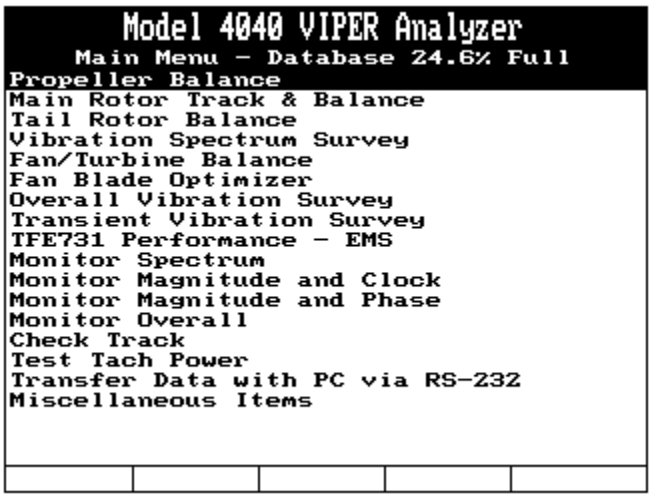
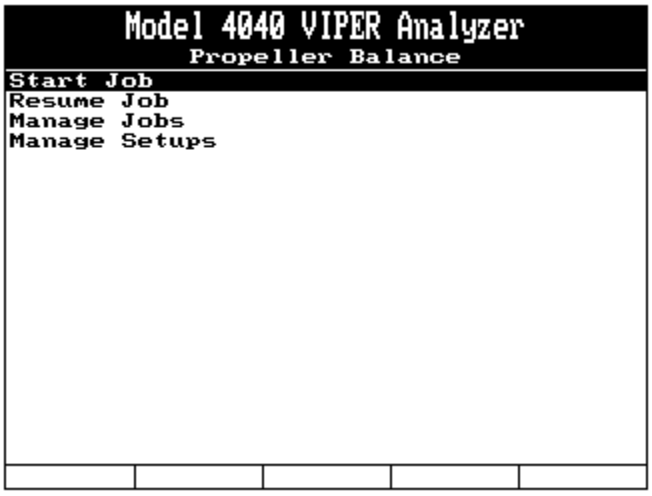
Chapter 4
Propeller Balance

(Revision 1, Aug 2007)

"Propeller Balance" is an analyzer function that is accessed from the analyzer's Main Menu banner screen as shown in the illustration below. Selecting this function from the main menu brings up the "Propeller Balance" banner screen menu (also shown below). Each of the listings on this banner screen menu is an option within the function. Descriptions of each of these options follow, along with the information required to complete the menu screens within the options, and the steps necessary to perform propeller balance function.

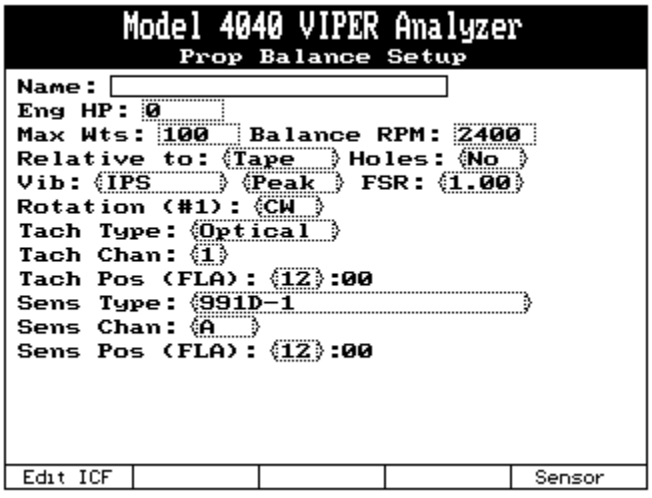




4.1. - Start Job

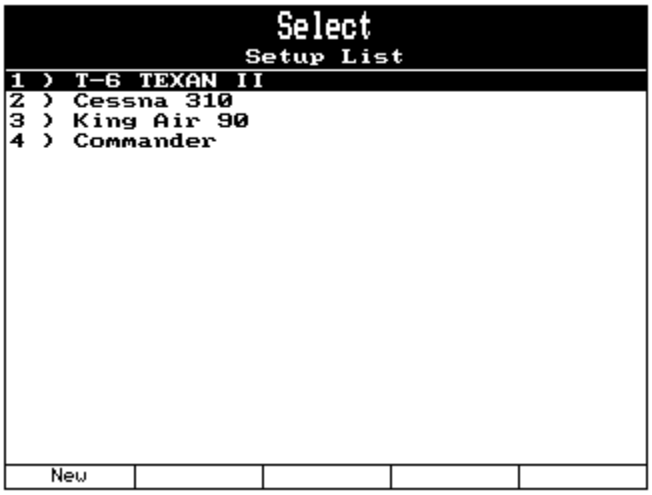
Selecting “Start Job” from the “Propeller Balance” banner screen allows you to begin a new propeller balance job. When you select this option, one of three screens will appear depending on whether you are: 1) Starting a new job with no setups previously defined in the analyzers memory; 2) Starting a new job with previously defined setups available in the analyzers memory; or 3) Resuming an incomplete job being held in the analyzers memory.

If you are *starting a new job with no setups previously defined in the analyzer’s memory*, the screen will automatically display the Prop Balance Setup banner screen shown below. See section 4.1.1. for step-by-step instructions on completing the Prop Balance Setup.

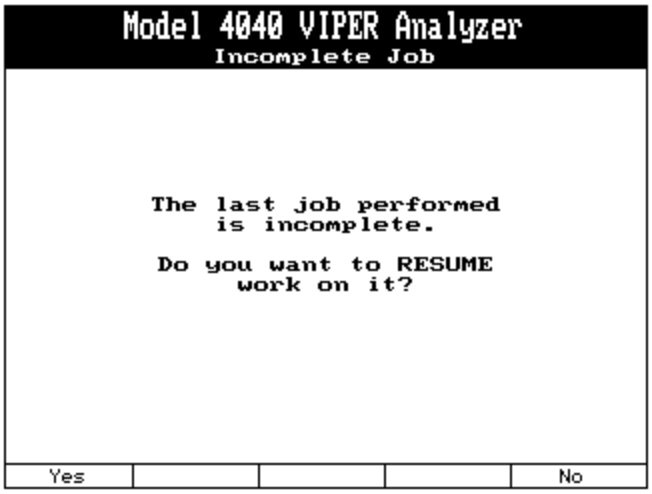


If you are starting a new job with previously defined setups available in the analyzer’s memory, the screen will automatically display the Select Setup List banner screen similar to

the one shown below. The actual setup names will be those, which you have entered into your analyzer.



If you are resuming an incomplete job being held in the analyzer's memory, the opportunity to do so is presented immediately following the "Start Job" selection. The screen displays the message as shown below. If you press the [F1] "Yes" key, the analyzer will return you to the last logical in-progress step of the job. If you press the [F5] "No" key, the analyzer will proceed as described in the two examples above, depending on your circumstances.



4.1.1. - Prop Balance Setup

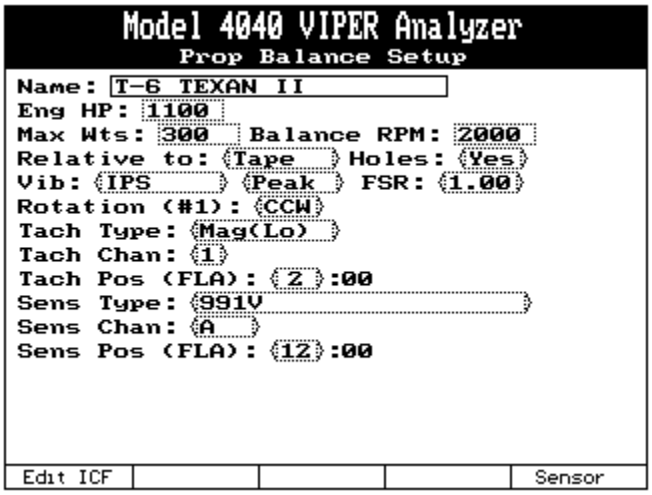
The "Prop Balance Setup" banner screen allows you to define and store a propeller balance Setup. The "Prop Balance Setup" banner screen displays fill-in and selection type fields. The fill-in fields have squared off ends ([ ]). These fields are filled in using inputs from the analyzer keypad. The selection fields have pointed ends (< >). These fields have two or more preset values that are selected by using the [⇒] and [⇐] keys. Navigate between the fields on

this screen using the [⇓] and [⇑] keys. (Refer to Chapter 3, “Using the Model 4040 Viper Analyzer” if you are unfamiliar with using the keypad or inputting data.)

Complete the “Prop Balance Setup” screen per the following example.

4.1.1.1. – Propeller Balance Setup Screen

To complete the “Prop Balance Setup” banner screen (as shown below), do the following:



4.1.1.1.1. In the “Name” field, enter a name for this setup using the keypad. (Refer to Chapter 3, “Using the Model 4040 Viper Analyzer” if you are unfamiliar with using the keypad.)

The name you choose will aid you in differentiating this setup from other stored setups should you choose to review or print it at a later time. The name should be one of your choosing which you will be easily recognized and associated with this setup such as “Cessna 150,” “King Air, ” or “T-6 TEXAN II.”

4.1.1.1.2. Using the [⇓] key, move down to the “Eng HP” field. Enter the rated horsepower of the engine using the keypad. The valid range of values for this field is 0 to 5000.

4.1.1.1.3. Using the [⇓] key, move to the “Max Baln.Wts” field. Enter the maximum total trim balance weight (in grams) allowed for this installation. If the manufacturer does not specify a maximum weight, refer to *the ACES Systems Guide to Propeller Balancing*. The valid range of values for this field is 1 to 9999.

4.1.1.1.4. Move to the “Balance RPM” field using the [⇓] key. Using the keypad, enter the actual propeller RPM at which you intend to balance. If no manufacturer recommendation is available, refer to the *ACES Systems Guide to Propeller Balancing* included with the Propeller Balance option. A low cruise RPM is usually best. The valid range of values for this field is 50 to 32767.

4.1.1.1.5. Using the [⇓] key, move to the "Relative to" field. Select "Tape" or "Sensor" using the [⇒] key. If using predetermined weight locations, select "Tape." Decide if you wish to measure weight placement phase angles relative to the reflective tape or the vibration sensor as an index point.

4.1.1.1.6. Move to the "Holes:" filed and select either "Yes" or "No" using the [⇒] key. Yes indicates that the propeller assembly has predetermined locations, or holes where trim balance weights can be added. If you select "Yes" a page for defining the location of each hole will be provided. You may also download setups with these predefined locations from the ACES Systems web site and load the setups into your analyzer. The "No" answer indicates that no predetermined locations are available and that you will be drilling holes for the permanent mounting of the final trim balance weights.

4.1.1.1.7. Move to the "Vib:" field and use the [⇒] key to choose the vibration engineering units for this balance job. The choices are IPS (inches per second velocity), mm/sec (millimeters per second velocity), cm/sec (centimeters per second velocity), Mils (1000ths of an inch displacement), Microns, and Gs (equivalent gravities).

4.1.1.1.8. The field to the immediate right of the Vib: filed is unmarked. It is a select field also and is the modifiers to be used with the units of vibration (Vib:). The selections are Peak, Pk-Pk (Peak-to-Peak, may also be called double amplitude), Avg. (Average), and RMS (Route Mean Square).

4.1.1.1.9. Move to the "FSR" field and use the [⇒] key to select the Full Scale Range for the vibration amplitude you reasonable expect to encounter on this job. For a propeller balance conducted using IPS, a normal selection would be 1. You should make your selection to accommodate the highest vibration as an overload of the analyzer caused by higher values than that selected might delay or lengthen the job.

4.1.1.1.10. Move down to the "Rotation (#1)" field using the [⇓] key. Using the [⇒] key, Select CW (Clockwise) or CCW (Counter-Clockwise) for the rotation of the propeller as viewed standing Forward of the propeller Looking Aft toward the tail of the airplane (FLA).

4.1.1.1.11. Using the [⇓] key, move to the "Tach Type" field. Using the [⇒] key, select the type of tachometer you are using.

Tach Type selections for this field include:

"Optical" - Includes the Phototach and Lasetach.
"Mag (Lo)" - A magnetic interrupter with an output of 120mV or less.

"Mag (Hi)" - A magnetic interrupter with an output of more than 120 mV and not more than 5 volt.

"Monopole" - A monopole type pickup with an output of 120mV or greater.

"Tach Gen" - A one to three pole tachometer generator with an output of 390mV

or more. (This type of input is normally used for synchronous vibration surveys and not for a once per rev signal used to calculate phase angles in balancing.)

4.1.1.1.12. Using the [⇓] key, move to the "Tach Chan" field. Using the [⇒] key, select "TACH 1, TACH 2, TACH 3, or TACH 4" according to the analyzer's tach input channel(s) you intend to use. The default for single sensor input is TACH 1.

4.1.1.1.13. Using the [⇓] key, move to the "Tach Pos (FLA)" field. Using the [⇒] key, select the tach position. The tach position is determined by standing Forward of the propeller Looking Aft (FLA) toward the tail of the aircraft. From this viewpoint, determine the approximate clock position (1:00 to 12:00) of the tachometer pickup.

CAUTION

Sensors connected to Channel A and Channel B or Channel C and Channel D must be of the same type. Using different sensors during the same job will cause erroneous readings and problems achieving good balance results.

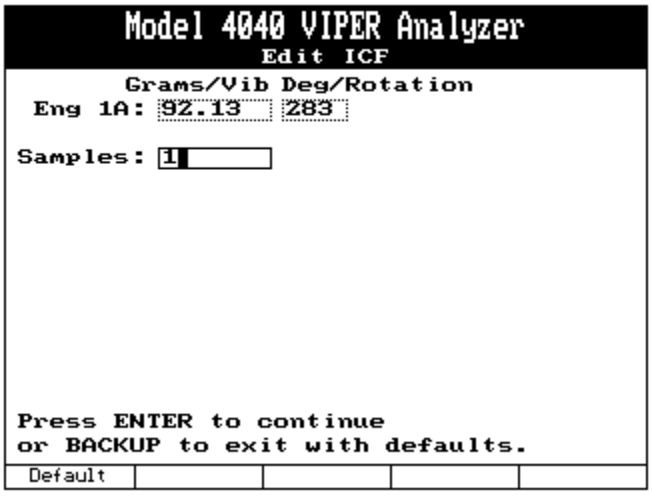
4.1.1.1.14. Move down to the "Sens Type" field using the [⇓] key. Select the sensor type from the available options using the [⇒] key. If your sensor type is not listed, see the section of this manual entitled "Sensor Setup".

4.1.1.1.15. Move to the next field, "Sens Chan" using the [⇓] key. Select sensor channel "A, B, C, or D" according to which of the analyzer's input channels you intend to use. The default for single-sensor input is Channel A. Use the [⇒] key to make the selection. If you are conducting a two plane balance, the default for the second sensor is Channel B.

4.1.1.1.16. Using the [⇓] key, move to the "Sens Pos (FLA)" field. Using the [⇒] key, select the vibration sensor position. The sensor position is determined by standing Forward of the propeller Looking Aft (FLA) toward the tail of the aircraft. From this viewpoint, determine the approximate clock position (1:00 to 12:00) of the vibration sensor.

4.1.1.2. - Edit ICF

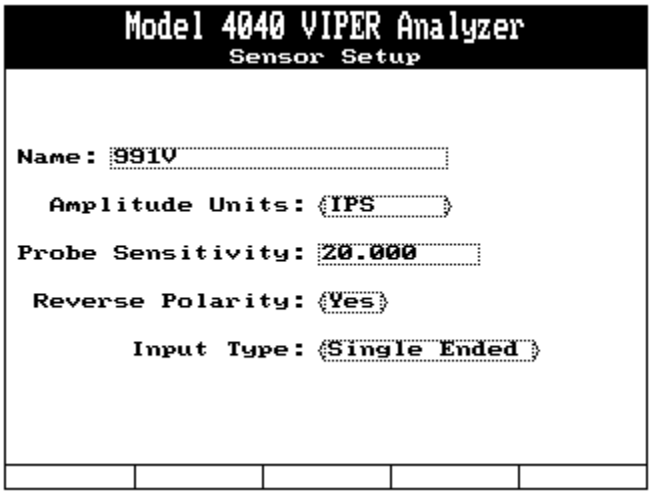
The "Edit ICF" (which corresponds to the [F1] key) selection appears at the bottom left of the "Prop Balance Setup" banner screen. Press the [F1] key if you wish to define the Influence Coefficients for this setup. The following "Edit ICF" banner screen is displayed.



4.1.1.2.1. If you do not have ICF information for the balance setup, press the [BACKUP] key. This sets the ICF at the default for the known conditions. The ICF default value is added automatically when the Setup is created. The user may use this key at any time to reset the ICF to default. If an ICF has been calculated by the analyzer and stored from previous runs, the "Samples" field displays the number of samples included in the calculation. (The Samples field is a display-only field and cannot be edited by the user.) When satisfied with the displayed ICF, press [ENTER] to return to the "Prop Balance Setup" banner screen.

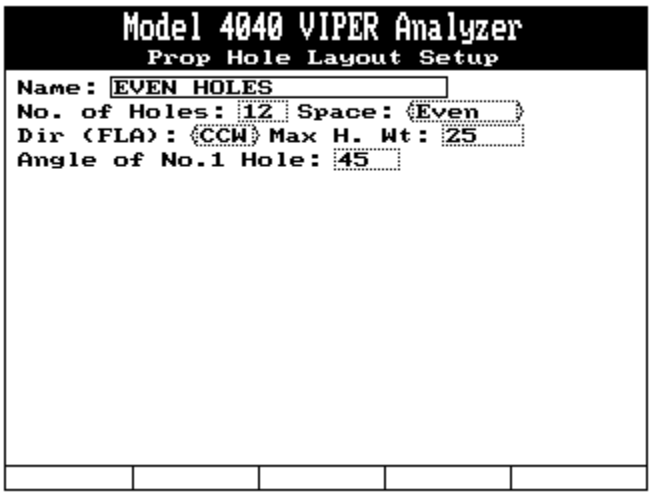
4.1.1.3. - Sensor Setup

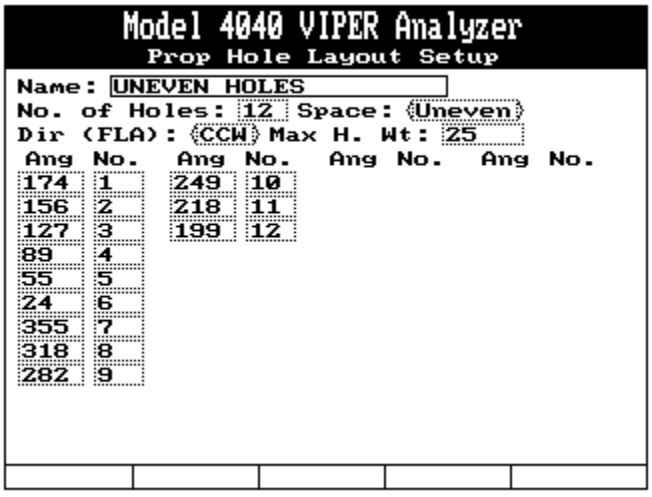
Pressing the [F5] "Sensor" key from the "Prop Balance Setup" banner screen displays the "Sensor Setup" banner screen shown below. The information on this screen should correspond to the sensor you selected for this setup in step 4.1.1.1.14 above.



4.1.1.3.1. This is an information-only screen for use in verifying the parameters of the vibration sensor you have chosen. You may not edit or otherwise enter information on this screen. If this sensor does not possess the specifications you require for this setup, you may enter a new sensor in the “Sensor Setup” screen, or choose another sensor from the existing list. Press [BACKUP] or [ENTER] to exit this screen and return to the “Prop Balance Setup” banner screen. When all fields are completed to your satisfaction, press the [ENTER] key to accept the inputs and continue to the “Prop Hole Layout Setup”.

4.1.1.4. – Prop Hole Layout Setup





4.1.1.4.1. If “Yes” was selected under the “Holes:” entry in step 4.1.1.1.6 the “Prop Hole Layout Setup” banner screen is the next screen displayed. The “Name” field is automatically filled in from the name you entered in the previous “Prop Balance Setup” screen. Complete the fields on the screen by doing the following:

4.1.1.4.2. Use the [⇓] key to move to the "No. of Holes" field. Enter the number of holes that correspond to the total number of trim weight mounting locations. The valid range of values for this field is 1 to 36.

4.1.1.4.3. Move to the "Space" field using the [⇓] key and then use the [⇒] key to select "Even" or "Uneven" from the available selections. Even indicates that all trim weight mounting locations are evenly spaced. The analyzer will automatically calculate the number of degrees between holes in this case. If you select "Uneven," and then use the [⇓] key to move away from the field, several fields ("Ang" and "No.") appear at the bottom of the screen. You will complete these fields later in the process at step 4.1.1.4.6.

4.1.1.4.4. Use the [⇓] key to move to the next field, "Dir (FLA)." Complete this field by using the [⇒] key, select CW for clockwise or CCW for counter-clockwise to indicate the direction of increasing hole numbers as viewed from forward looking aft.

4.1.1.4.5. Move to the "Max H. Wt" field using the [⇓] key. Using the keypad, enter the maximum allowable weight (in grams) for any single hole. Use the [⇓] key to move to the next field.

4.1.1.4.6. Complete the next fields differently depending on data you input in step 4.1.1.4.3 above.

If you selected "Even" in step 4.1.1.4.3 - The "Enter the Angle of No. 1 Hole" field is displayed. Use the keypad to enter the angle of hole number 1 as viewed from the front of the engine looking aft. To determine this angle, do the following. With mag switches OFF, rotate the propeller to align the tachometer pickup and its triggering device (magnetic interrupter, reflective tape, etc.). With the propeller in this position, use the 12:00 position as the "0" or "360 degrees" (index point) and measure opposite the direction of rotation to the angle of hole number 1. For example, if the #1 hole is at the 3:00 position (simply as viewed on the face of a clock from in front of the engine, disregarding propeller direction of rotation) and the engine rotates counterclockwise, the angle would be 90 degrees. If the #1 hole is at the 3:00 position and the engine rotates clockwise it would be 270 degrees. The measurement to hole # 1 must always be measured opposite the direction of rotation.

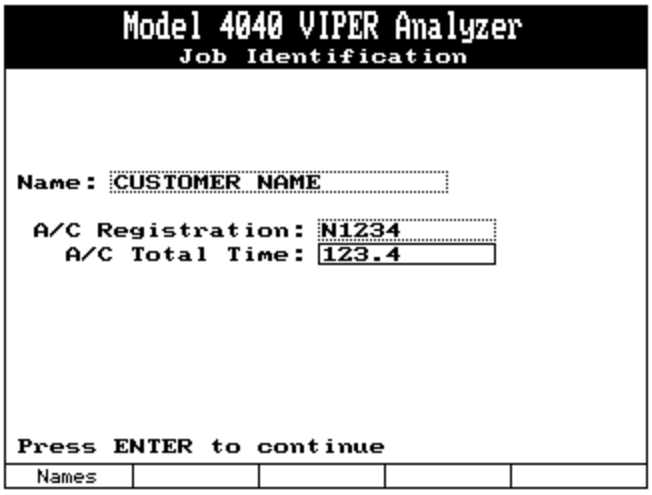
If you selected "Uneven" in step 4.1.1.4.3 – Multiple angle/hole number fields are displayed. Each hole angle must be defined individually. Using the keypad, complete each field by entering a hole number ("No.") and its corresponding angular ("Ang") location as measured opposite the direction of propeller rotation. Use the [⇓] and [⇑] keys to move between these fields. To determine these values, do the following. With mag switches OFF, rotate the propeller to align the tachometer pickup and its triggering device (magnetic interrupter, reflective tape, etc.). With the propeller in this position, use the 12:00 position as the "0" or "360 degrees" (index point) and measure opposite the direction of rotation to the angle of each hole number and record that angle adjacent to the hole number. (See the example "Prop Hole Layout Setup" screen shown at the beginning of the section.) For example, if the number 1 hole is near the 6:00 position, the angle may be

measured as 174 degrees. On the screen, use the keypad to enter the angle of hole number 1 as "174." Then, using the [⇓] key to move to the adjacent field ("No."), input the number "1." Next, measure to hole number 2. If hole number two is measured as 156 degrees, enter that value and "2" in the adjacent field. Continue this process until all angles for all holes are defined. The measurement must always be opposite the direction of rotation of the propeller.

4.1.1.4.7. When all fields are complete, press [ENTER] to accept the settings and continue.

The analyzer will display the message, "Store this new setup?" If you choose to store this new setup in the analyzer's memory, press the [F1] key for "Yes," otherwise press [F2] for "No."

4.1.2. – Job Identification

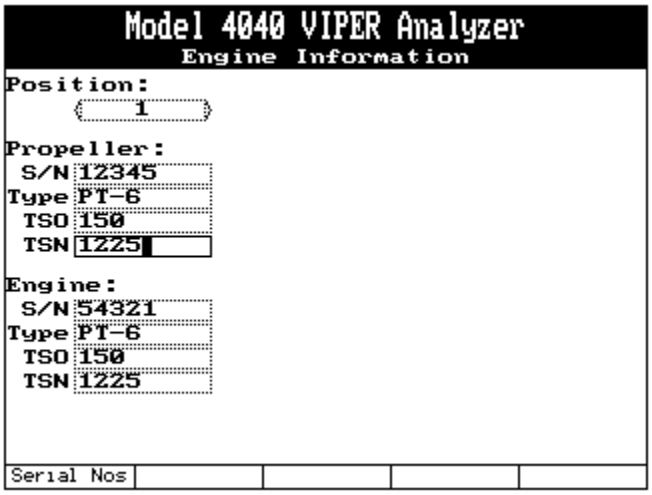


4.1.2.1. At this point in the "Propeller Balance" process, you should have completed the following steps: selected "Propeller Balance" from the Main Menu; selected "Start Job;" and completed the "Prop Balance Setup" screen which included editing ICF and sensor setup, or you selected a setup from a list of predefined setups. Depending on whether or not you made use of predetermined hole locations, you may have also defined values for a number of trim weight mounting holes. If these steps have been completed, then the "Job Identification" banner screen will be displayed. Job information is optional but will appear on the job printout if entered and will assist you in identifying this job when stored in memory. Complete the information fields using the keypad. Press [ENTER] to continue.

NOTE

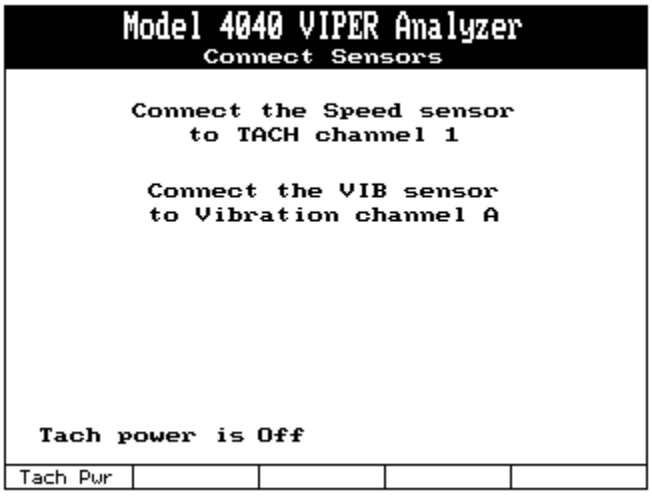
If a name is not entered on the Job Identification screen, the job will be commonly labeled "Unnamed" in the resume and manage job lists. This will complicate finding a specific job, as multiple jobs are stored. We recommended you enter a name.

4.1.3. – Engine Information



4.1.3.1. The “Engine Information” banner screen is displayed. This information is optional but will appear on the job printout if entered and will assist you in identifying this job when stored in memory. Complete the information fields using the keypad. When finished, press [ENTER] to continue.

4.1.4. – Connect Sensors



4.1.4.1. The “Connect Sensors” banner screen will be displayed as shown above. Messages that appear on this screen prompt you to perform the physical installation and connection of the tach and vibration sensors to the input ports you specified in the setup.

4.1.4.2. - Tachometer Setup

To install the tachometer, do the following:

1. Install the Phototach at the position specified in the setup. The Phototach should be not less than 4 inches but no greater than 18 inches from the back surface of the target blade. Use speed tape or duct tape to secure the 3x3 base mount to the cowling surface. An angle of approximately 5 degrees from perpendicular to the target blade will produce the best results.

2. Connect the tachometer cable to the Phototach connector. Route the cable away from hot areas and electrical equipment back to the cockpit and attach to the tach channel specified in the setup you are using. Secure the cable along its route with duct tape or tie wraps.

3. Near the bottom of the analyzer screen, ensure that the message, “Tach Power is Off” is displayed and that the Block directly below this statement and corresponding to the [F1] key, is labeled “Tach Pwr”. Press the [F1] key once to change the statement at the bottom of the screen to read “Tach Power is On”. This will energize the tach for proper tape alignment.

WARNING
Insure mag switches are off prior to any movement of the propeller.

4. Rotate the propeller to visually align the Phototach with a point on the backside of the target blade where you intend to place the reflective tape. Clean this area thoroughly to insure adhesion of the tape.

5. Cut a strip of reflective tape (3M Tape, Model 7610 is recommended) approximately 1.5 to 2 inches long. With the tape backing still in place, hold the tape in position on the propeller blade and move the propeller blade back and forth in front of the Phototach beam.

NOTE
To insure quality reflective action back to the Phototach, use 3M 7610 reflective tape. Use of other reflective tape or devices may result in poor signals back to the Phototach.

NOTE
If balancing large-diameter or high-speed propellers, refer to Chapter 19, Equipment and Accessory Setup and Troubleshooting for information on reflective tape width requirements for these applications.

6. With an inspection mirror, watch the red LED gate indicator light on the aft end of the Phototach illuminate and extinguish as the tape crosses the beam. This indicates the position of the tape is correct.

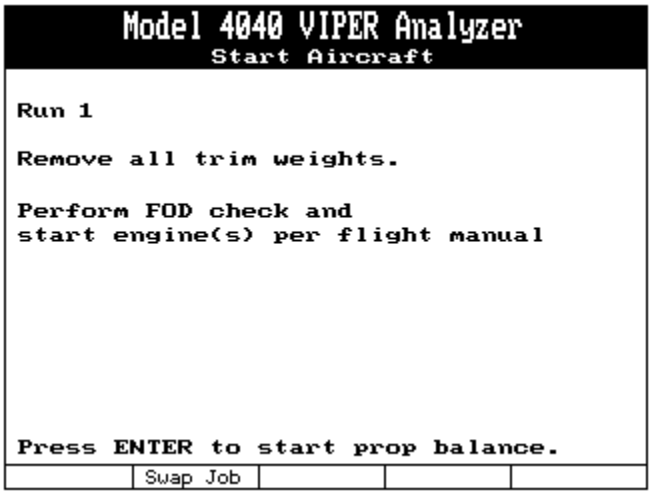
7. Remove the tape backing and attach the reflective tape to the propeller at that location. Be sure to smooth out any wrinkles or bubbles in the tape. Ensure the edges are smoothed and firmly attached.

8. Connect the vibration sensor cable to the sensor connector. Route the cable away from hot areas and electrical equipment back to the cockpit and attach to the sensor channel specified in the setup you are using. Secure the cable along its route with duct tape or tie wraps.

NOTE
All trim balance weights installed during previous dynamic balance procedures should be removed before proceeding beyond this point. Refer to the ACES Systems' *Guide to Propeller Balancing* (included with your Model 4040) for a full list of FAA-approved inspection requirements.

4.1.5. – Start Aircraft

When you have completed the physical equipment setup tasks, press [ENTER] on the analyzer to continue with the propeller balance job.



The analyzer will then display the "Start Aircraft" banner screen (shown above). Two information lines are shown on the screen. The first: "Remove all trim weights" and the second: "Perform a FOD check and start engine(s) per flight manual."

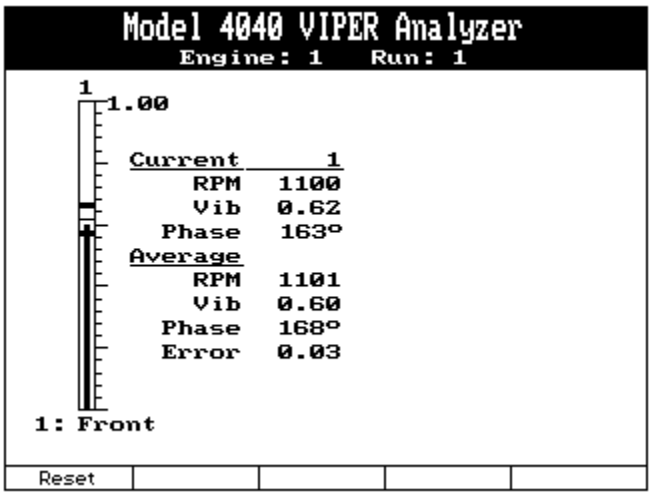
Removing previously installed trim balance weights is necessary to prevent stack ups, or attempts to counterbalance installed weights. Follow the instructions in the *ACES Systems' Guide to Propeller Balancing* included with your analyzer for inspections prior to balancing. The document is FAA approved and provides guidelines for the selection and installation of balance weights. When balance weights are removed and inspections are complete, "Press [ENTER] to start prop balance".

The [F2] "Swap Job" key allows you to return to the Main Menu without rebooting the analyzer. You can then switch between multiple propeller balance jobs to perform balances on several propellers during a single maintenance run.

4.1.6. - Acquiring Data

After starting the aircraft, the “Set Engine Speed” banner screen is displayed. At the top left of the screen, the run number is displayed. Directly below the run number, is the message, “Set eng # x RPM to: xxxx (where xxxx is the balance speed entered in the setup being used.” This is your target RPM for balancing. The next line, “Current RPM: xxxx.” indicates the RPM the propeller is turning currently. Attempt to match the two as closely as possible with throttle/prop lever adjustments. The next line, “Difference: xx” gives the current difference between the Target and the Current RPM. When the target speed and current speed are matched as closely as possible, press [ENTER] to continue.

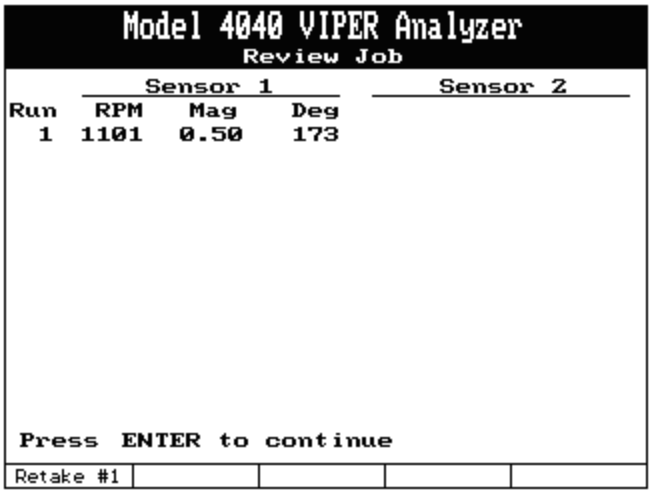
The screen changes to display the “Engine: x Run: x” banner screen. (See the figure below.)



The converging vibration indicator shows the average amplitude. (See Chapter 20, Reading Spectrum and Scales, for information on how to read the data contained on this screen.) The sensor location (Front) is indicated at the top of the text, right side of the screen. The current and average frequency, amplitude, and phase are also displayed along with the percentage of error (Error) in the averaging. When the error is at its lowest point and no longer decreasing, press [ENTER] to stop the data collection process. If you wish to reset the averaging and take new data, press the [F1] “Reset” key.

4.1.7. – Review Job

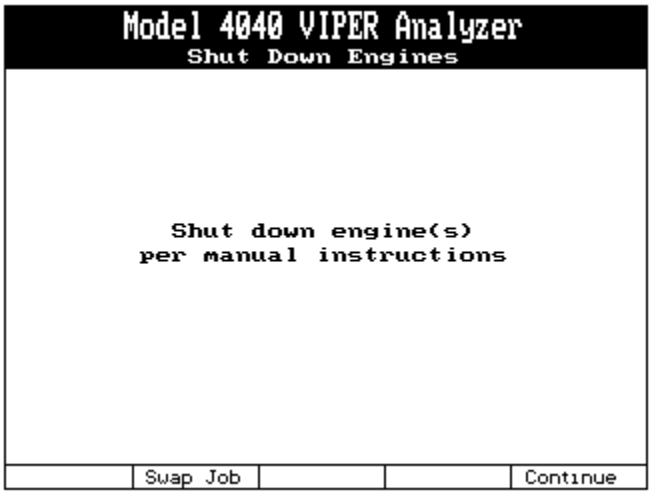
When you are finished acquiring data, the “Review Job” banner screen (shown below) is displayed next. The amplitude and phase (Mag/DEG.) are displayed for each sensor input channel. Data is displayed for only the input channels that were used for the job; others are left blank.



If you are satisfied with the results of the run and are ready for a solution, press [ENTER] to accept the data and continue.

If you want to retake data for this run, press the [F1] "Retake #1" key. This option returns you to the "Set Engine Speed" banner screen (see section 4.1.6 above).

An information screen will appear prompting you to "Shut down the engine(s) per manual instructions". If you are performing a balance on more than one propeller, use the [F2] "Swap Job" key to return to the Main Menu and switch jobs. Press the [F5] "Continue" key to progress to the "Review Job" screen as shown in section 4.1.7.

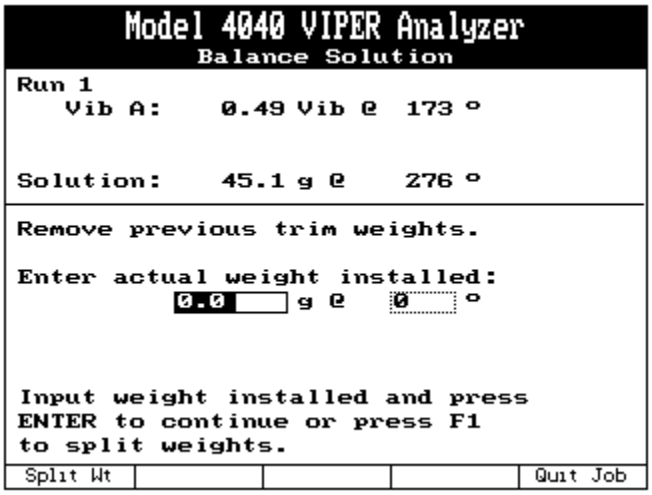


4.1.8. - Balance Solution

The "Balance Solution" banner screen shown below is displayed. The screen is identified at the top left as being "Run: 1". Vibration amplitude and phase angle are displayed for each

channel being used (Channel A only in the example screen shown) and a solution for the first run.

In this example screen shown below, the "Solution" is "45.1 GMS @ 276°" which means to place 45.1 grams (g) of weight at 276 degrees from the index point. (see Chapter 2, Analyzer Description on how to use the Propeller Protractor to locate the phase angle.)



In the lower portion of the screen you see an information line stating "Remove previous trim weights." Since all previously installed trim weights were removed prior to the start of the first run; this is only a reminder for Run 1. This same information line in following runs means to remove the trim weights installed on the previous run. In other words, the balance solution and resulting weight installed here after Run 1 may change in Run 2. The weights installed after Run 1 would be removed and new weights added at another location to refine the balance solution.

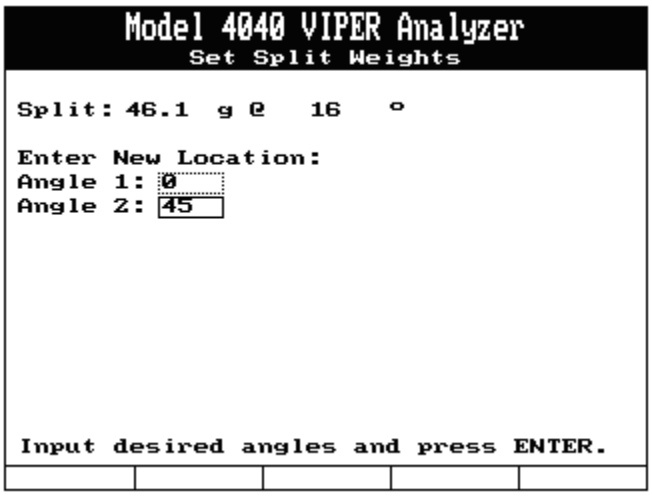
NOTE

In subsequent runs, all installed weights from each previous run must be removed. The "remove weight" message will be repeated for every run and solution. Each new solution dictates that the previously applied solution (installed weight) be totally replaced. In some cases this may mean removing and reapplying weight at the same or near the same location. Failure to remove previously installed weight prior to applying the new solution weight will result in failure of the propeller balance function.

The next line of text states "Enter Actual Weight Installed." In the weight and angle fields directly below this line, enter the exact amount of weight and the angle, as near as possible, where it was installed. If you are unable to install the exact amount of weight in the recommended solution, install a weight as near the suggested solution weight as possible. The important point is *whatever the actual amount of weight is, enter it here*. If the solution exceeds the single location limits of the propeller or spinner assembly (refer to *ACES Systems' Guide to Propeller Balancing* included with your analyzer) you may split the weight across two locations. If you do not wish to split the weights, press [ENTER] to continue and then move to the end of this section, to continue with the instructions at the "Start Aircraft" screen.

4.1.8.1. – Set Split Weights

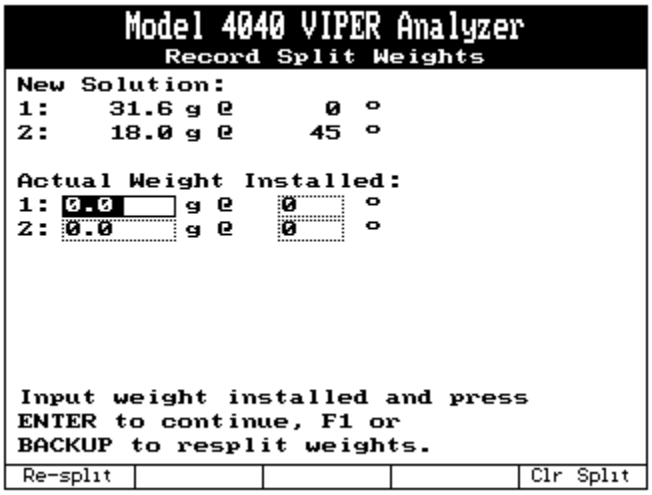
To use the split weight option, press the [F1] "Split Weight" key from the "Balance Solution" banner screen. The "Set Split Weights" banner screen below is displayed.



The single location solution (in this case 46.1 g @ 16 degrees) is displayed at the top of the screen. The next line states "Enter New Locations." Use the keypad to complete the next two fields, "Angle 1" and "Angle 2." Locate the two available weight installation locations (one on each side of the 16-degree location) and enter them in the two fields. Use the [⇓] key to move between the fields. Press [ENTER] to continue.

4.1.8.2. - Record Split Weights

The screen displays the "Record Split weights" banner screen like the one shown below.



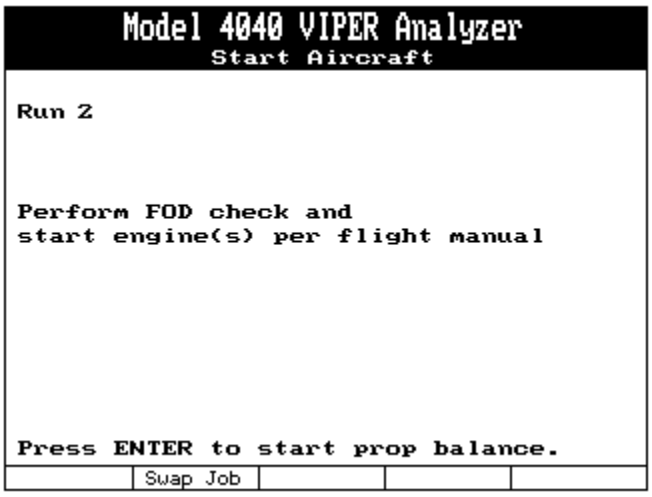
The "New Solution" is given for the two new angles you specified as available for weight application. Match the new weight solution as near as possible to the recommended solution

and install it at the new angles. Weigh the test weights carefully and enter the exact amount of weight in the “Actual Weight Installed” fields.

If you discover a problem with the split weight locations you specified, press the [F1] “Re-split” and [BACKUP] key and enter the two new angles. When the “Actual Weight Installed” fields are completed, press [ENTER] to continue.

The screen will return to the “Balance Solution” banner screen with the combined split-weight solution being displayed for the user. Press [ENTER] to continue.

The screen will display the “Start Aircraft” banner screen shown below.

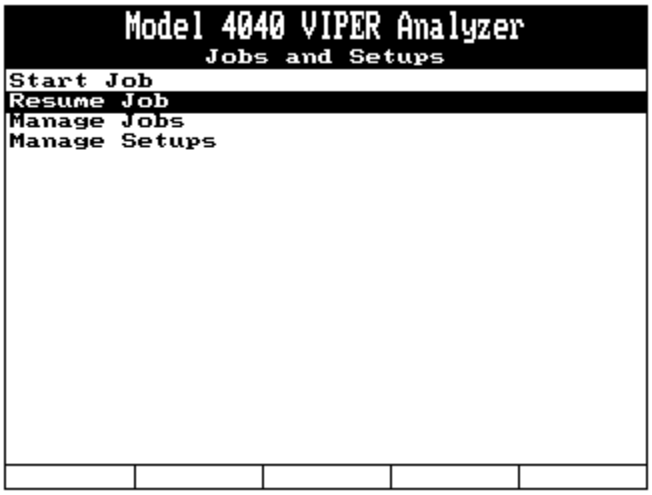


The “Start Aircraft” banner screen indicates the upcoming run number and directs you to “Perform FOD check and start engine(s) per flight manual”. Press [ENTER] to start prop balance.” Then repeat the procedures described above starting with item, 4.1.5 until the level of vibration is at or better than an acceptable level. See the *ACES Systems Guide to Propeller Balancing* for details of vibration levels and weight installation procedures.

NOTE

If the engine/propeller assembly is mechanically sound, a normal balance job should take no more than three runs to complete. The analyzer will only allow you to complete 6 runs in attempts to balance. If the balance job is not completed by the sixth run you should suspect possible problems with your technique or mechanical faults with the engine and/or propeller assembly. Mechanical faults may also be indicated by drastic changes in suggested weight or angle from one solution to the next.

4.2. - Resume Job

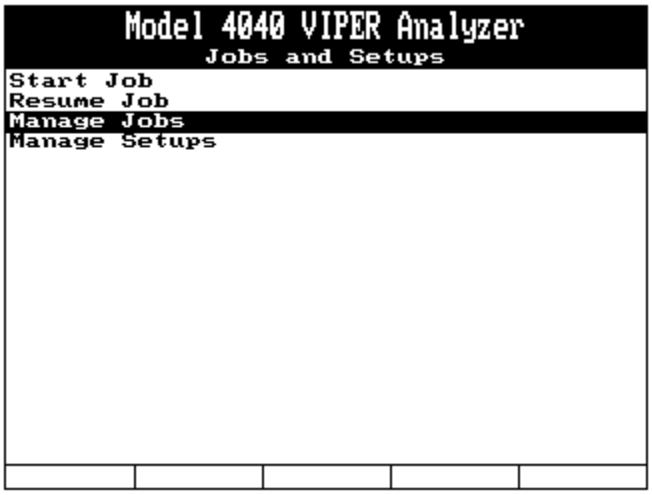


Selecting "Resume Job" from the "Propeller Balance" banner screen menu allows you to select a job to resume. Only jobs that are left unfinished will appear in the list. Using the [⇓] key, highlight the job you wish to complete from the list of incomplete jobs, and press [ENTER]. You will be taken to the last step completed in the job process.

NOTE

If you did not enter information in the optional "Job Identification" fields when starting a job, that job will be stored by the name, "Unnamed". If several "Unnamed Jobs" are listed, you may wish to review the data for each in order to ensure you are resuming the job you intended. See section 4.3.1 for specific guidelines on the Review function.

4.3. - Manage Jobs



Selecting “Manage Jobs” from the “Propeller Balance” banner screen menu presents several sub-menu choices to choose from. These choices allow you to “manage” previously completed job data you have stored in the analyzer.

4.3.1. - Review

Selecting the “Review” option presents a list of stored jobs on the “Job List” banner screen. You can select one job for on-screen viewing. When viewing is complete, press the [BACKUP] key to exit the screen. The analyzer will then return you to the "Manage Jobs" menu screen to select another function.

4.3.2. - Print

The “Print” option presents a list of stored jobs on the “Job List” banner screen. From the list, you may select one job for printing. See Chapter 21, “Printing” for a detailed explanation of how to set up the analyzer to print.

4.3.3. - Print All

The “Print All” option sends all currently stored jobs to the printer. When you select “Print All,” a message will appear on the analyzer’s “Print All Jobs” banner screen asking you to verify that you want to print all jobs. Answer the prompt, “Are you sure?” by pressing the [F1] key for “Yes,” or the [F5] key for “No.” If you choose the “Yes” answer, ensure your printer is prepared (paper, print cartridge, etc.) to complete the number of jobs stored. The “Yes” answer will send *all* currently stored jobs to the printer. The “No” answer will return you to the previous menu.

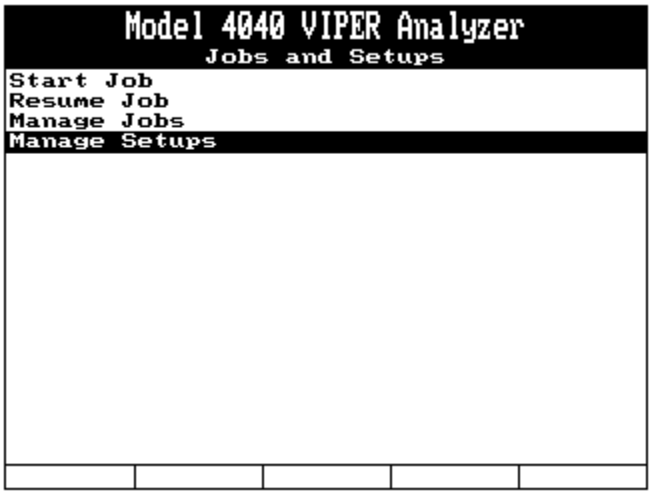
4.3.4. - Delete

The “Delete” option presents a list of stored jobs on the “Job List” banner screen. From the list, you may select one job for deletion. After making your selection, the “Delete Job” banner screen will appear, asking you to verify your intent to delete the selected job by pressing the [F1] key for “Yes” or the [F5] key for “No.” You may wish to print the job for reference or permanent record prior to deleting. Once deleted, the job cannot be retrieved from the analyzer.

4.3.5. - Delete All

The “Delete All” option will delete all currently stored jobs. After selecting this option, the “Delete All Jobs” banner screen will appear, asking you to verify your intent to delete all the jobs by pressing the [F1] key for “Yes” or the [F5] key for “No.” You may wish to print the jobs for reference or permanent record prior to deleting. Once deleted, the jobs cannot be retrieved from the analyzer.

4.4. - Manage Setups



Selecting “Manage Setups” from the “Propeller Balance” banner screen menu presents several sub-menu choices to choose from. These choices allow you to “manage” setups you have stored previously in the analyzer.

4.4.1. - Edit

Selecting the “Edit” function displays the “Setup List” screen. Select the setup you wish to edit. The screen will display the “Propeller Balance Setup” screen. Edit the setup as necessary and press [ENTER] to store and exit the edited setup screen. Refer to section 4.1.1 for

detailed instructions on how to complete/edit the fields in the “Propeller Balance Setup” screen.

4.4.2. – New

Selecting “New” will allow you to build a new propeller setup. After selecting “New”, the screen will display the fields necessary for building the new setup. Refer to section 4.1.1.

4.4.3. - Print

Selecting the "Print” function displays the “Setup List” screen. Ensure your printer is turned on and connected to the analyzer with the COMM/Print cable supplied with your analyzer. Select the setup you wish to print. (see Chapter 21, “Printing” for a detailed explanation of how to set up the analyzer to print.)

4.4.4. - Print All

Selecting “Print All” sends all currently stored setups to the printer. When making this selection, you will be asked to verify “Are you sure?” by pressing the [F1] key for “Yes,” or the [F5] key for “No.” If choosing the “Yes” answer, ensure your printer is prepared (paper, print cartridge, etc.) to complete the number of jobs stored. The “Yes” answer will send *all* currently stored setups to the printer. The “No” answer will return you to the previous menu.

4.4.5. - Delete

The “Delete” option presents you with a list of stored setups. From the list, you may select one setup for deletion. If you wish to delete all stored setups, you must delete them individually. After making your selection, you will be asked to verify your intent to delete the selected job by pressing the [F1] key for “Yes,” or the [F5] key for “No.” We highly recommend you print the setup for reference or permanent record prior to deleting them. Once deleted, the setups cannot be retrieved from the analyzer.