

# INSTRUCTION MANUAL

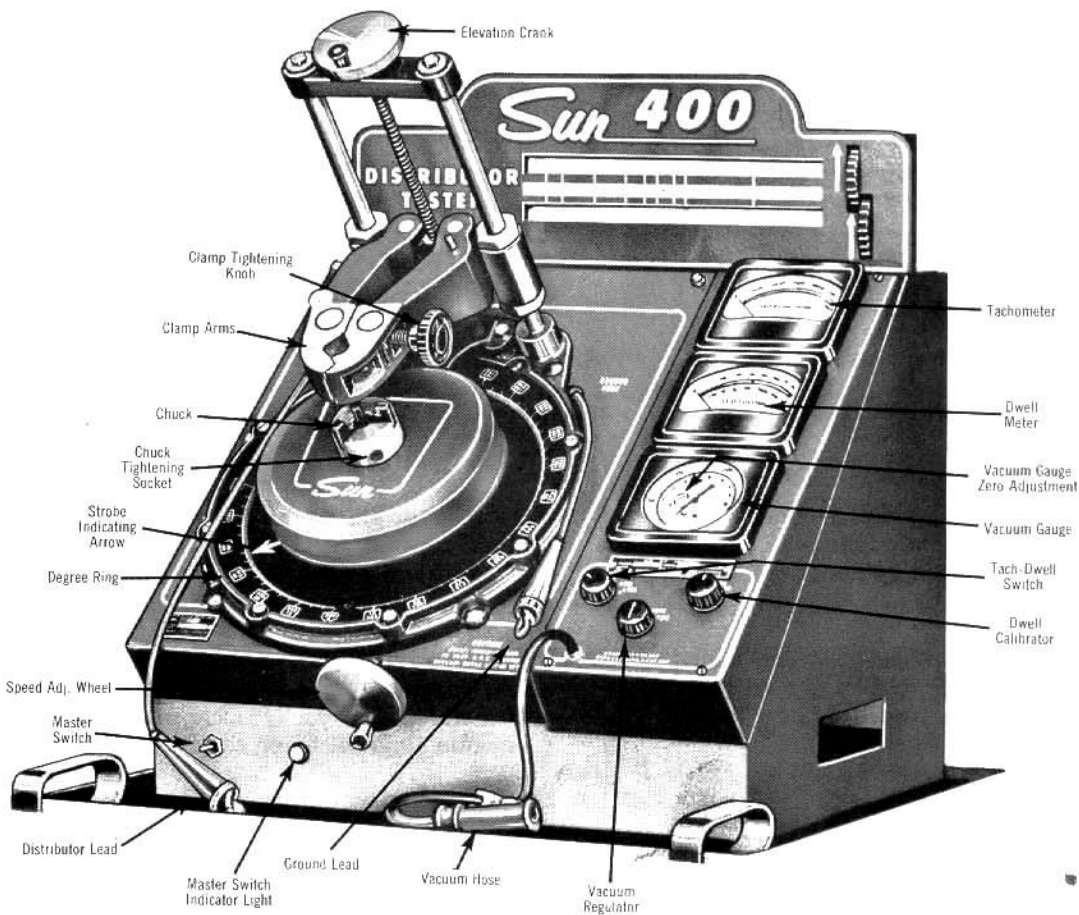
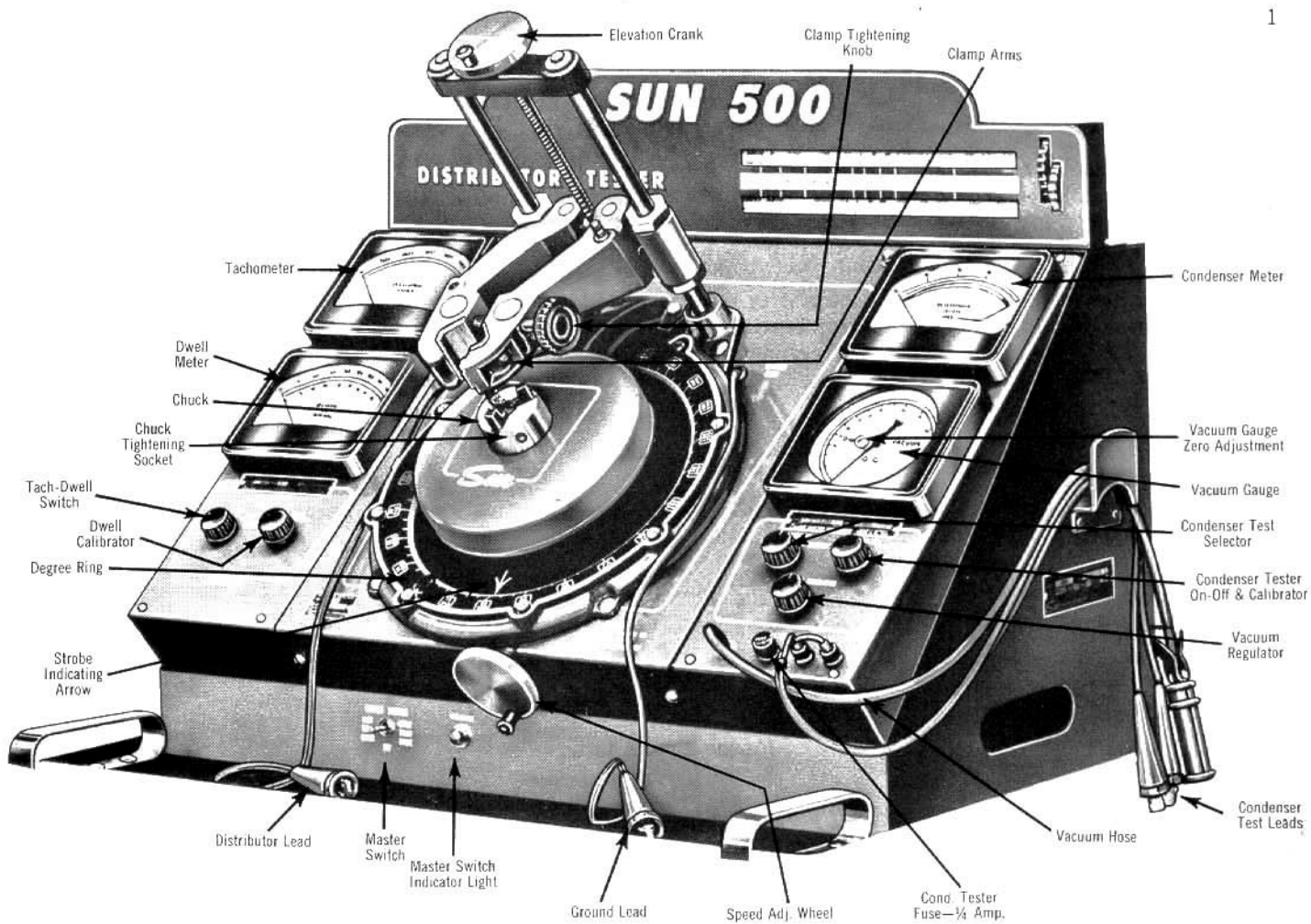
# SUN

## DISTRIBUTOR TESTERS

MODELS 400 & 500



SUN ELECTRIC CORPORATION  
HARLEM AND AVONDALE . CHICAGO 31, ILLINOIS



## HOW TO USE THIS MANUAL

To be assured of efficient ignition system performance, it is highly recommended that when a distributor is removed from an engine all of its functions are completely tested on a Sun Distributor Tester. Testing before work is performed will disclose the extent of the work or services required. After work has been performed, test results will indicate whether all troubles or malfunctions have been corrected.

The test procedure outlined in this manual is recommended because it provides a fast, smooth functioning series of tests for complete distributor testing. To avoid repetition of text, each individual test procedure is based on the assumption that the preceding test has already been performed. If only a specific test is to be performed, the operator should refer to the previous tests for distributor installation and switch positioning.

For further information on distributor functions, service and specifications it is recommended that service acquired from the following sources:

Delco-Remy Div. of Gen. Motors Corp.  
Anderson, Indiana

The Electric Auto-Lite Company  
Toledo, Ohio

Ford Motor Company  
Dearborn, Michigan

Holley Carburetor Company  
Detroit, Michigan

Joseph Lucas Ltd.  
Birmingham 18, England

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## FLASHLIGHT CELL TEST

1. With all switches off, zero meter pointers.
2. Turn tach-dwell switch to calibrate position.
3. Rotate Dwell calibrator clockwise to the extreme end of its range.

If dwell meter pointer reads at least 1/8 inch to the right of the end of the meter scale, flashlight cell is in satisfactory condition.

If dwell meter pointer does not read beyond right end of meter scale, replace flashlight cell with a standard 1-1/2 volt size D cell.

Flashlight cell is readily accessible by removing four screws and instrument panel of RPM - Dwell Unit no. 50 on the DT-500, or the RPM - Dwell - Vacuum Unit no. 53 on the DT-400.

## DISTRIBUTOR VISUAL INSPECTION

The distributor should be inspected visually before it is installed in the distributor tester. Examine and note the condition of the following:

1. Distributor shaft side clearance and end play.
2. Distributor shaft bearings and bushings for wear and smoothness of operation.
3. Flexible couplings for wear.
4. Breaker plate bearings or bushings for wear, smoothness of operation and lubrication.
5. Cam wick for proper lubrication.
6. Breaker cam for smoothness and lubrication.
7. Insulators, pigtails and flexible internal leads.
8. Contact points for alignment, pitting, burning and rubbing block wear.
9. Vacuum advance linkage for alignment, wear, and binding.

## DISTRIBUTOR MOUNTING

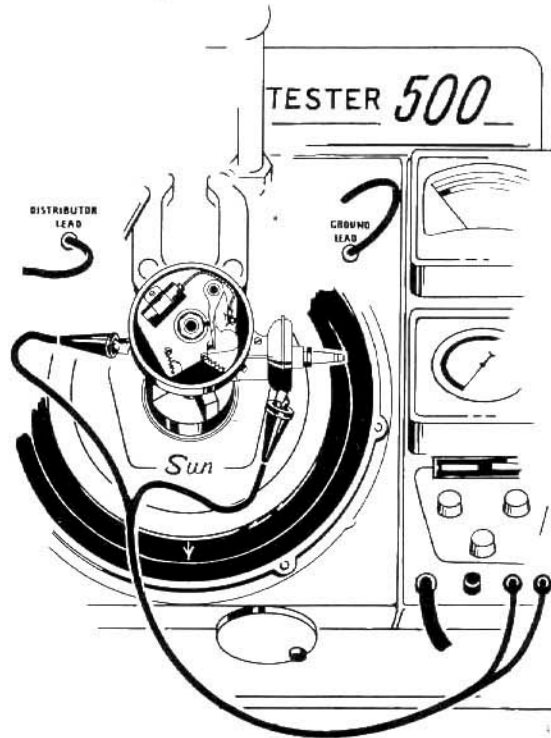
### PROCEDURE

1. Using the elevation crank, raise clamp arms high enough to permit shaft of distributor being mounted to clear drive chuck.
2. Position distributor in clamp with vacuum chamber pointing to the right, and tighten clamp arms securely on machined surface of distributor body. If vacuum advance rotates entire distributor, first install proper collet on distributor.
3. Using the elevation crank, lower the distributor until the gear, or about 3/4" of the tip of the distributor shaft enters the drive chuck, or until the shaft engages the drive adapter if one is being used. Do not bottom the distributor shaft in the chuck.
4. Tighten the chuck. For Delco-Remy External Adjustment type Distributor approximately center the drive gear between its upper and lower limits of end play travel before tightening the chuck. Do not try to raise or lower the distributor after the drive chuck has been tightened.

## CONDENSER TESTS

To insure good ignition system performance, condensers should be tested for -- Series Resistance, which affects coil output; Capacity, which controls point arcing and pitting; and

Leakage, which determines if the condenser insulation can withstand the stress of the ignition system. Condensers that fail one or more of these tests should be discarded.



### PROCEDURE

1. Trip Motor Switch to proper direction of distributor rotation and set speed to zero RPM.
2. With condenser test selector switch in Series Resistance position, connect condenser test leads together.
3. Turn condenser calibrate control clockwise from off position.
4. Allow approximately 30 seconds for tester warm up and then adjust calibrate control until meter reads on Set Line.
5. Rotate distributor shaft until cam holds breaker points open.
6. Separate test leads and connect one to the distributor primary terminal, the other to the distributor body. See illustration above.

### SERIES RESISTANCE TEST

7. With test selector switch in Series Resistance position, meter should read in Black Bar at right end of scale.

### CAPACITY TEST

8. Set test selector switch in Capacity position and note meter reading in Microfarads. Compare with manufacturer's specifications.

### LEAKAGE TEST

9. Set test selector switch to Leakage position; Meter should read in Black Bar at left end of scale.
10. Set test selector switch to Series Resistance position and turn Condenser Calibrator to off before disconnecting test leads.

## DISTRIBUTOR RESISTANCE TEST

This test indicates the electrical resistance of the distributor primary circuit from the primary terminal, through the points to the distribu-

tor body. Excessive resistance in any portion of the distributor primary circuit will prevent the coil from performing at full efficiency.

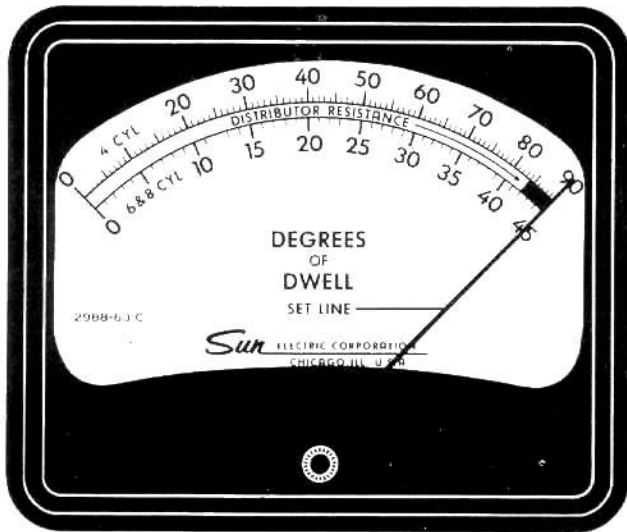


Figure 1

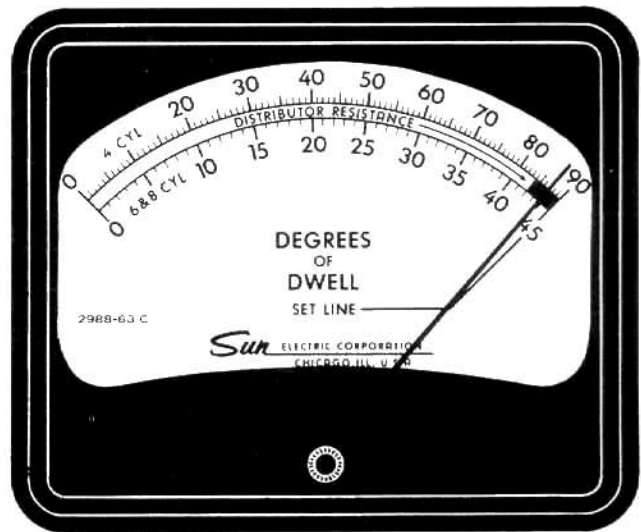


Figure 2

### PROCEDURE

1. With Motor Switch positioned for proper distributor rotation and speed set to zero RPM, clip tester's distributor and ground leads together.
2. Set tach-dwell selector switch to calibrate position and adjust dwell regulator until dwell meter reads on the Set Line. See Figure 1.
3. Separate leads and connect distributor lead to distributor primary terminal and ground lead to distributor body.
4. With distributor points closed, dwell meter pointer should read within range of Black Bar

at right end of scale.

If the dwell meter pointer reads in the Blue area to the left of the Black Bar, excessive resistance is present in the distributor primary circuit. See Figure 2.

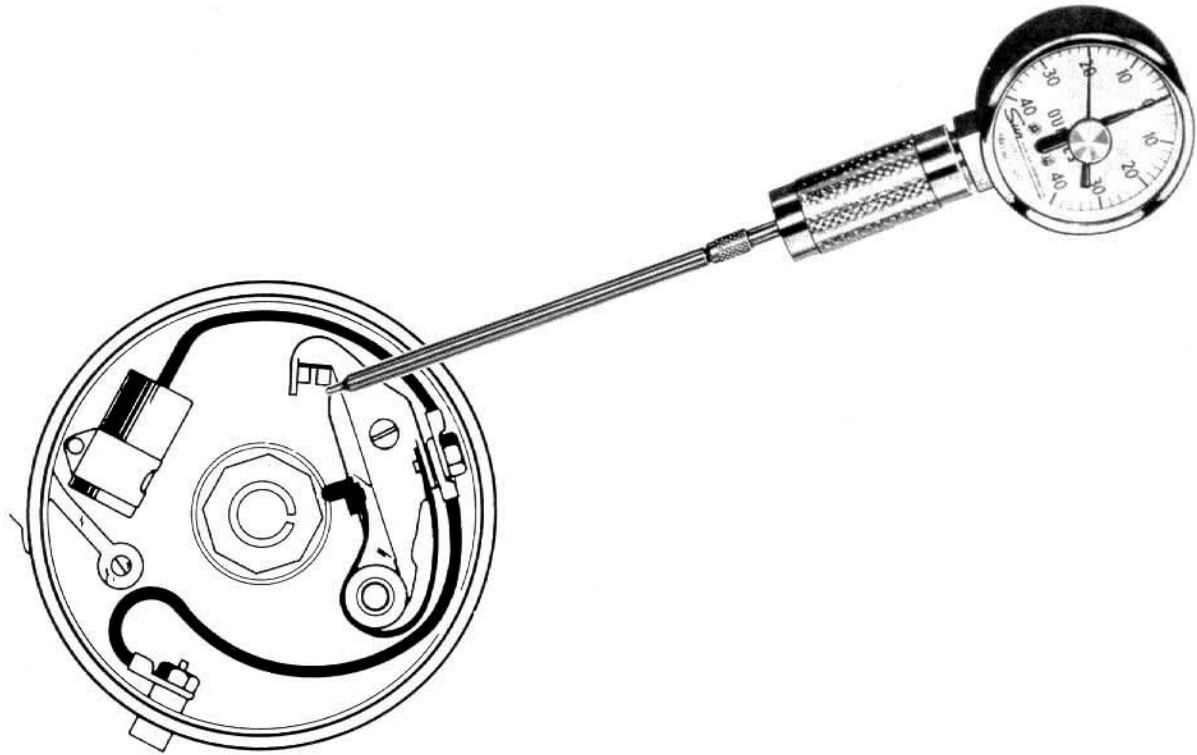
To locate excessive resistance, move the distributor lead step by step through the distributor circuit toward the ground lead. When meter reading indicates less resistance than the previous reading, some measurable resistance exists between the present point of contact of the distributor lead and its previous point of contact.

**NOTE:** On distributors where two sets of breaker points are used, test the resistance of each set of points separately by holding or blocking one set open while testing the other.

## BREAKER POINT SPRING TENSION TEST

Proper tension of the breaker point spring is an important factor in obtaining normal breaker assembly life and maintaining full ignition system efficiency throughout the speed range of the engine. Excessive spring tension can cause rapid rubbing

block, cam and contact wear while insufficient spring tension may allow the points to bounce at high speeds which generally results in arcing and burning of the points and causes the engine to misfire.



### PROCEDURE

1. Position the lazy hand of the spring tension gauge on either side of the pointer depending on whether the gauge will be pushed or pulled to open the points.
2. With dwell meter calibrated and distributor test leads connected to distributor as for distributor resistance test, place the end of the spring tension gauge near the contact of the movable point. (See illustration).
3. Slowly pull spring tension tester at right angles to point lever and gradually increase the pull exerted.
4. Note reading on spring tension scale the instant the contacts separate. Contact separation will be indicated by the dwell meter reading falling to zero or by the flashing of the arrow on the drive unit.  
Refer to distributor test specifications.
5. Hold points open to approximately the recommended gap with the spring tension gauge and slowly let them close. If scale reading decreases noticeably from previous reading before the points close it is probable the pivot requires lubrication as recommended by the manufacturer.

**NOTE:** On distributors equipped with two sets of breaker points, one set must be held open while testing the other. A piece of fiber may be placed between the contacts to hold them open.

## CAM LOBE ACCURACY, BREAKER POINT ALIGNMENT BREAKER POINT DWELL, BREAKER POINT DWELL VARIATION

### CAM LOBE ACCURACY

1. With distributor test leads connected to the distributor as before, turn tach-dwell switch to position which corresponds to type of distributor being tested. (4, 8 or 6 cyl.)
2. Adjust distributor speed to 1000 RPM.
3. Rotate degree ring of tester until the zero on ring is aligned with one of the arrow flashes.
4. Observe relative position of all arrow flashes.  
All arrow flashes should be evenly spaced around degree ring within  $\pm 1$  degree.  
90° for 4 lobe cams  
60° for 6 lobe cams  
45° for 8 lobe cams

### BREAKER POINT ALIGNMENT

1. Observe the slight arc appearing between the breaker points. If the points are properly aligned, the arcing will appear in the center of the contacts when viewed from above and from the side.
2. Reduce tester speed to 200 RPM.

### BREAKER POINT DWELL

Observe the dwell meter and if necessary adjust the point spacing until the dwell meter indicates the specific degrees of dwell.

On distributors equipped with DUAL points it will be necessary to adjust the dwell on each set

individually. To isolate each set for adjustment the other set may be blocked open by inserting a piece of fiber between the contacts.

See page 14 for additional information on point dwell and point gap adjustment.

### BREAKER POINT DWELL VARIATION

1. While watching the dwell meter, vary the distributor speed from 200 to 1750 RPM. A dwell variation in excess of 2 degrees indicates worn distributor shaft or bushings.
2. Reduce tester speed to 200 RPM.

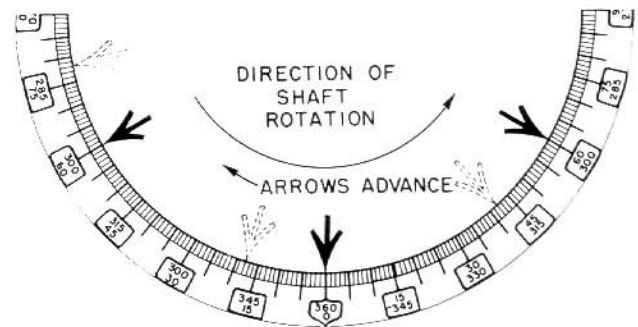
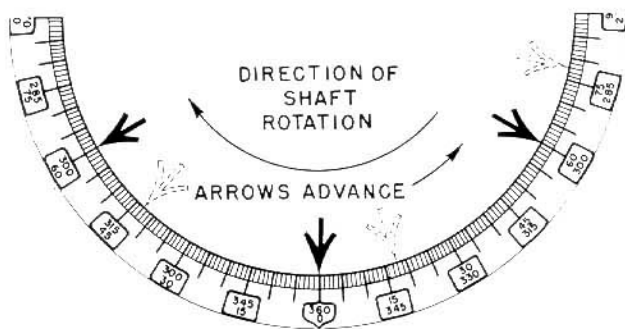
If testing "Loadomatic" type distributor, turn to pages 11 and 12 for remaining tests.



## CENTRIFUGAL ADVANCE CALIBRATION TEST

This test is made to determine if the ignition timing conforms to the manufacturer's specified advance curve throughout all speeds of engine operation. A defective centrifugal advance unit

will result in the engine being out of time at certain speeds. This will always result in loss of performance of the engine, and may also cause spark knock and/or overheating.



### PROCEDURE

1. Set zero of the degree ring in line with the arrow flash nearest the operator.
2. Increase distributor speed, pausing at each specified speed to note if the amount of advance occurring is within  $\pm 1^\circ$  of the specified figure if no range is given.
3. Momentarily exceed the highest specified speed given as a check speed, then while returning the distributor speed to zero, recheck at each test speed to see that the amount of advance at that speed is the same as it was in step 2, and as specified. Any inconsistency in readings requires correction be made for best engine performance.

If advance is excessive on both steps 2 and 3, the governor weight springs are weak, or the wrong springs are installed.

If advance is slow in step 2 and excessive in step 3 the governor weights are sticking and should be freed up.

If advance is insufficient both on acceleration and deceleration, governor spring tension is excessive.

Refer to the distributor manufacturer's manual for the proper service procedure.

## VACUUM CHAMBER DIAPHRAGM TEST

(See pages 11 and 12 for testing "Loadomatic" type Distributors)

### PROCEDURE

1. Insert proper adapter in the vacuum advance unit and tighten with wrench to insure a good seal.
  2. Attach hose to vacuum unit and seal hose with metal clamp.
  3. Adjust Vacuum Regulator until gauge reads 15 inches.
  4. Release hose clamp and observe gauge. Gauge reading will momentarily fall to a lower reading.
- If gauge reading returns to 15 inches within a few seconds vacuum chamber is air tight.
- If gauge reading fails to return to 15 inches vacuum chamber is leaky.

## VACUUM CONTROLLED BREAKER PLATE TEST

The breaker plate must be smooth and even in its travel or the plate will twist, changing the relationship between the cam and rubbing block

and causing the dwell angle to change. Any change in dwell angle affects the ignition spark, both in quality and timing.

### PROCEDURE

1. Adjust speed control to 1000 RPM.
  2. Using the vacuum regulator knob, adjust vacuum to 0, then increase vacuum to 20 inches while watching the dwell meter pointer for variations.
  3. If dwell reading varies more than \*2 degrees
  4. Adjust vacuum regulator to zero vacuum.
- from 0 to 20 inches of vacuum, it indicates worn breaker plate bushings and bearings or intermittent distributor resistance. Note condition of distributor wiring, which may be broken within the insulation due to flexing.

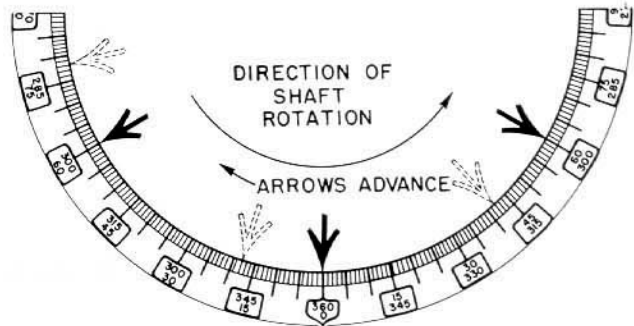
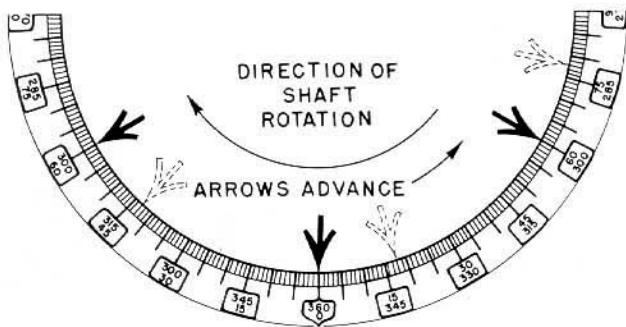
\* NOTE: This specification applies only to distributors which have centrally located breaker plate bearings.

On Auto-Lite distributors, Models IAT, IBP and IBR which have side pivoted breaker plates, the dwell will normally vary by more than 2 degrees when the vacuum unit is operated. No definite specifications are given by the manufacturer for the dwell variation of these distributors since the amount of dwell variation varies with the individual distributor depending upon the amount of maximum vacuum advance.

## VACUUM SPARK ADVANCE TEST

The vacuum spark advance adjusts the spark timing according to the load on the engine to provide peak fueleconomy at moderate loads and full power without detonation at heavier loads.

In the course of the test particularly look for improper calibration, sticky or erratic breaker plate action, tilting of the breaker plate, or interference of the condenser with action of the plate.



### PROCEDURE

1. With no vacuum applied to the unit, set the zero of the degree ring in line with one of the arrows.
2. Adjust vacuum regulator to apply proper amount of vacuum for each specified check point in turn and note the amount of advance obtained. Compare with specifications.
3. Momentarily exceed highest vacuum value specified, then reduce vacuum and again note advance obtained at each specified check point.

If advance is excessive during both steps 2 and 3, a weak vacuum advance spring is indicated.

If advance is insufficient during both steps 2 and 3, an excessively strong advance spring is indicated.

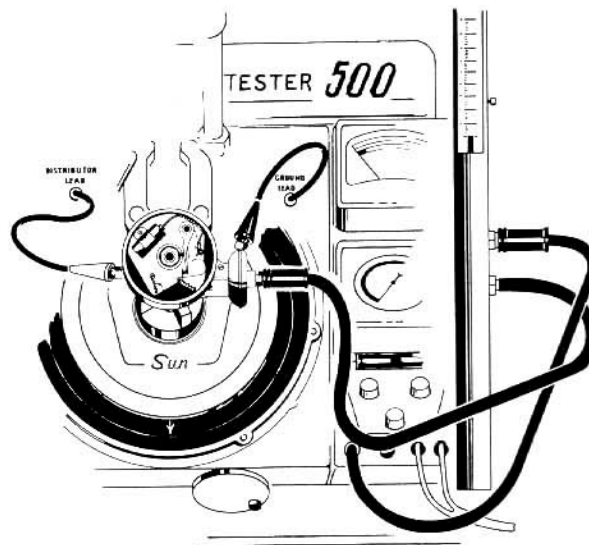
If advance is insufficient in step 2 and excessive in step 3, or is erratic in both steps 2 and 3, distributor plate is sticking or binding.

Refer to distributors manufacturer's manual for proper service procedure.

NOTE: For Delco-Remy breaker plate test see page 13.

## SINGLE VACUUM CHAMBER LOADOMATIC DISTRIBUTORS

With the exception of the advance mechanisms, loadomatic distributors are tested in the same manner described on pages 3 to 7 inclusive.



### VACUUM CHAMBER DIAPHRAGM TEST

1. Insert the proper adapter in the vacuum chamber and tighten to insure a good seal.
2. Leave the test leads connected and the lobe selector switch in the proper position, as before.
3. Attach hose to vacuum unit and seal hose with metal clamp.
4. Adjust Vacuum Regulator until gauge reads 5

inches.

5. Release hose clamp and observe gauge. Gauge will momentarily fall to a lower reading.

If gauge reading returns to 5 inches within a few seconds, vacuum chamber is air tight.

If gauge reading fails to return to 5 inches, vacuum chamber is leaky.

### BREAKER PLATE TEST

6. Adjust speed to 1000 RPM.
7. With the vacuum regulator, increase vacuum

from 0 to 5 inches while watching the dwell meter. If the dwell reading varies more than 2 degrees, wear in the breaker plate bushing is indicated.

### ADVANCE TEST

8. Adjust Vacuum Regulator until gauge reads zero, then disconnect hose.
9. With distributor operating at minimum RPM place degree ring zero in line with one of the arrow flashes.
10. Adjust manometer scale to read zero inches

and then connect hoses as shown above.

11. Adjust vacuum and distributor speed for each specified check point in turn and note the amount of advance obtained.
12. Reduce vacuum and distributor speed and again note advance obtained at each specified check point.

Consult manufacturer's service manual for specific adjusting procedures.

## DUAL VACUUM CHAMBER LOADOMATIC DISTRIBUTORS

There are two types of Dual Vacuum Chamber Loadomatic Distributors: - An early type used only on Lincoln in 1953, figure 1; and a later type used more recently on Ford, Lincoln and Mercury products, figure 2.

With the exception of the advance mechanisms, Loadomatic distributors are tested in the same manner described on pages 3 to 7 inclusive.

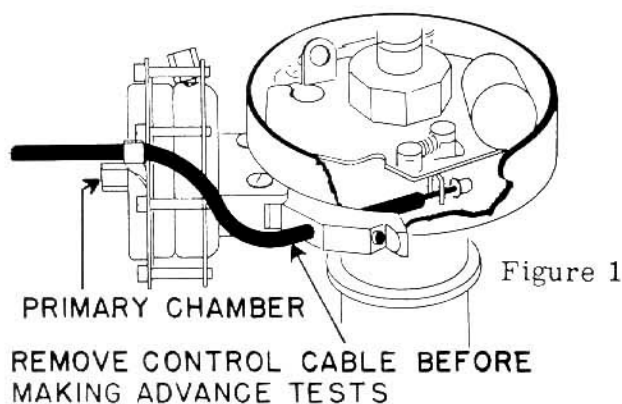


Figure 1

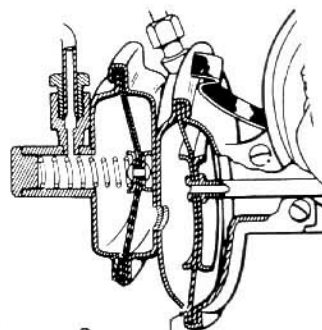


Figure 2

PRIMARY CHAMBER

### VACUUM CHAMBER DIAPHRAGM TEST

1. Insert the proper adapter in the primary vacuum chamber and tighten to insure a good seal.
2. Leave test leads connected and the lobe selector switch in the proper position as before.
3. Attach hose to vacuum unit and seal hose with metal clamp.
4. Adjust Vacuum Regulator until gauge reads 7 inches for 1953 models or 20 inches for later

### BREAKER PLATE TEST

6. Adjust speed to 1000 RPM
7. With the vacuum regulator, increase vacuum

### ADVANCE TEST

8. Adjust Vacuum Regulator until gauge reads zero, then disconnect hose.
9. With distributor operating at minimum RPM place degree ring zero in line with one of the arrow flashes.
10. Adjust manometer scale to read zero inches

models.

5. Release hose clamp and observe gauge. Gauge will momentarily fall to a lower reading.

If gauge reading returns to original reading within a few seconds, vacuum chamber is air tight.

If gauge reading fails to return to original reading, chamber is leaky.

from 0 to 7 inches while watching dwell meter. If the dwell meter reading varies more than 2 degrees, wear in the breaker plate bushing is indicated.

and then connect hoses as shown on page 11

11. Adjust vacuum and distributor speed for each specified check point in turn and note the amount of advance obtained.
12. Reduce vacuum and distributor speed and again note advance obtained at each specified check point.

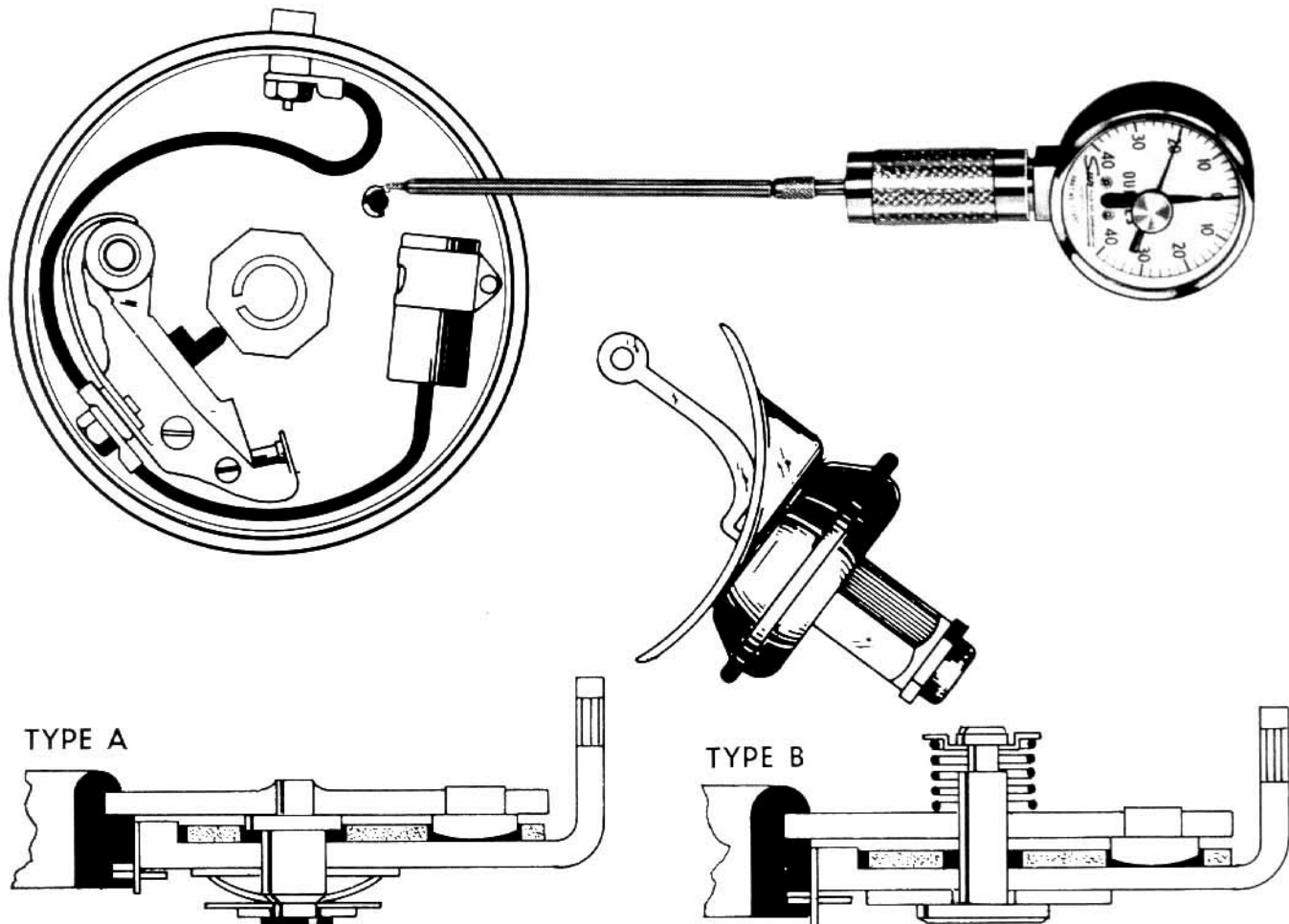
Consult manufacturer's service manual for specific adjusting procedures.

## BREAKER PLATE SPRING TENSION TEST

### Delco-Remy Center-Bearing Breaker Plate

This test is made to determine if the breaker plate is free to rotate as it should under the influence of the vacuum spark control unit. Ex-

cessive plate tension may cause sluggish action of the advance mechanism, causing erratic timing under changing loads.



#### PROCEDURE

1. Remove the vacuum spark control unit from the distributor. Replace the small screw finger tight in the plate to provide an attaching point for the spring tension scale.
2. With the plate pushed to full retard position (full travel in the direction of cam rotation) hook the spring tension scale on the screw as shown, and pull, noting the amount of pull necessary to start movement of the breaker plate.

This specification is not over 20 ounces for the type "A" plate shown and not over 15 ounces for the type "B" plate.

Tension may be adjusted on type "A" by adding or removing shim washers to the tension spring on the underside of the plate, and on the type "B" by stretching or replacing the helical plate tension spring.

## DISTRIBUTOR POINT DWELL

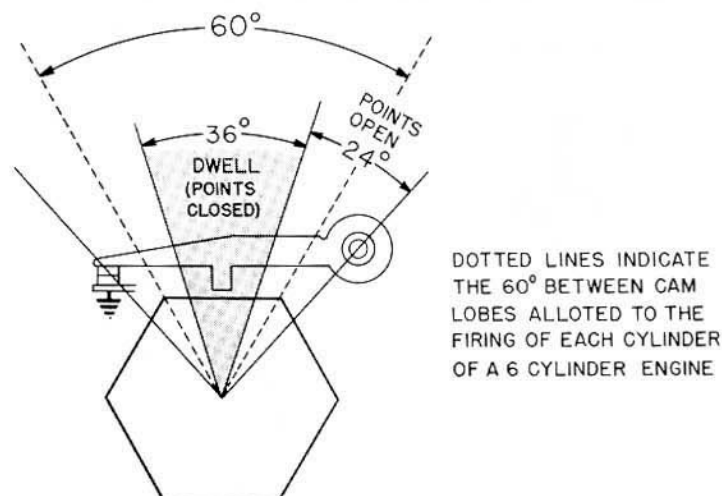
Dwell or dwell angle is the number of degrees\* through which the distributor shaft rotates from the time the points close until they open again. Dwell angle is inversely proportional to point gap, that is, increasing gap decreases dwell, and vice versa.

Insufficient dwell tends to cause ignition failure at high speed, while too much dwell increases the total average current which the points must handle, particularly at low speed.

This usually leads to very short point life.

After a distributor is initially timed to any given engine, any change in dwell will result in a change in timing, requiring retiming of the distributor, since the point rubbing block will contact the cam at a different place.

When a dwell specification is given with a high and low limit, set the point dwell to the lower limit for new points to allow for rubbing block wear.



DOTTED LINES INDICATE THE 60° BETWEEN CAM LOBES ALLOTTED TO THE FIRING OF EACH CYLINDER OF A 6 CYLINDER ENGINE

\*Some publications of Ford Motor Company refer to "percent of dwell". The percent of dwell is the relation of the actual dwell as compared to 100% dwell. A 100% dwell

for a 4 cylinder engine is 90°  
 for a 6 cylinder engine is 60°  
 for an 8 cylinder engine is 45°

Examples of percent of dwell are:

4 cylinder engine with a 60% dwell  
 is 60% of 90° or 54° dwell.  
 6 cylinder engine with a 60% dwell  
 is 60% of 60° or 36° dwell.  
 8 cylinder engine with a 60% dwell  
 is 60% of 45° or 27° dwell.

## CONTACT POINT GAP AND DWELL or Cam Angle Relationship

If a distributor cannot be adjusted so that gap and dwell are within specifications at the same time inspect for the following possibilities:

Improper spring tension or sticky pivot.

Wrong point set installed.

Bent shaft, causing point opening to vary on each cam lobe.

Worn cam lobes or defective cam, as above. (Compare gap at each cam lobe if in doubt.)

Points floating, or not following the cam at high speeds.

In practically every case the remedy will be self-evident.

Excessive resistance causing false dwell reading.

## MOUNTING AND FILLING THE SUN MANOMETER

### MOUNTING

1. Remove rear panel of tester by removing sheet metal screws.
2. Position manometer at rear edge of right side panel of tester, align holes in manometer flange with those provided in side panel and secure with screws provided.
3. Replace rear panel of tester.
4. Attach the vacuum hose and nozzle supplied to the lower fitting of the manometer.
5. Remove and discard the screw and gasket in the upper fitting.

### FILLING

Use Only Genuine Sun Manometer Fluid

1. Position scale at mid point of adjustment range.
  2. Remove small casting from top of manometer.
  3. Use medicine dropper to fill manometer with Sun Manometer Fluid. Slowly fill to zero point on scale. Make slight adjustment with scale adjustment screw if necessary.
  4. Replace manometer top casting.
- In the event of over filling, either remove the manometer and pour off the excess fluid; or, with top casting removed, blow gently into manometer hose and blot fluid expelled from filler pipe with a cloth.
- Do not allow fluid to contact painted surfaces.

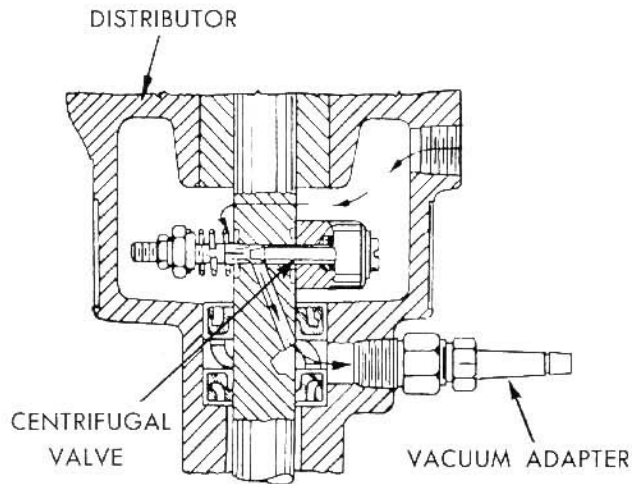
## TRANSMISSION AND OVER DRIVE GOVERNOR TEST

### PROCEDURE

1. Place governor drive adapter in the distributor tester drive chuck and tighten.
2. Place governor in clamp and tighten securely.
3. Adjust the elevating control so governor shaft fits into slot in drive adapter.
4. Connect distributor lead to contact terminal on governor and ground lead to governor body.
5. Turn motor drive switch to right or left hand rotation, as indicated by the specifications for the governor being tested.
6. Turn selector switch to 8 cyl. position.
7. Use dwell meter to indicate "make" and "break" of the governor switch.
8. Check the RPM at "make" and "break" on acceleration and deceleration against manufacturer's specifications for the governor being tested.

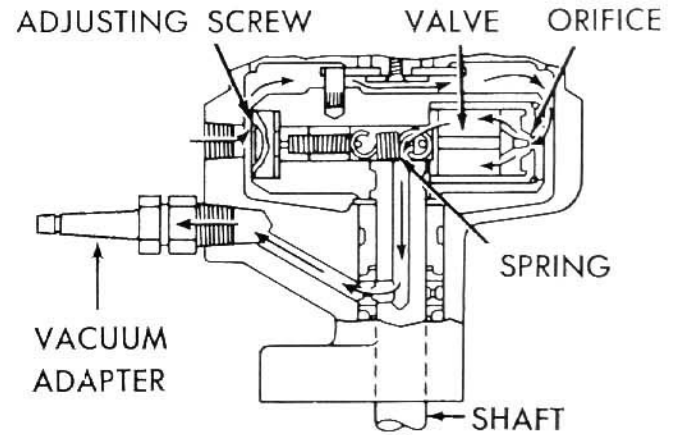


## DELCO-REMY AND HOLLEY GOVERNOR TEST



### DELCO-REMY

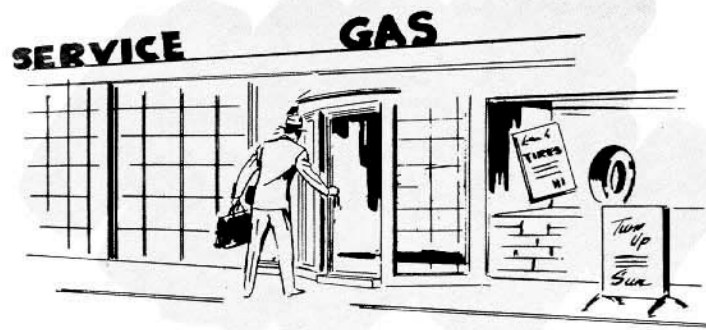
1. With distributor mounted in tester, insert proper vacuum adapter in lower fitting on distributor housing and tighten with wrench to insure a good seal.
2. Trip Motor Switch to proper direction of rotation and adjust speed to zero RPM.
3. Attach hose to vacuum adapter and seal hose with metal clamp.
4. Adjust Vacuum Regulator until gauge reads 5 inches.
5. Release hose clamp, increase distributor speed until the vacuum gauge reading reaches a maximum value. This maximum value will vary, depending on the type of centrifugal valve parts used.
6. After this maximum reading has been reached, slowly decrease the distributor speed until the vacuum gauge falls .1 inch from its maximum reading. The speed at which this .1 inch vacuum drop occurs will be the no load governed speed.



### HOLLEY

1. With distributor mounted in tester insert proper vacuum adapter in lower fitting on distributor housing and tighten with wrench to insure a good seal.
2. Trip Motor Switch to proper direction of rotation and adjust speed to zero RPM.
3. Attach hose to vacuum adapter and seal hose with metal clamp.
4. Adjust vacuum regulator until gauge reads 4.5 inches.
5. Release hose clamp. Vacuum reading should now be approximately 2 inches.
6. Adjust distributor speed to a point well above the desired governing RPM. At this speed the vacuum gauge should again read the predetermined setting of 4.5 inches.
7. Slowly decrease the distributor speed while observing the vacuum gauge. The speed at which the gauge reading begins to fall will be the no load governed speed.

**NOTE:** Distributor RPM is one-half engine RPM. If factory recommendations call for 3600 RPM no load governed speed, this would be 1800 RPM on the tester and the governor should be adjusted so that valve will close at this speed. Repeat test after each adjustment.



## WHAT YOUR SUN REPRESENTATIVE MEANS TO YOU!

For more than a quarter century, the SUN Representative has been a Right Hand Man to the Automotive Service Industry.

He is one of many carefully selected and trained men whose technical knowledge is always at your disposal.

You will find your Sun man ready and willing to assist you in planning and promoting profitable service programs with your Sun test equipment—he is equipped with the latest product and testing information and can offer complete personalized instruction tailored to your equipment and your operation.

Ask him about Sun's many strategically located repair branches, fully staffed and equipped to provide you with complete and convenient authorized Sun Repair Service.

All in all, you will find your Sun man a real friend, completely equipped and cheerfully ready to assist you in developing an outstanding and profitable service operation. He is always at your service anytime, anywhere. Just call or write to your nearest authorized Sun Sales and Service Branch or our factory.



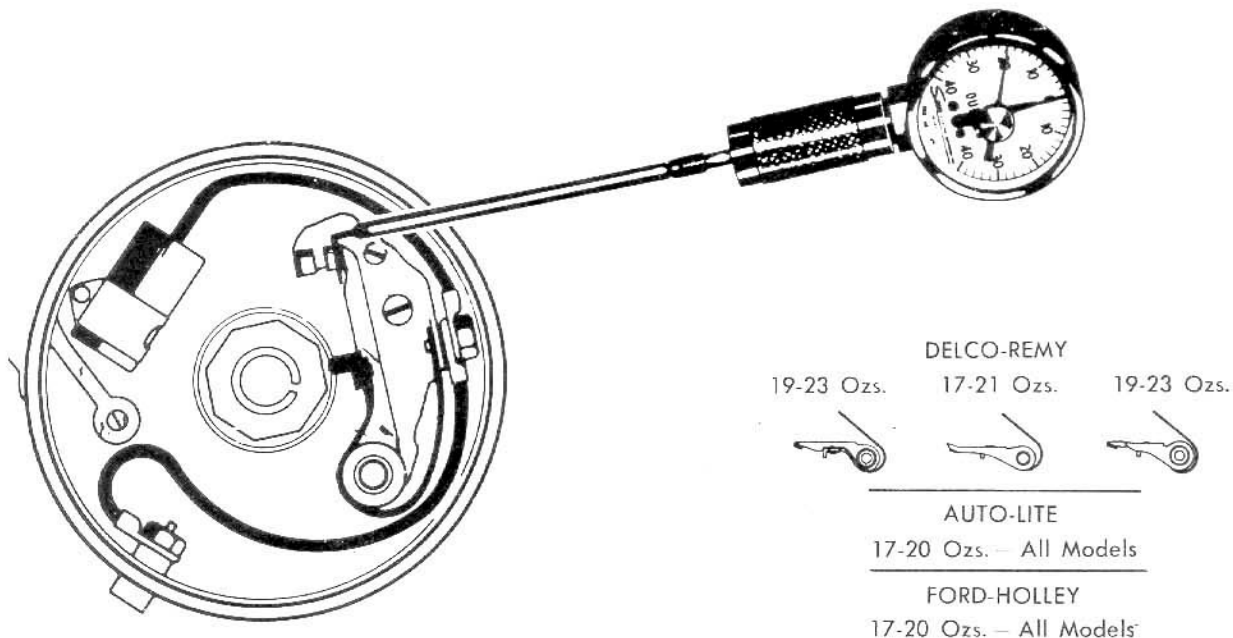
# INSTRUCTIONS

## SPRING TENSION GAUGE PART NO. 2-1892

### BREAKER POINT SPRING TENSION TEST

Proper tension of the breaker point spring is an important factor in obtaining normal breaker assembly life and maintaining full ignition system efficiency throughout the speed range of the engine. Excessive spring tension can cause

rapid rubbing block, cam, and contact wear, while insufficient spring tension may allow the points to bounce at high speeds which generally results in arcing and burning of the points and causes the engine to misfire.



### PROCEDURE

1. Using knob on dial face, set the adjustable pointer to the FULL CLOCKWISE position (left side of main pointer at "0").
2. Set the distributor cam so that the breaker points are closed.
3. Place hook end of spring tension gauge on moveable contact arm, as close to the contact point as possible.
4. Position the gauge so that it is at a right angle to the contact surface, and apply a slow even pull.
5. The moment the points begin to open, release the tension and note the gauge reading. The adjustable pointer will remain at the position of maximum tension until it is reset.
6. Hold points open to approximately their recommended gap with the spring tension tester and slowly let them close. If the scale reading decreases noticeable from the previous reading before the points close, it is probable that the pivot requires lubrication as recommended by the manufacturer.

NOTE: A Dwell meter or Ohmmeter across the points may be helpful for locating the exact instant the breaker points open.

If desired, the Spring Tension Gauge may also be used in a "push" application instead of the conventional "pull".

The Sun Spring Tension Gauge is an extremely versatile tester and may be used for applications other than those described in this instruction sheet, including generator brush and relay contact tension tests.

692-399

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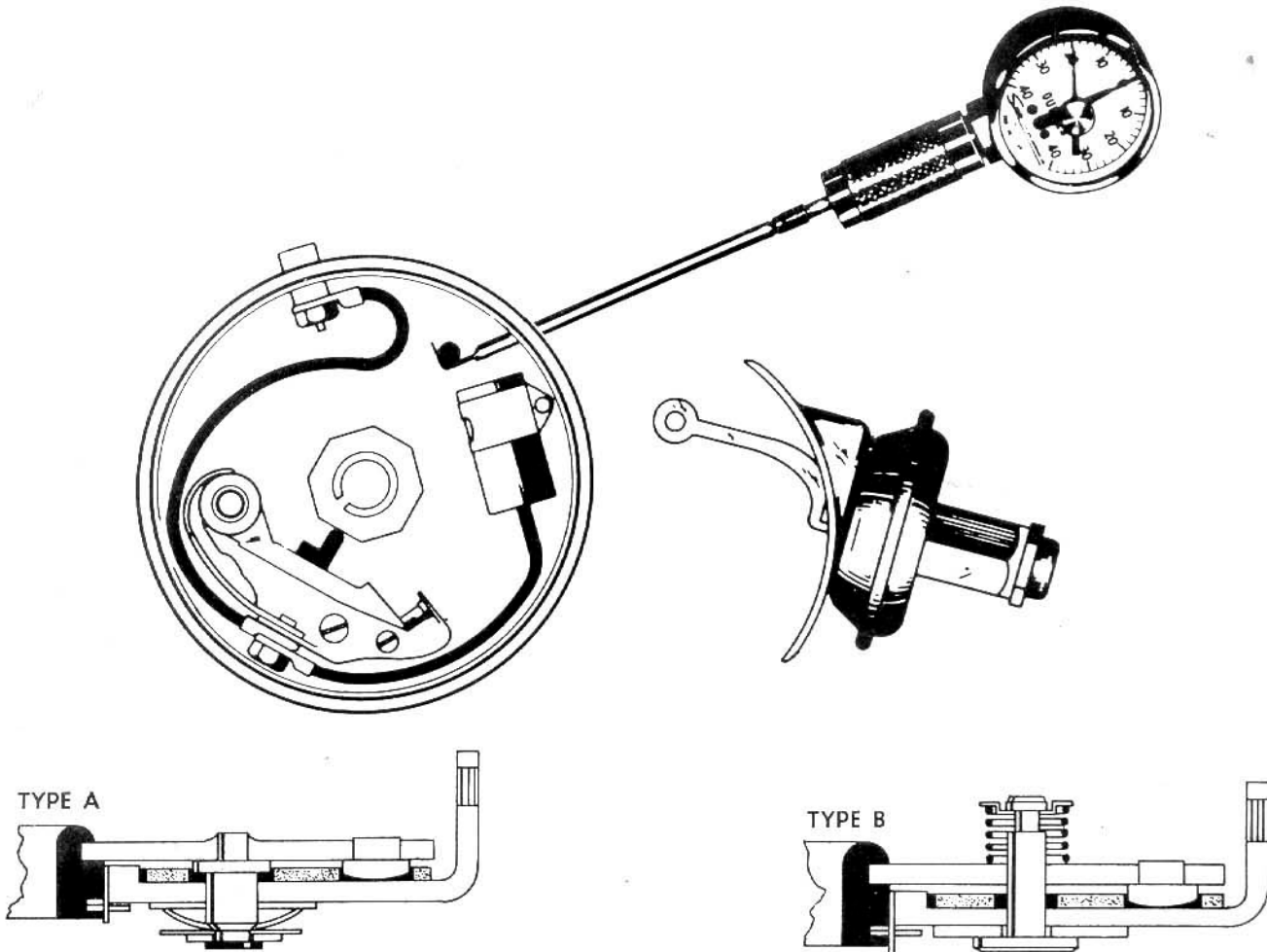
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## BREAKER PLATE SPRING TEST DELCO-REMY CENTER BEARING BREAKER PLATE

This test is made to determine if the breaker plate is free to rotate as it should under the influence of the vacuum spark control unit. Ex-

cessive plate tension may cause sluggish action of the advance mechanism, causing erratic timing under changing loads.



### PROCEDURE

1. Remove the vacuum spark control unit from the distributor. Replace the small screw finger tight in the plate to provide an attaching point for the spring tension scale.
2. With the plate pushed to full retard position (full travel in the direction of cam rotation) hook the spring tension scale on the screw as shown, and pull, noting the amount of pull necessary to start movement of the breaker plate.

This specification is not over 20 ounces for the type "A" plate shown and not over 15 ounces for the type "B" plate.

Tension may be adjusted on type "A" by adding or removing shim washers to the tension spring on the underside of the plate, and on the type "B" by stretching or replacing the helical plate tension spring.

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"The Manufacturer, Sun Electric Corporation, warrants each piece of equipment manufactured by it to be free from defects in material and workmanship under normal use, its obligation under this warranty being limited to replacing or repairing any part or parts which shall have been returned to the Manufacturer at its factory or any branch, transportation charges prepaid, within one year after purchase and delivery of such equipment to the original purchaser and which the Manufacturer's examination shall disclose to its satisfaction to have been thus defective. This warranty shall not apply to equipment which shall have been repaired or altered by others than the Manufacturer in a manner which in the judgment of the Manufacturer has adversely affected its operation. The Manufacturer reserves the right to make changes at any time in the design and price of its equipment. This warranty is in lieu of all other warranties, expressed or implied, and the Manufacturer neither assumes, nor authorizes any other person to assume for it, any other liability in connection with the sale of its products."