packing slip and wiring diagrams. Remove the hex head lag bolts at each of the four legs, holding the balancer to the crate bottom. Remove the balancer from the crate bottom and set in desired location.

Using the leveling screws in the bottom of each leg, stabilize the machine. Tighten lock nuts. Level the machine if desired, but no movement is allowable. Check corner to corner & front to back to be sure the machine is rigid.

NOTE: It is advisable to “Sakrete” each leg to the floor to insure a stable, lasting installation.

Check to make sure the bottom of the motor is clear. (i.e. no wires preventing the fan from turning.)

Remove the two screws with a 5/32 Allen wrench at the base of the inverted control panel and mast. Raise the control panel and mast assembly, checking closely not to trap any wires under the base of the control mast. Reinstall the two screws and tighten.

Check the enclosed wiring diagram and supply the proper voltage and phasing to the machine. If the control does not come on when power is supplied, twist or pull the Stop switch located on the right side panel of the machine. This will release the Stop switch. This machine is built for 220V, 1Ø, 2 wire.

After the power is turned on, in order to check for clockwise rotation, in the left number touchpanel section, you must clear and enter 1-0-0 to read 10.0 in the left and center displays. Also clear and enter 1-2-5 to read 12.5 in the right display. Push the mode button, 6 times, until the balancing mode light (located to the left of the start button) comes on.

Press the Start button on the control panel. **The plate must rotate clockwise.** If the plate rotation is counterclockwise, change phasing to the motor at terminal positions #17 and #18, by reversing #26 white wire and #27 red wire. Changing the incoming phasing WILL NOT change rotation of the motor.

Install the air filter on the top of the lower inside frame. Check to be sure both the fan at the bottom of the motor and the fan mounted to the rear side panel are running.

Replace the front side panel and left side panel.

Installation is now complete. Check the tooling received against the enclosed packing list.

Proceed to next page for proper calibration.

Calibration Instructions

TO CALIBRATE THE BALANCER:

1. Turn the machine on.
    - A. All zeros displayed
    - B. Left Window:
        1. Push grey pad to clear and enter 100.
        2. Repeat for center display.
        3. Both will read 10.0.
        4. Right window push “clear”. Enter 1 2 5. Will read 12.5.

2. Push and hold shift while entering 1.
    - A. “CAL” will appear in the left window.
    - B. Zero in right window.

3. Push start button. Faceplate will rotate at 2 different speeds and stop.
    - A. Right display reads 100.
    - B. Rotate the faceplate slowly until the red line @100 centers and is flashing.

4. Clean the O.D. of the faceplate at the arrow on tabletop. The 100 gram weight must also be clean and you may have to use some double stick tape to hold it to the faceplate.
    - A. Install the 100 gram weight to the O.D. of the faceplate. Insure center of weight is centered on the arrow center line with the light line @100 flashing. Reposition the weight as required to get it centered on the line with the light flashing.

5. Push “start” button.
    - A. Faceplate will rotate 2 speeds and stop.
    - B. Rotate the faceplate slowly until the long red line @ 100 on the right display is flashing.
        1. The 100 gram weight must be at the back of the machine 180° from the arrow, centered on the dot in machine top.

6. Calibration is complete.
    - A. Remove 100 gram weight.
    - B. Push “mode” switch 6 times until the balancer mode light is lit.
    - C. Spin again. Left display will read zero.
    - D. Begin balancing converters.

7. The “normal” balance mode will read only if the imbalance is over 10 grams and to the nearest 5 grams - best for production balancing.

8. For readings to 1 gram:
    - A. Press “shift” and then 6 to turn off the “round off” feature.

9. Calibration is only required
    - A. On installation.
    - B. If machine is moved.
    - C. If a problem occurs.

10. Normal start up is
    - A. Enter 10.0’s.
    - B. Enter converter diameter.
    - C. Mode switch 6 times to balance light lit.

Operating Instructions

In the center of balancing plate, insert the correct bushing for the converter to be balanced. Refer to page 5 for proper part numbers.

Place the converter to be balanced on the balancing plate.

Insert the correct shaft and hub adapter assembly for the converter to be balanced in the hub of the converter. This shaft centers components inside the converter.

Turn the power ON by twisting or pulling the stop switch.

Each time the power is turned on you must reset values in the numbered touchpanel area on the left side. You must clear and enter 1-0-0 to read 10.0 in the left and center displays. These two display areas must always read 10.0 for balancing or calibrating. Clear and enter the actual converter diameter to be balanced in the right display. Example: a 298 converter must be 13.0 diameter.

Also, push the mode switch, 6 times, until the balancing mode light, located to the left of the start button, comes on. A zero will be in the left side of the display for amount, three dashes - - - will be in the right side, which is only used for calibration. Verify that the gram light, located above the balancing mode light, is on. If not, push and hold shift while pushing #9, which reads ounce/gram in the balck area above #9. The light for the word gram will come on.

NOTE: if the gram light is on when the power is turned off, it will be on the next time power is turned on.

NOTE: The balancer has two modes:
1.) Round Off - Unit will read 10 grams at 8 grams of imbalance and to the nearest 5 gram increment above 8 grams. This mode should be used for converter balancing.

2.) Fine Mode - Push and hold shift and push #6 to remove round off. Unit will read to 1 gram for clutch and turbine balancing. Push and hold the shift button and push #6 again to return to round off mode for converter balancing.

Push the start button.

When the machine stops there will be several red lights lit on the control panel. Turn the balancing plate by hand until you have only the 2 longer red lights in the center blinking side by side.

Once the 2 red lights are blinking, note the number in the left weight amount area of the control panel. This is the amount of weight to be added to the converter to balance it. Verify by adding magnetic weight of the same value and spin again to verify balance is zero.

At the arrow marked on the balancer top, mark the amount of weight required to balance the converter. Remove the converter to weld on the weight.

NOTE: DO NOT WELD THE CONVERTER ON THE BALANCER!

Balancer Tooling Sets

Proper tooling is extremely important to locate the converter's internal parts exactly on center to the hub's outer diameter and to position the internal parts in a given relationship to the outer shell.

The following tooling comes complete with your Accu-Balance Converter Balancer. The part number shown is the part number to use for reorder.

3 - 919059 STORAGE BOXES FOR TOOLING SHAFTS

1.500 HUB - CHRYSLER
1 - 851240 HUB ADAPTER WITH O-RINGS
1 - 852130 904 L/U 26 SPLINE SHAFT
1 - 852140 904 27 SPLINE SHAFT
1 - 852150 404 L/U 22 SPLINE SHAFT
1 - 852160 404 23 SPLINE SHAFT

1.610 HUB - FORD
1 - 851250 HUB ADAPTER WITH O-RINGS
1 - 852250 A4LD/C3 21 SPLINE SHAFT

1.747 HUB - GM
1 - 851200 HUB ADAPTER, WITH O-RINGS
1 - 852020 298 LATE, 30 SPLINE SHAFT
1 - 852030 298 EARLY, 27 SPLINE SHAFT
1 - 852040 245 RWD, 27 SPLINE SHAFT
1 - 852011 4L60E, 30 SPLINE SHAFT

1.790 HUB - GM 245 MM FWD
1 - 851220 HUB ADAPTER WITH O-RINGS
1 - 852050 27 SPLINE SHAFT

1.875 HUB - GM - CHRYSLER
1 - 851210 HUB ADAPTER WITH O-RINGS
1 - 852000 T-400 30 SPLINE SHAFT
1 - 852010 T-350C 30 SPLINE SHAFT
1 - 852100 727 L/U 23 SPLINE SHAFT
1 - 852110 727/618 24 SPLINE SHAFT

1.997 HUB - FORD
1 - 851260 HUB ADAPTER WITH O-RINGS
1 - 852210 C4 26 SPLINE SHAFT
1 - 852220 C6 31 SPLINE SHAFT
1 - 852230 E4OD 31 SPLINE SHAFT
1 - 852240 AOD/FIOD 35 SPLINE SHAFT

1.998 HUB - GM
1 - 851221 HUB ADAPTER WITH O-RINGS
1 - 852070 4L80E

2.294 HUB - GM, ALLISON
1 - 851230 HUB ADAPTER WITH O-RINGS
1 - 852080 ALLISON 1000 SHAFT

OPTIONAL 1.997 HUB-FORD
1 - 852200 C4 24 SPLINE SHAFT

OPTIONAL 1.875 HUB-CHRYSLER - GM
1 - 852120 727 19 SPLINE SHAFT
1 - 852060 PG 17 SPLINE SHAFT

BUSHINGS
1 - 850410 - C2B
1 - 850410 - C3B
1 - 850410 - F1B
1 - 850410 - F2B
1 - 850410 - F3B
1 - 850410 - F4B
1 - 850410 - G2B
1 - 850410 - G3B

WEIGHT AND O-RING KIT
1 - 919060 STORAGE BOX
1 - 850500 BALANCE WEIGHT - 5 GRAMS
1 - 850510 BALANCE WEIGHT - 10 GRAMS
1 - 850520 BALANCE WEIGHT - 15 GRAMS
1 - 850530 BALANCE WEIGHT - 20 GRAMS
1 - 850540 BALANCE WEIGHT - 25 GRAMS
1 - 850550 BALANCE WEIGHT - 30 GRAMS
1 - 850551 CALIBRATION WEIGHT - 100 GRAMS

6 - 970300 1/8 x 1-1/2" ID O-RINGS
6 - 970310 1/8 x 1-5/8" ID O-RINGS
6 - 970320 1/8 x 1-3/4" ID O-RINGS
6 - 970330 1/8 x 1-7/8" ID O-RINGS
6 - 970340 1/8 x 2" ID O-RINGS
6 - 970342 1/8 x 2-1/4" ID O-RINGS
6 - 970190 .070 x 5/8" OD O-RINGS
2 - 959020 1/2" x 1/2" SHOULDER BOLTS

1 - 850231 220 VOLT / 1 PHASE, 2 WIRE WIRING DIAGRAM

1 - 850340 FUSE AND POWER CONDITIONING WIRING DIAGRAM

1 - 850410C BUSHING CHART

4 - 851020 FORD DRIVE STUD SPACERS

1 - 851100 SHAFT INDEXER

1 - 856000 CHRYSLER 727-904 CLUTCH ADAPTER

1 - 856010 GM 298 CLUTCH ADAPTER, WITH 970340 O-RING, Use #852020 or #852030 shaft

Hennessy Board 950 / 1050 Error Message List

Err Displayed on the parameter displays when an entered parameter is not in the acceptable range

ErrHod Displayed on the weight displays when the start button has been pressed and the hood is up

ErrHub Displayed on the weight displays when the start button has been pressed and the wheel has come loose on the shaft at startup

ErrCal Displayed on the weight displays when an error has occurred somewhere in the calibration process. This can be caused by not putting the calibration weight on for the second spin or having the calibration weight on for both spins. This message will also appear for any other condition which causes the magnitude and phase of the transducer outputs to be equal or nearly so for both spins.

Err 1 Displayed on the weight displays when the faceplate moves slowly when the start button is pressed. This can be caused by a bad motor, bad contactor, incorrect motor / contactor wiring, blown fuse, incorrect power in coming to machine, or a phase is out.

Err 2 Displayed on the weight displays when the time required to get the faceplate and converter up to measuring speed is greater than 26 seconds. This error indicated that the faceplate moved in the correct direction at startup, but simply took too long to get up to speed. This can be caused by a bad motor, or incorrect motor wiring.

Err 3 Displayed on the weight displays when no encoder pulses have been detected after start button is pressed. Faceplate either did not turn or encoder did not read. This can be caused by encoder not be connected to the board, a bad AC motor Controller, a bad motor, incorrect motor / contactor wiring, bad board, or bad encoder.

Err 4 Displayed on the weight displays when the faceplate is turning in the wrong direction, after the start button is pressed. This can be caused by improper wiring, bad encoder, or bad board.

Err 5 Displayed on the weight displays when the time required to get the faceplate and converter to stop from measuring speed is greater than 26 seconds. This can be caused by a bad board or contactor.

Err 6 Displayed on the weight displays when power is not applied to the encoder LED's. This can be caused by incorrect encoder wiring, a bad encoder, or a bad board.

Err 7 Displayed on the weight displays when the time required to set amplifier gain is greater than 2.5 seconds. This can occur if noise gets into the encoder circuit and causes an encoder signal sequencing error.

Err 8 Displayed on the weight displays when the measurement time is greater than 10 seconds. As in error 7, the most likely cause is noise.

Err 9 Displayed on the weight displays when the faceplate speed during gain setting or measurement decreases to less than 40 RPM. This could happen in a cold condition with a faceplate that is very light.

Err 10 Displayed on the weight displays when a sequence error has occurred during A/D arm calibration. The most likely cause is the arm was not rotated to the maximum diameter position at the correct point in the calibration procedure.

Err 11 Displayed on the weight displays when an incorrect "A" parameter was entered during A/D arm calibration.

Err 12 Displayed on the weight displays when an incorrect "D" parameter was entered during A/D arm calibration.

Err 13 Displayed on the weight displays when the "A" potentiometer was not properly adjusted prior to calibration of the A/D arm or the "A" potentiometer is defective.

Err 14 Displayed on the weight displays when the "D" potentiometer was not properly adjusted prior to calibration of the A/D arm or the "D" potentiometer is defective.

Err 15 Displayed on the weight displays when the motor has gone over speed prior to braking. This could be caused by a defective board, AC controller, or encoder