BALLAST RESISTOR

The ballast resistor is a compensating resistance in the ignition primary circuit. During low speed operation, when the primary circuit current flow is high, ballast resistor temperature rises, increasing resistance. This reduces current flow, thereby prolonging ignition contact life. At high speed operation, when primary current flow is low, the ballast resistance cools off allowing more current flow, which is required for high speed operation. During starter operation, the ballast resistor is bypassed, allowing full battery voltage to the ignition primary circuit.

SPARK PLUGS

To insure peak performance, spark plugs should be removed, cleaned, tested and regapped every 5000 miles. Worn and dirty plugs may give satisfactory operation at idling speed but may fail under operation conditions. Spark plug appearance or conditions can reflect a wide variety of engine conditions as follows:

Normal Conditions

Normal conditions (Fig. 1). This plug has been running at the correct temperature in a "healthy" engine. The few deposits present will probably be light tan or gray in color with most regular grades of commercial gasoline. Electrode burning will not be in evidence; gap growth will average not more than about .001"/1000 miles. Chances are the plug, as pictured, could be cleaned, the gap electrodes filed, regapped and reinstalled with good results.

Cold Fouling

Cold fouling or carbon deposits (Fig. 2). This dry

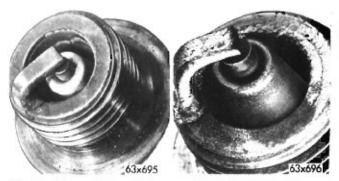


Fig. 1—Normal Conditions Fig. 2—Cold Fouling

black appearance is fuel carbon and can be due to over rich fuel-air mixture, possibly resulting from a faulty choke, clogged air cleaner, improper carburetor idle adjustment, or dirty carburetor. However, if only one or two plugs in a set are fouled like this it is a good idea to check for sticking valves or faulty ignition cables. This condition also results from prolonged operation at idle. If the vehicle is operated extensively at idle and low speeds, improved plug service will be obtained by using the next step hotter spark plugs.

Wet Fouling

Wet fouling (Fig. 3) tells you that the plug has drowned in excess oil. In an old engine, suspect worn rings or excessive cylinder wear. In OHV engines, too much oil may be coming in past the valve guides. Use of a hotter plug may relieve such fouling, but plugs can't take the place of needed engine overhaul. Remember that "break-in" fouling of new engines may occur before normal oil control is achieved. In new or recently overhauled jobs, such fouling plugs can be cleaned and reinstalled.

Splashed Fouling

Splashed fouling (Fig. 4) may sometimes occur after a long-delayed tune-up. Here, deposits accumulated ater a long period of misfiring may be suddenly loosened when normal combustion temperatures are restored upon installation of new plugs. During a high speed run, these materials shedding off the combus-

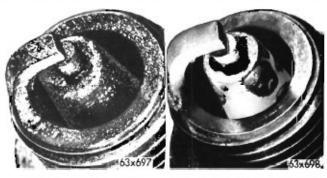


Fig. 3-Wet Fouling

Fig. 4—Splashed Fouling

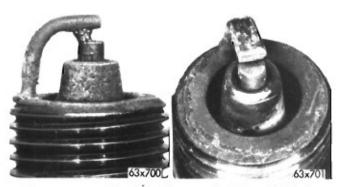


Fig. 5-Gap Bridging Fig. 6-High Speed Glazing

tion chamber are thrown against the hot insulator surface. If they happen to short out the plug, they can be removed with regular cleaning techniques. The plugs can then be reinstalled with good results as the engine has scavenged itself.

Gap Bridging

Gap bridging (Fig. 5) is also relatively rare in automotive engines. It also may be traced to flying deposits in the combustion chamber. In a few cases, fluffy deposits may accumulate on the plugs during in-town driving; when the engine is suddenly put under high load, this material can melt and bridge the gap.

High Speed Glazing

High Speed glazing may cause misfiring at speeds above 50-60 mph. The shiny deposit (Fig. 6) may be yellow or tan in color. It usually suggests that temperatures have suddenly risen during a hard acceleration. As a result normal deposits do not get a chance to fluff off the plug... instead they melt and form a conductive coating. If this continues to reoccur, suggest a colder heat range and regular spark plug cleanings.

Overheating

Overheating (Fig. 7) is indicated by a white or light gray insulator which appears "blistered." Electrode gap wear rate will be considerable in excess of

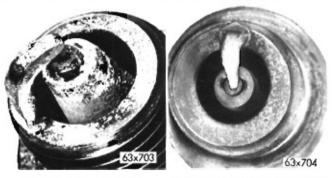


Fig. 7-Overheating

Fig. 8-Turbulence Burning





Fig. 9—Initial Pre-Ignition Damage

Fig. 10—Reversed Coil Polarity

.001"/1000 miles. This suggests that a cooler heat range should be used . . . however, over-advanced ignition timing, detonation and cooling system stoppages can also overheat the correct spark plug heat ranges.

Turbulence Burning

Turbulence burning (Fig. 8) causes electrodes to wear away on one side. This is the result of normal turbulence patterns in the combustion chambers of certain engines. It can be ignored if normal plug life is being obtained. If gap growth appears excessive, review the corrective measures suggested under overheating.

Initial Pre-ignition Damage

Initial pre-ignition damage (Fig. 9) may be caused

by excessive temperatures. This produces melting of the center electrode and, somewhat later, the ground electrode. Remember that the spark plug is like an electric fuse . . . when it melts, it warns you to look for the causes, and for damage to the engine such as scuffed pistons, burned pistons or burned valves. Inspect for correct spark plug heat range, over-advanced ignition timing, loose spark plugs, burned head gasket, excessive detonation due to low octane fuel and for similar causes of overheating.

Reversed Coil Polarity

Reversed coil polarity can often be detected by "dishing" of the ground electrode. Note in Figure 10 that the center electrode is usually not worn badly. This source of misfiring and rough idle can be corrected by reversing the primary coil leads. An oscilloscope is the surest way to detect reversed polarity.

While these examples may not be conclusive in all instances, they may indicate possible corrective procedures and further diagnosis may be necessary.

Cleaning and Regapping

Carefully clean the spark plugs in an abrasive type cleaner. Use a pin type feeler gauge to check spark plug gap. Reset gaps to .035 inch. Before setting spark plug gap, file center electrode flat, make adjustment by bending ground (side) electrode, never bend the center electrode.

When installing spark plugs, tighten to 30 footpounds.

Engine Application	318 2-Barrel Carburetor Manual Transmission		318 2-Barrel Carburetor Automatic Transmission
Engine Displacement	318 Cu. In. 2444760		318 Cu. In. 2444761
Degrees at Distributor RPM)	0° @ 320 to 480 0° to 2° @ 480 4.5° to 6.5° @ 850 10.5° to 12.5° @ 2300		0° @ 330 to 570 0° to 2° @ 570 2° to 4° @ 800 8° to 10° @ 2300
Advance—Vacuum (Distributor			
Degrees at Inches of Mercury)	0° @ 8″ to 10″ 5° to 8° @ 13″ 9° to 12° @ 16″		0° @ 8" to 10" 5° to 8° @ 13" 9° to 12° @ 16"
Contact Gap Dwell Angle	.014" to .019" 28° to 32°		.014" to .019" 28° to 32°
Contact Arm Spring Tension	17 to 20 oz. .25 to .285 mfd.		17 to 20 oz. .25 to .285 mfd.
Shaft Side Play (New or Rebuilt) Shaft End Play (After Assembly) Rotation	.000" to .003" * .003" to .017" Clockwise		.000" to .003" * .003" to .017" Clockwise
Fiming	5° BTC ** J14Y-Champion		10° BTC ** J14Y-Champion
Size	14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2		14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2
Firing Order	Chrysler-Prestolite 2444242	or	Chrysler-Essex 2444241
Primary Resistance @ 70°-80°F Secondary Resistance @ 70°-80°F	1.65 to 1.79 Ohms 9400 to 11700 Ohms		1.41 to 1.55 Ohms 9200 to 10600 Ohms
Ballast Resistor Resistance @ 70°-80°F		2095501 0.5 to 0.6 Ohms	
Current Draw (Coil and ballast resistor in circuit) Engine Stopped		3.0 amperes 1.9 amperes	

^{*} Service wear tolerance should not exceed .006 inch.

** Set at idle speed; See "Idle Speed Adjustment, Fuel System."

Engine Application	318 2-Barrel Carburetor Manual Transmission	318 2-Barrel Carburetor Automatic Transmission	318 2-Barrel Carburetor Manual Transmission	318 2-Barrel Carburetor Automatic Transmission
Engine Displacement	318 Cu. In. 2642721	318 Cu. In. 2642718	318 Cu. In. 2642724	318 Cu. In. 2642724
Advance—Centrifugal (Distributor Degrees at Distributor RPM)	0° @ 325 to 475 0° to 2° @ 475 3.75° to 5.75° @ 7.80 12.5° to 14.5° @ 2250	0° @ 320 to 480 0° to 1° @ 480 3° to 4.25° @ 1000 10.5° to 12.5° 2350	0° @ 325 to 475 0° to 5° @ 475 7.75° to 9.75° @ 600 18° to 20° @ 2350	0° @ 325 to 475 0° to 5° @ 475 7.75° to 9.75° @ 600 18° to 20° @ 2350
Advance—Vacuum (Distributor Degrees at Inches of Mercury) Contact Gap Dwell Angle Contact Arm Spring Tension Condenser Capacity Shaft Side Play (New or Rebuilt) Shaft End Play (After Assembly) Rotation Timing Spark Plug Type	0° @ 7" to 9" 6° to 9° @ 12" 10.5° to 13.5° @ 15" .014" to .019" 28° to 32° 17 to 20 oz25 to .285 mfd000" to .003" * .003" to .017" Clockwise 5° BTC ** N-14Y Champion or P-6-6P Mopar	0° @ 7" to 9" 6° to 9° @ 12" 10.5° to 13.5° @ 15" .014" to .019" 28° to 32° 17 to 20 oz25 to .285 mfd000" to .003" * .003" to .017" Clockwise 10° BTC ** N-14Y Champion or P-6-6P Mopar	0° @ 7.5" to 10.5" 7° to 10° @ 14" 10.5° to 13.5° @ 16" .014" to .019" 28° to 32° 17 to 20 oz25 to .285 mfd000" to .003" * .003" to .017" Clockwise 5° ATC ** N-14Y Champion or P-6-6P Mopar	0° @ 7.5" to 10.5" 7° to 10° @ 14" 10.5° to 13.5° @ 16" .014" to .019" 28° to 32° 17 to 20 oz25 to .285 mfd000" to .003" * .003" to .017" Clockwise 5° ATC ** N-14Y Champion or P-6-6P Mopar
Size	14MM-3/8" Reach ,035" 1-8-4-3-6-5-7-2	14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2	14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2 Chrysler-Prestolite —	14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2 _or Chrysler-Essex
Coil Identification Number Primary Resistance @ 70°-80°F Secondary Resistance @ 70°-80°F	2444242 1.65 to 1.79 Ohms 9400 to 11700 Ohms	or— Chrysler-Essex 2444241 1.41 to 1.55 Ohms 9200 to 10600 Ohms	2444242 1.65 to 1.79 Ohms 9400 to 11700 Ohms	2444241 1.41 to 1.55 Ohms 9200 to 10600 Ohms
Ballast Resistor		095501 0.6 Ohms		0.6 Ohms
Resistance @ 70°-80°F	3.0	amperes amperes		amperes amperes

^{*} Service wear tolerance should not exceed .006 inch.

^{**} Set at idle speed; See "Idle Speed Adjustment, Fuel System."

Engine Application	383	383	383
	4-Barrel Carburetor	4-Barrel Carburetor	4-Barrel Carburetor
	Manual or Automatic Trans.	Manual Transmission	Automatic Transmission
Engine Displacement	383 Cu. In.	383 Cu. In.	383 Cu. In.
	2642248	2642949	2642745
Degrees at Distributor RPM)	0° @ 310 to 490	0° @ 375 to 525	0° @ 425 to 575
	0° to 2° @ 490	0° to 6.5° @ 525	0° to 4.5° @ 575
	3° to 5° @ 750	7.8° to 9.8° @ 710	6° to 8° @ 790
	7° to 9° @ 2400	14.5° to 16.5° @ 2300	10.5° to 12.5° @ 2450
Advance—Vacuum (Distributor Degrees at Inches of Mercury)	0° @ 6" to 9"	0° @ 4.5" to 8"	0° @ 4.5" to 8"
	4.5° to 7.5° @ 12"	6° to 9° @ 12"	6° to 9° @ 12"
	8.25° to 11° @ 15"	11.5° to 14.5° @ 16.5"	11.5° to 14.5° @ 16.5"
Contact Gap	.014" to .019"	.014" to .019"	.014" to .019"
	28° to 32°	28° to 32°	28° to 32°
	17 to 20 oz.	17 to 20 oz.	17 to 20 oz.
Condenser Capacity Shaft Side Play (New or Rebuilt) Shaft End Play (After Assembly) Rotation	.003" to .017" Counterclockwise	.25 to .285 mfd. .000" to .003" * .003" to .017" Counterclockwise	.25 to .285 mfd. .000" to .003" * .003" to .017" Counterclockwise
Timing	12.5° B1C ***	TDC J-13Y Champion P-3-5P Mopar *** J-11Y Champion or P-3-3P Mopar ****	5° BTC J-13Y Champion P-3-5P Mopar *** J-11Y Champion or P-3-3P Mopar ****
Size	14MM-3/8" Reach	14MM-3/8" Reach	14MM-3/8" Reach
Gap	.035"	.035"	.035"
Firing Order	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Coil Identification Number Primary Resistance @ 70°-80°F	2444242	—or— Chrysler-Essex 2444241 1.41 to 1.55 Ohm	
Secondary Resistance @ 70°-80°F Ballast Resistor Resistance @ 70°-80°F	9400 to 11700 Ohms		
Current Draw (Coil and ballast resistor in circuit) Engine Stopped		3.0 amperes 1.9 amperes	

^{*} Service wear tolerance should not exceed .006 inch.

^{**} Set at idle speed; See "Idle Speed Adjustment, Fuel System."

^{***} If J-13Y or Mopar P-3-5P are not available use Champion J-12Y.

^{****} J-11Y Champion (Police Cars). If J-11Y are not available use Mopar P-3-3P or Champion J-10Y.

Engine Application	383 2-Barrel Carburetor Manual or Automatic Trans.	383 2-Barrel Carburetor Automatic Transmission	383 2-Barrel Carburetor Manual Transmission
Engine Displacement	383 Cu. In. 2642727	383 Cu. In. 2642810	383 Cu. In. 2642949
Advance—Centrifugal (Distributor Degrees at Distributor RPM)		0° @ 400 to 550 0° to 4° @ 550 5.5° to 7.5° @ 750 14.5° to 16.5° @ 2200	0° @ 375 to 525 0° to 6.5° @ 525 7.8° to 9.8° @ 710 14.5° to 16.5° @ 2300
Advance—Vacuum (Distributor Degrees at Inches of Mercury)	10.5° to 13.5° @ 13.5"	0° @ 4.5" to 8" 6° to 9° @ 12" 11.5° to 14.5° @ 16.5"	0° @ 4.5" to 8" 6° to 9° @ 12" 11.5° to 14.5° @ 16.5" .014" to .019"
Contact Gap Dwell Angle Contact Arm Spring Tension Condenser Capacity Shaft Side Play (New or Rebuilt)	17 to 20 oz. .25 to .285 mfd. .000" to .003" *	.014" to .019" 28° to 32° 17 to 20 oz. .25 to .285 mfd. .000" to .003" *	28° to 32° 17 to 20 oz. .25 to .285 mfd. .000" to .003" * .003" to .017"
Shaft End Play (After Assembly) Rotation Timing Spark Plug Type	Counterclockwise 12.5° BTC ** J-14Y Champion or P-3-6P Mopar	Counterclockwise 5° BTC J-14Y Champion or P-3-yP Mopar 14MM-3/8" Reach	Counterclockwise TDC J-14Y Champion or P-3-6P Mopar 14MM-3/8" Reach
Size	.035" 1-8-4-3-6-5-7-2	.035" 1-8-4-3-6-5-7-2 —or— Chrysler-Essex	.035" 1-8-4-3-6-5-7-2
Coil	2444242 1.65 to 1.79 Ohms	2444241 1.41 to 1.55 Ohm 9200 to 10600 Ohm 2095501	ns
Ballast Resistor Resistance @ 70°-80°F		0.5 to 0.6 Ohms	
in circuit) Engine Stopped Engine Idling		3.0 amperes 1.9 amperes	

^{*} Service wear tolerance should not exceed .006 inch.

^{**} Set at idle speed; See "Idle Speed Adjustment, Fuel System."

Engine Application	440 With 4-Barrel Carburetor Automatic or Manual Trans.	440 4-Barrel Carburetor Automatic Transmission	440 4-Barrel Carburetor Manual Transmission
Engine Displacement	440 Cu. In. 2642730	440 Cu. In. 2642816	440 Cu. In. 2642813
Degrees at Distributor RPM)	0° @ 310 to 490 0° to 2° @ 490 3.5° to 5.5° @ 800 8.5° to 10.5° @ 2300	0° @ 425 to 575 0° to 3.5° @ 575 6.2° to 8.2° @ 840 12.5° to 14.5° @ 2400	0° @ 350 to 500 0° to 5° @ 500 8.2° to 10.2° @ 750 14.5° to 16.5° @ 2300
Advance—Vacuum (Distributor Degrees at Inches of Mercury)	0° @ 8" to 10" 5° to 8° @ 13" 9° to 12° @ 16"	0° @ 8" to 10" 5° to 8° @ 13" 11.5° to 14.5° @ 17.5"	0° @ 8" to 10" 5° to 8° @ 13"
Contact Gap	.014" to .019" 28° to 32°	.014" to .019" 28° to 32° 17 to 20 oz.	11.5° to 14.5° @ 17.5" .014" to .019" 28° to 32° 17 to 20 oz.
Condenser Capacity	.25 to .285 mfd. .000" to .003", * .003" to .017"	.25 to .285 mfd. .000" to .003" * .003" to .017"	.25 to .285 mfd. .000" to .003" * .003" to .017" *
Rotation	12.5° BTC **	Counterclockwise 5° BTC ** J-13Y Champion or Mopar P-3-5P **** J-11Y Champion or P-3-3P Mopar ***	Counterclockwise T.D.C. J-13Y Champion or Mopar P-3-5P **** J-11Y Champion or Mopar P-3-3P ***
Size	14MM-3/8" Reach .035" 1-8.4-3-6-5-7-2	14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2	14MM-3/8" Reach .035" 1-8-4-3-6-5-7-2
Coil	Chrysler-Prestolite 2444242	—or— Chrysler-Essex 2444241 1.41 to 1.55 Ohms	
Ballast Resistor Resistance @ 70°-80°F Current Draw (Coil and ballast resistor		2095501 0.5 to 0.6 Ohms	,
in circuit) Engine Stopped Engine Idling	1750	3.0 amperes 1.9 amperes	

^{*} Service wear tolerance should not exceed .006 inch.

^{**} Set at idle speed; See "Idle Speed Adjustment, Fuel System."

^{***} Police Cars. If J-11Y or P-3-3P are not available use Champion J-10Y.

^{****} If J-13Y Champion or P-3-5P Mopar are not available, use Champion J-12Y.

WITH CLEANER AIR PACKAGE

A134 Hi-Performance

A134 Hi-Performance

Engine Application	440 With 4-Barrel Carburetor Manual or Automatic Transmission	440 4-Barrel Carburetor Automatic Transmission	440 4-Barrel Carburetor Manual Transmission
Engine Displacement	440 Cu. In. 2642748	440 Cu. In. 2642822	440 Cu. In. 2642819
Advance—Centrifugal (Distributor Degrees at Distributor RPM)	0° @ 325 to 475 0° to 4° @ 475 4.5° to 6.5° @ 640 8.5° to 10.5° @ 2200	0° @ 325 to 475 0° to 5.5° @ 475 8° to 10° @ 700 12.5° to 14.5° @ 2400	0° @ 325 to 475 0° to 7° @ 475 10.5° to 12.5° @ 700 14.5° to 16.5° @ 2250
Advance—Vacuum (Distributor Degrees at Inches of Mercury)	5° to 8° @ 13" 9° to 12° @ 16"	0° @ 8" to 10" 5° to 8° @ 13" 9° to 12° @ 16"	0° @ 8" to 10" 5° to 8° @ 13" 9° to 12° @ 16"
Contact Gap	.014" to .019" 28° to 32° 17 to 20 oz.	.014" to .019" 28° to 32° 17 to 20 oz. .25 to .285 mfd.	.014" to .019" 28° to 32° 17 to 20 oz. .25 to .285 mfd.
Shaft Side Play (New or Rebuilt)	.000" to .003" .003" to .017" Counter-Clockwise	.000" to .003" * .003" to .017" Counter-Clockwise	.000" to .003" * .003" to .017" Counter-Clockwise TDC **
Spark Plug Type	J-11Y Champion or P3-3P Mopar *** 14MM-3/8" Reach	5 BTC ** J11Y Champion or P-3-3P Mopar*** 14MM-3/8" Reach	J11Y Champion or P-3-3P Mopar*** 14MM-3/8" Reach
Gap	.035" 1-8-4-3-6-5-7-2	.035" 1-8-4-3-6-5-7-2 —or— Chrysler-Esse	.035" 1-8-4-3-6-5-7-2 ex
Identification Number	2444242 1.65 to 1.79 Ohms		
Ballast Resistor Resistance @ 70°-80°F Current Draw (Coil and ballast resistor		2095501 0.5 to 0.6 Ohms 3.0 amperes	
in circuit) Engine Stopped Engine Idling		1.9 amperes	

^{*} Service wear tolerance should not exceed .006 inch.

^{**} Set at idle speed.

^{***} If J-11Y Champion or P-3-3P Mopar are not available, use Champion J-10Y.

Engine Application	Hemi-426 ENGINE-A102 Two 4-Barrel Carburetors Manual or Automatic Trans.		Hemi-426 ENGINE-A102 Two 4-Barrel Carburetors Manual or Automatic Trans.
Engine Displacement	426 Cu. In. 2642482—IBS-4006P		426 Cu. In. 2642832—IBS-4006W
Degrees at Distributor RPM)	0° @ 425 to 575 0° to 3.5° @ 575 3.75° to 5.75° @ 740 7.5° to 9.5° @ 1400		0° @ 450—600 0° to 7° @ 600 9.8 to 11.8 @ 810 14° to 16° @ 1550
Advance—Vacuum (Distributor Degrees at Inches of Mercury)	0° @ 6" to 9" 4.5° to 7.5° @ 12" 8.25° to 11° @ 15"		0° @ 6" to 9" 4.5° to 7.5° @ 12" 8.25° to 11° @ 15"
Contact Gap Dwell Angle	.014" to .019" Individual Contacts 27° to 32° Total Dwell 37° to 42°		.014" to .019" Individual Contacts 27° to 32° Total Dwell 37° to 42°
Contact Arm Spring Tension	17 to 21.5 oz. .25 to .285 mfd. .000" to .003" * .003" to .017"		17 to 21.5 oz. .25 to .285 mfd. .000" to .003" * .003" to .017"
Rotation Timing Spark Plug Type Size	Counterclockwise 12.5° BTC ** N10Y Champion 14MM-3/4" Reach		Counterclockwise TDC ** N10Y Champion 14MM-3/4" Reach .035"
Gap	.035" 1-8-4-3-6-5-7-2 Chrysler-Prestolite 2444242	or	1-8-4-3-6-5-7-2 Chrysler-Essex 2444241 1.41 to 1.55 Ohms
Primary Resistance @ 70°-80°F	1.65 to 1.79 Ohms 9400 to 11700 Ohms 0.5	2095501 to 0.6 Ohms	9200 to 10600 Ohms
Current Draw (Coil and ballast resistor in circuit) Engine Stopped Engine Idling		3.0 amperes 3.9 amperes	

^{*} Service wear tolerance should not exceed .006 inch.
** Set at idle speed; See "Idle Speed Adjustment, Fuel System."