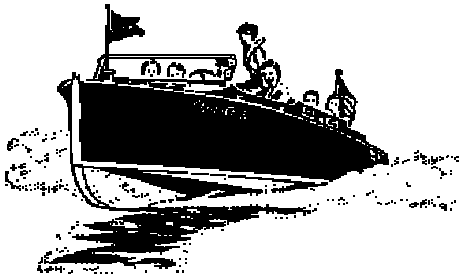

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can Be Emailed to Me
At:

ccmanuals@yahoo.com

SPECIFICATIONS
and
ADJUSTMENT TOLERANCES
for
CHRIS-CRAFT IN-LINE
4 & 6 CYLINDER
MARINE ENGINES

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MODEL "A" & "B" ENGINE
GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 4 Cylinder (in line).
Bore	3-1/4 inches.
Stroke	4 inches.
Piston Displacement	132.7 cubic inches.
Maximum Brake Horsepower	60 at 3200 RPM.
Maximum Torque	108 ft. lbs. at 2400 RPM.
Weight (Without Oil and Water)	"A" & "B" 465 lbs. (Approximate). "BR" 495 lbs. (Approximate). "BR3" 508 lbs. (Approximate).
Nominal Compression Ratio	6.78:1 (By Volume)(with 2013 Cyl Head).
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle. 20 to 35 lbs. Maximum Speed (hot).
Oil Pan Capacity	5 to 7 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from the engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor.
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. (GEO-4807 Gen.) Circuit Breaker Control. Generator Cuts in at Approx. 800 Engine RPM. Negative Ground.
Cylinder Numbering	One through four from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-2-4-3 (No. 1 cyl. at flywheel end).

MODEL "A" & "B" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold			Intake Valve - .010 Exhaust Valve - .010
Valve Seat	Width 5/64" - Angle 30°		
Valve Stem Clearance in Guide			Intake .001 - .0015 Exhaust .0025 - .003
Tappet Clearance in Bushing			.00075 - .001
Piston Clearance (at skirt)			.003 - .0035
Piston Fit	.003 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance	Hand Push Fit		.0001 - .0002
Piston Ring Gap			.015 - .020
Piston Ring Side Clearance in Groove			
Top Groove - Compression			.0015 - .003
2nd Groove - Compression			.0015 - .0035
Bottom Groove - Oil			.0015 - .003
Connecting Rod Bearing Clearance			.001 - .0015
Connecting Rod End Play - Side Clearance			.005 - .010
Crankshaft Main Bearing Clearance			.002 - .0025
Crankshaft End Play - Thrust Clearance			.002 - .004
Crankshaft Journal Diameters			
Main - Standard			1.988 - 1.987
Connecting Rod - Standard			1.748 - 1.747
Camshaft Bearing Clearance			.0015 - .0025
Idler Bearing Clearance			.001 - .0015
Accessory Drive Shaft Bearing Clearance			.0025 - .003
Distributor Shaft End Play			.003 - .010
Camshaft End Play			.002 - .004
Idler Shaft End Play			.002 - .004
Accessory Drive Shaft End Play			.002 - .003
Accessory Drive Gear Backlash to Idler Gear			.002 - .004
Crankshaft Gear Backlash to Camshaft Gear			.000 - .002
Idler Gear Backlash to Crankshaft Gear			.001 - .002
Oil Pump Gear Backlash to Camshaft			.008 - .010
Distributor Drive Gear Backlash to Distributor Driven Gear			.003 - .008
Distributor Point Gap			.022
Spark Plug	Champion J8JM	Gap	.028

TORQUE SPECIFICATIONS

Cylinder Head	35 ft. lbs.
Connecting Rod	42 ft. lbs.
Main Bearings	
Front & Inter.	77 ft. lbs.
Center & Rear	77 ft. lbs.
Flywheel	80 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

GENERAL ENGINE SPECIFICATIONS

MODEL "K" - 100 H.P. ("K" Engine after Serial No. K-204761)	
Maximum Brake Horsepower	100 at 3200 RPM
Maximum Torque	173 ft. lbs. at 1800 RPM
Nominal Compression Ratio	7.64:1
Compression Pressure (at cranking speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
MODEL "K" - 95 H.P. ("K" Engine before Serial No. K-204762)	
Maximum Brake Horsepower	95 at 3200 RPM
Maximum Torque	173 ft. lbs. at 1800 RPM
Nominal Compression Ratio	7.21:1 (By Volume-with 16.20-05498 Cyl. Head)
Compression Pressure (at cranking speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good

COMMON TO MODELS "K"-100 H.P. & "K"-95 H.P.

Type	4 Cycle "L" Head, 6 Cyl. (in line)
Bore	3-7/16 inches
Stroke	4-1/8 inches
Piston Displacement	229.7 cubic inches
Weight (Without Oil & Water)	"K" 660 lbs. (Approximate) "KS" 720 lbs. (Approximate) "KR" 720 lbs. (Approximate)
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	6 to 10 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from the engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM. Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4-(No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5-(No. 1 cyl. at flywheel end).

MODEL "K" - 3-7/16" ENGINE
ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold	Intake Valve -	.010
(Before Engine Serial No. 204762)	Exhaust Valve -	.012
(After Engine Serial No. 204761)	Exhaust Valve -	.014
Valve Seat	Width 3/32 - Angle 30°	
Valve Stem Clearance in Guide	Intake	.0025 - .003
	Exhaust	.0025 - .003
Tappet Clearance in Bushing		.0007 - .0015
Piston Clearance at Skirt		.004 - .0045
Piston Fit	.004 Feeler - 4 to 6 lb. Pull	
Piston Pin Clearance - Hand Push Fit		.0001 - .0002
Piston Ring Gap		.015 - .020
Piston Ring Side Clearance in Groove		
Top Groove - Compression		.003 - .0045
2nd Groove - Compression		.0015 - .003
Bottom Groove - Oil		.0015 - .003
Connecting Rod Bearing Clearance		.001 - .003
Connecting Rod End Play - Side Clearance		.005 - .010
Crankshaft Main Bearing Clearance		.0015 - .003
Crankshaft End Play - Thrust Clearance		.002 - .004
Crankshaft Journal Diameters		
Main - Standard		2.498 - 2.497
Connecting Rod Standard		1.988 - 1.987
Camshaft Bearing Clearance		.0015 - .0025
Idler Bearing Clearance		.00075 - .001
Accessory Drive Shaft Bearing Clearance		.0015 - .0025
Distributor Shaft End Play		.003 - .010
Camshaft End Play		.002 - .004
Idler Shaft End Play		.002 - .004
Accessory Drive Shaft End Play		.002 - .003
Accessory Drive Gear Backlash to Idler Gear		.002 - .004
Crankshaft Gear Backlash to Camshaft Gear		.000 - .002
Idler Gear Backlash to Camshaft Gear		.001 - .002
Oil Pump Gear Backlash to Camshaft		.008 - .010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 - .008
Distributor Point Gap		.022
Spark Plug Champion UJ-6M	Gap	.028

TORQUE SPECIFICATIONS

Cylinder Head	60 ft. lbs.
Connecting Rod	39 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "K" 3-3/8" ENGINE

GENERAL ENGINE SPECIFICATIONS

Covers engines before serial no. 21142 and engines between serial nos. 21142 and 21300 having block numbers below 724000.

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	3-3/8 inches
Stroke	4-1/8 inches
Piston Displacement	221.4 cubic inches
Maximum Brake Horsepower	85 at 3200 RPM
Maximum Torque	175 ft. lbs. at 1200 RPM
Weight (Without Oil and Water)	"K" 600 lbs. (Approximate) "KS" 700 lbs. (Approximate) "KR" 700 lbs. (Approximate)
Nominal Compression Ratio	6.2:1 (By Volume)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	6 to 10 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from the engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control Generator Cuts in at Approx. 800 RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "K" 3-3/8" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold		Intake Valve -	.010
		Exhaust Valve -	.012
Valve Seat	Width 3/32 - Angle 30°		
Valve Stem Clearance in Guide		Intake .0025 -	.003
		Exhaust .0025 -	.003
Tappet Clearance in Bushing		.0007 -	.0015
Piston Clearance (at skirt)		.004 -	.0045
Piston Fit	.004 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance Hand Push Fit		.0001 -	.0002
Piston Ring Gap		.015 -	.020
Piston Ring Side Clearance in Groove			
Top Groove - Compression		.003 -	.0045
2nd Groove - Compression		.0015 -	.003
Bottom Groove - Oil		.0015 -	.003
Connecting Rod Bearing Clearance		.001 -	.003
Connecting Rod End Play - Side Clearance		.005 -	.010
Crankshaft Main Bearing Clearance		.0015 -	.003
Crankshaft End Play - Thrust Clearance		.002 -	.004
Crankshaft Journal Diameters			
Main - Standard		2.498 -	2.497
Connecting Rod - Standard		1.988 -	1.987
Camshaft Bearing Clearance		.0015 -	.0025
Idler Bearing Clearance		.00075 -	.001
Accessory Drive Shaft Bearing Clearance		.0015 -	.0025
Distributor Shaft End Play		.003 -	.010
Camshaft End Play		.002 -	.004
Idler Shaft End Play		.002 -	.004
Accessory Drive Shaft End Play		.002 -	.003
Accessory Drive Gear Backlash to Idler Gear		.002 -	.004
Crankshaft Gear Backlash to Camshaft Gear		.000 -	.002
Idler Gear Backlash to Camshaft Gear		.001 -	.002
Oil Pump Gear Backlash to Camshaft		.008 -	.010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 -	.008
Distributor Point Gap		.022	
Spark Plug Champion J-8JM	Gap	.028	

TORQUE SPECIFICATIONS

Cylinder Head	60 ft. lbs.
Connecting Rod	39 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "KL" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	3-7/16 inches
Stroke	4-1/4 inches
Piston Displacement	236.6 cubic inches
Maximum Brake Horsepower	105 at 3200 RPM
Maximum Torque	190 ft. lbs. at 2200 RPM
Weight (Without Oil and Water)	"KL" 698 lbs. (Approximate) "KLS" 760 lbs. (Approximate) "KLR" 760 lbs. (Approximate)
Nominal Compression Ratio	7.40:1 (By Volume with 5498 Cyl. Head)
Compression Pressure	90 lb. per sq. in. Fair
(at Cranking Speed)	105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	6 to 10 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM. Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "KL" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold		Intake Valve -	.010
		Exhaust Valve -	.014
Valve Seat	Width 3/32" - Angle 30°		
Valve Stem Clearance in Guide		Intake .0025 -	.003
		Exhaust .0025 -	.003
Tappet Clearance in Bushing		.0007 -	.0015
Piston Clearance (at skirt)		.004 -	.0045
Piston Fit	.004 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance - Hand Push Fit		.0001 -	.0002
Piston Ring Gap		.015 -	.020
Piston Ring Side Clearance in Groove			
Top Groove - Compression		.0035 -	.005
2nd Groove - Compression		.0015 -	.003
Bottom Groove - Oil		.0015 -	.003
Connecting Rod Bearing Clearance		.001 -	.003
Connecting Rod End Play - Side Clearance		.005 -	.010
Crankshaft Main Bearing Clearance		.0015 -	.003
Crankshaft End Play - Thrust Clearance		.002 -	.004
Crankshaft Journal Diameters			
Main - Standard		2.498 -	2.497
Connecting Rod - Standard		1.988 -	1.987
Camshaft Bearing Clearance		.0015 -	.0025
Idler Bearing Clearance		.00075 -	.001
Accessory Drive Shaft Bearing Clearance		.0015 -	.0025
Distributor Shaft End Play		.003 -	.010
Camshaft End Play		.002 -	.004
Idler Shaft End Play		.002 -	.004
Accessory Drive Shaft End Play		.002 -	.003
Accessory Drive Gear Backlash to Idler Gear		.002 -	.004
Crankshaft Gear Backlash to Camshaft Gear		.000 -	.002
Idler Gear Backlash to Camshaft Gear		.001 -	.002
Oil Pump Gear Backlash to Camshaft		.008 -	.010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 -	.008
Distributor Point Gap		.022	
Spark Plug	Champion J-8JM Gap	.028	

TORQUE SPECIFICATIONS

Cylinder Head	60 ft. lbs.
Connecting Rod	39 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "KLC" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	3-7/16 inches
Stroke	4-1/4 inches
Piston Displacement	236.6 cubic inches
Maximum Brake Horsepower	120 at 3800 RPM
Maximum Torque	180 ft. lbs. at 3000 RPM
Weight (Without Oil and Water)	"KLC" 703 lbs. (Approximate)
Nominal Compression Ratio	7.52:1 (By Volume)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	650 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	6 to 10 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).

MODEL "KBL" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	3-7/16 inches
Stroke	4-1/4 inches
Piston Displacement	236.6 cubic inches
Maximum Brake Horsepower	131 at 3800 RPM
Maximum Torque	191 ft. lbs. at 3000 RPM
Weight (Without Oil and Water)	"KBL" 706 lbs. (Approximate)
Nominal Compression Ratio	7.52:1 (By Volume)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	750 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	6 to 10 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Triple Downdraft Carburetors
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).

MODEL "KLC" - "KBL" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold		Intake Valve -	.010
		Exhaust Valve -	.014
Valve Seat	Width 3/32 - Angle 30°		
Valve Stem Clearance in Guide		Intake .0025 -	.003
		Exhaust .0025 -	.003
Tappet Clearance in Bushing		.0007 -	.0015
Piston Clearance (at skirt)		.004 -	.0045
Piston Fit	.004 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance - Hand Push Fit		.0001 -	.0002
Piston Ring Gap		.015 -	.020
Piston Ring Side Clearance in Groove			
Top Groove - Compression		.0035 -	.005
2nd Groove - Compression		.0015 -	.003
Bottom Groove - Oil		.0015 -	.003
Connecting Rod Bearing Clearance		.001 -	.003
Connecting Rod End Play - Side Clearance		.005 -	.010
Crankshaft Main Bearing Clearance		.0015 -	.003
Crankshaft End Play - Thrust Clearance		.002 -	.004
Crankshaft Journal Diameters			
Main - Standard		2.498 -	2.497
Connecting Rod - Standard		1.988 -	1.987
Camshaft Bearing Clearance		.0015 -	.0025
Idler Bearing Clearance		.00075 -	.001
Accessory Drive Shaft Bearing Clearance		.0015 -	.0025
Distributor Shaft End Play		.003 -	.010
Camshaft End Play		.002 -	.004
Idler Shaft End Play		.002 -	.004
Accessory Drive Shaft End Play		.002 -	.003
Accessory Drive Gear Backlash to Idler Gear		.002 -	.004
Crankshaft Gear Backlash to Camshaft Gear		.000 -	.002
Idler Gear Backlash to Camshaft Gear		.001 -	.002
Oil Pump Gear Backlash to Camshaft		.008 -	.010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 -	.008
Distributor Point Gap		.022	
Spark Plug Champion J-8JM	Gap	.028	

TORQUE SPECIFICATIONS

Cylinder Head	60 ft. lbs.
Connecting Rod	39 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "KFL" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	3-7/16 inches
Stroke	4-1/4 inches
Piston Displacement	236.6 cubic inches
Maximum Brake Horsepower	131 at 3800 RPM
Maximum Torque	192 ft. lbs. at 2800 RPM
Weight (Without Oil and Water)	"KFL" 715 lbs. (Approximate)
Nominal Compression Ratio	7.40:1 (By Volume)
Compression Pressure	90 lb. per sq. in. Fair
(at Cranking Speed)	105 lb. per sq. in. Good
	120 lb. per sq. in. Very Good
Recommended Idle Speed	600 RPM
Oil Pressure	5 lbs. Minimum at Idle
	20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	6 to 10 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Twin Updraft Carburetors
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).

MODEL "KFL" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold	Intake Valve -	.010
	Exhaust Valve -	.016
Valve Seat	Width 3/32" - Angle 30°	
Valve Stem Clearance in Guide	Intake	.0025 - .003
	Exhaust	.0025 - .003
Tappet Clearance in Bushing		.0007 - .0015
Piston Clearance (at skirt)		.004 - .0045
Piston Fit	.004 Feeler - 4 to 6 lb. Pull	
Piston Pin Clearance - Hand Push Fit		.0001 - .0002
Piston Ring Gap		.015 - .020
Piston Ring Side Clearance in Groove		
Top Groove - Compression		.0035 - .005
2nd Groove - Compression		.0015 - .003
Bottom Groove - Oil		.0015 - .003
Connecting Rod Bearing Clearance		.001 - .003
Connecting Rod End Play - Side Clearance		.005 - .010
Crankshaft Main Bearing Clearance		.0015 - .003
Crankshaft End Play - Thrust Clearance		.002 - .004
Crankshaft Journal Diameters		
Main - Standard		2.498 - 2.497
Connecting Rod - Standard		1.988 - 1.987
Camshaft Bearing Clearance		.0015 - .0025
Idler Bearing Clearance		.00075 - .001
Accessory Drive Shaft Bearing Clearance		.0015 - .0025
Distributor Shaft End Play		.003 - .010
Camshaft End Play		.002 - .004
Idler Shaft End Play		.002 - .004
Accessory Drive Shaft End Play		.002 - .003
Accessory Drive Gear Backlash to Idler Gear		.002 - .004
Crankshaft Gear Backlash to Camshaft Gear		.000 - .002
Idler Gear Backlash to Camshaft Gear		.001 - .002
Oil Pump Gear Backlash to Camshaft		.008 - .010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 - .008
Distributor Point Gap		.022
Spark Plug Champion J-8JM	Gap	.028

TORQUE SPECIFICATIONS

Cylinder Head	60 ft. lbs.
Connecting Rod	39 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "M" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	4 inches
Stroke	4-1/4 inches
Piston Displacement	320.4 cubic inches
Maximum Brake Horsepower	130 at 3000 RPM
Maximum Torque	239 ft. lbs. at 2400 RPM
Weight (Without Oil and Water)	"M" 884 lbs. (Approximate) "MS" 953 lbs. (Approximate) "MR" 970 lbs. (Approximate)
Nominal Compression Ratio	6.95:1 (By Volume - with 5164 Cyl. Head)
Compression Pressure	90 lb. per sq. in. Fair
(at Cranking Speed)	105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	8 to 12 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "M" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold		Intake Valve -	.010
		Exhaust Valve -	.018
Valve Seat	Width 3/32 - Angle 30°		
Valve Stem Clearance in Guide		Intake .0025 -	.003
		Exhaust .0025 -	.003
Tappet Clearance in Bushing		.00075 -	.001
Piston Clearance (at skirt)		.004 -	.0045
Piston Fit	.004 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance - Hand Push Fit		.0001 -	.0002
Piston Ring Gap		.015 -	.020
Piston Ring Side Clearance in Groove			
Top Groove - Compression		.0045 -	.006
2nd Groove - Compression		.002 -	.0035
Bottom Groove - Oil		.002 -	.0035
Connecting Rod Bearing Clearance		.001 -	.003
Connecting Rod End Play - Side Clearance		.005 -	.010
Crankshaft Main Bearing Clearance		.0015 -	.003
Crankshaft End Play - Thrust Clearance		.002 -	.004
Crankshaft Journal Diameters			
Main - Standard		2.498 -	2.497
Connecting Rod - Standard		1.988 -	1.987
Camshaft Bearing Clearance		.001 -	.002
Idler Bearing Clearance		.00075 -	.001
Accessory Drive Shaft Bearing Clearance		.0015 -	.0025
Distributor Shaft End Play		.003 -	.010
Camshaft End Play		.002 -	.004
Idler Shaft End Play		.002 -	.004
Accessory Drive Shaft End Play		.002 -	.003
Accessory Drive Gear Backlash to Idler Gear		.002 -	.004
Crankshaft Gear Backlash to Camshaft Gear		.000 -	.002
Idler Gear Backlash to Camshaft Gear		.001 -	.002
Oil Pump Gear Backlash to Camshaft		.008 -	.010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 -	.008
Distributor Point Gap		.022	
Spark Plug	Champion J-8JM Gap	.028	

TORQUE SPECIFICATIONS

Cylinder Head	65 ft. lbs.
Connecting Rod	56 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "ML" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	4 inches
Stroke	4-1/2 inches
Piston Displacement	339.2 cubic inches
Maximum Brake Horsepower	145 at 3000 RPM
Maximum Torque	267 ft. lbs. at 2400 RPM
Weight (Without Oil and Water)	"ML" 895 lbs. (Approximate) "MLS" 977 lbs. (Approximate) "MLR" 998 lbs. (Approximate)
Nominal Compression Ratio	7.30:1 (By Volume - with 5164 Cyl. Head)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	8 to 12 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "MBL" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	4 inches
Stroke	4-1/2 inches
Piston Displacement	339.2 cubic inches
Maximum Brake Horsepower	158 at 3400 RPM
Maximum Torque	266 ft. lbs. at 2600 RPM
Weight (Without Oil and Water)	"MBL" 880 lbs. (Approximate)
Nominal Compression Ratio	7.30:1 (By Volume - with 5164 Cyl. Head)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	700 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	8 to 12 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).

MODEL "ML" & "MBL" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold		Intake Valve -	.010
		Exhaust Valve -	.018
Valve Seat	Width 3/32" - Angle 30°		
Valve Stem Clearance in Guide		Intake .0025 -	.003
		Exhaust .0025 -	.003
Tappet Clearance in Bushing		.00075 -	.001
Piston Clearance (at skirt)		.005 -	.0055
Piston Fit	.005 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance - Hand Push Fit		.0001 -	.0002
Piston Ring Gap		.015 -	.020
Piston Ring Side Clearance in Groove			
Top Groove - Compression		.0045 -	.006
2nd Groove - Compression		.002 -	.0035
Bottom Groove - Oil		.002 -	.0035
Connecting Rod Bearing Clearance		.001 -	.003
Connecting Rod End Play - Side Clearance		.005 -	.010
Crankshaft Main Bearing Clearance		.0015 -	.003
Crankshaft End Play - Thrust Clearance		.002 -	.004
Crankshaft Journal Diameters			
Main - Standard		2.498 -	2.497
Connecting Rod - Standard		1.988 -	1.987
Camshaft Bearing Clearance		.001 -	.002
Idler Bearing Clearance		.00075 -	.001
Accessory Drive Shaft Bearing Clearance		.0015 -	.0025
Distributor Shaft End Play		.003 -	.010
Camshaft End Play		.002 -	.004
Idler Shaft End Play		.002 -	.004
Accessory Drive Shaft End Play		.002 -	.003
Accessory Drive Gear Backlash to Idler Gear		.002 -	.004
Crankshaft Gear Backlash to Camshaft Gear		.000 -	.002
Idler Gear Backlash to Camshaft Gear		.001 -	.002
Oil Pump Gear Backlash to Camshaft		.008 -	.010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 -	.008
Distributor Point Gap		.022	
Spark Plug	Champion J-8JM	Gap .028	

TORQUE SPECIFICATIONS

Cylinder Head	65 ft. lbs.
Connecting Rod	56 ft. lbs.
Main Bearings	
Front & Inter.	70 ft. lbs.
Center & Rear	60 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "MCL" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	4 inches
Stroke	4-1/2 inches
Piston Displacement	339.2 cubic inches
Maximum Brake Horsepower	175 at 3400 RPM
Maximum Torque	291 ft. lbs. at 1800 RPM
Weight (Without Oil and Water)	"MCL" 940 lbs. (Approximate) "MCLS" 1025 lbs. (Approximate) "MCLR" 1045 lbs. (Approximate)
Nominal Compression Ratio	7.22:1 (By Volume)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	8 to 12 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Twin Updraft Carburetors
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "MCL" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold	Intake Valve -	.010
	Exhaust Valve -	.018
Valve Seat	Width 3/64 to 1/16 - Angle 30°	
Valve Stem Clearance in Guide	Intake	.0025 - .003
	Exhaust	.0025 - .003
Tappet Clearance in Bushing		.00075 - .001
Piston Clearance (at skirt)		.0045 - .005
Piston Fit	.005 Feeler - 4 to 6 lb. Pull	
Piston Pin Clearance - Hand Push Fit		.0001 - .0002
Piston Ring Gap		.015 - .020
Piston Ring Side Clearance in Groove		
Top Groove - Compression		.003 - .0045
2nd Groove - Compression		.002 - .0035
Bottom Groove - Oil (2)		.0015 - .003
Connecting Rod Bearing Clearance		.001 - .003
Connecting Rod End Play - Side Clearance		.005 - .010
Crankshaft Main Bearing Clearance		.0015 - .003
Crankshaft End Play - Thrust Clearance		.002 - .004
Crankshaft Journal Diameters		
Main - Standard		2.498 - 2.497
Connecting Rod - Standard		1.988 - 1.987
Camshaft Bearing Clearance		.001 - .002
Idler Bearing Clearance		.00075 - .001
Accessory Drive Shaft Bearing Clearance		.0015 - .0025
Distributor Shaft End Play		.003 - .010
Camshaft End Play		.002 - .004
Idler Shaft End Play		.002 - .004
Accessory Drive Shaft End Play		.002 - .003
Accessory Drive Gear Backlash to Idler Gear		.002 - .004
Crankshaft Gear Backlash to Camshaft Gear		.000 - .002
Idler Gear Backlash to Camshaft Gear		.001 - .002
Oil Pump Gear Backlash to Camshaft		.008 - .010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 - .008
Distributor Point Gap		.022
Spark Plug Champion J-8JM	Gap	.028

TORQUE SPECIFICATIONS

Cylinder Head	65 ft. lbs.
Connecting Rod	56 ft. lbs.
Main Bearings	
Front & Inter.	80 ft. lbs.
Center & Rear	70 ft. lbs.
Flywheel	100 ft. lbs.
Manifold	30 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "W" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	4-1/4 inches
Stroke	4-3/4 inches
Piston Displacement	404.3 cubic inches
Maximum Brake Horsepower	160 at 3000 RPM
Maximum Torque	322 ft. lbs. at 1500 RPM
Weight (Without Oil and Water)	"W" 1232 lbs. (Approximate) "WS" 1323 lbs. (Approximate) "WR2" 1323 lbs. (Approximate) "WR" 1323 lbs. (Approximate)
Nominal Compression Ratio	6.40:1 (By Volume)
Compression Pressure	90 lb. per sq. in. Fair
(at Cranking Speed)	105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	8 to 14 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Single Updraft Carburetor
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "W" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold	Intake Valve	.010
	Exhaust Valve	.018
Valve Seat	Intake Width 7/64 - Exhaust Width 5/64 - Angle 30°	
Valve Stem Clearance in Guide	Intake	.0025 - .003
	Exhaust	.0025 - .003
Tappet Clearance in Bushing		.00075 - .001
Piston Clearance (at skirt)		.006 - .0065
Piston Fit	.006 Feeler - 6 to 8 lb. Pull	
Piston Pin Clearance - Hand Push Fit		.0001 - .0002
Piston Ring Gap		.015 - .020
Piston Ring Side Clearance in Groove		
Top Groove - Compression		.003 - .0045
2nd Groove - Compression		.0025 - .004
3rd Groove - Oil		.0015 - .0035
Bottom Groove - Oil		.0015 - .003
Connecting Rod Bearing Clearance		.0015 - .003
Connecting Rod End Play - Side Clearance		.008 - .015
Crankshaft Main Bearing Clearance		.002 - .0035
Crankshaft End Play - Thrust Clearance		.003 - .004
Crankshaft Journal Diameters		
Main - Standard		2.623 - 2.622
Connecting Rod - Standard		2.248 - 2.247
Camshaft Bearing Clearance		.0015 - .0025
Idler Bearing Clearance		.001 - .0015
Accessory Drive Shaft Bearing Clearance		.0015 - .0025
Distributor Shaft End Play		.003 - .010
Camshaft End Play		.002 - .004
Idler Shaft End Play		.002 - .004
Accessory Drive Shaft End Play		.002 - .003
Accessory Drive Gear Backlash to Idler Gear		.002 - .004
Crankshaft Gear Backlash to Camshaft Gear		.000 - .001
Idler Gear Backlash to Camshaft Gear		.001 - .002
Oil Pump Gear Backlash to Camshaft		.008 - .010
Distributor Drive Gear Backlash to Distributor Driven Gear		.003 - .008
Distributor Point Gap		.022
Spark Plug — Champion J-8JM	Gap	.028

TORQUE SPECIFICATIONS

Cylinder Head	70 ft. lbs.
Connecting Rod	53 ft. lbs.
Main Bearings	
Front & Inter.	105 ft. lbs.
Center & Rear	70 ft. lbs.
Flywheel	120 ft. lbs.
Manifold	55 ft. lbs.
Spark Plug	30 ft. lbs.

MODEL "WB" ENGINE

GENERAL ENGINE SPECIFICATIONS

Type	4 Cycle, "L" Head, 6 cylinder (in line).
Bore	4-1/4 inches
Stroke	4-3/4 inches
Piston Displacement	404.3 cubic inches
Maximum Brake Horsepower	200 at 3200 RPM
Maximum Torque	370 ft. lbs. at 1600 RPM
Weight (Without Oil and Water)	"WB" 1260 lbs. (Approximate) "WBS" 1350 lbs. (Approximate) "WBR2" 1375 lbs. (Approximate) "WBR" 1375 lbs. (Approximate)
Nominal Compression Ratio	6.92:1 (By Volume)
Compression Pressure (at Cranking Speed)	90 lb. per sq. in. Fair 105 lb. per sq. in. Good 120 lb. per sq. in. Very Good
Recommended Idle Speed	500 RPM
Oil Pressure	5 lbs. Minimum at Idle 20 to 35 lbs. Maximum Speed (hot)
Oil Pan Capacity	8 to 14 qts.
Reverse Gear Lubrication	Reverse Gear lubricated and cooled by oil from engine so that separate oil system is not required.
Carburetion	Twin Updraft Carburetors
Tachometer Drive	SAE (Heavy) Anti-clockwise located at lower end of distributor drive shaft and turning at one-half engine speed.
Generator Charging Rate	6 Volt System - 19 Amps. Max. Circuit Breaker Control 12 Volt System - 10 Amps. Max. Regulator Control Generator Cuts in at Approx. 800 Engine RPM Negative Ground
Cylinder Numbering	One through six from forward end of engine (flywheel end) to aft end of engine (reverse gear end). Note: To avoid confusion it must be pointed out that internal parts (pistons, bearing caps, etc.) are stamped with numbers running the opposite way (aft end to forward end).
Firing Order - Standard Rotation	1-5-3-6-2-4 (No. 1 cyl. at flywheel end).
Opposite Rotation	1-4-2-6-3-5 (No. 1 cyl. at flywheel end).

MODEL "WB" ENGINE

ADJUSTMENT AND ASSEMBLY INFORMATION
(Dimensions given in inches)

Valve Lash - Engine Cold		Intake Valve -	.012
		Exhaust Valve -	.018
Valve Seat	Intake Width 7/64 - Exhaust Width 3/32 - Angle 30°		
Valve Stem Clearance in Guide		Intake	.0025 - .003
		Exhaust	.0025 - .003
Tappet Clearance in Bushing			.00075 - .001
Piston Clearance (at skirt)			.006 - .0065
Piston Fit	.006 Feeler - 4 to 6 lb. Pull		
Piston Pin Clearance - Hand Push Fit			.0001 - .0002
Piston Ring Gap			.015 - .020
Piston Ring Side Clearance in Groove			
Top Groove - Compression			.003 - .0045
2nd Groove - Compression			.0025 - .004
3rd Groove - Oil			.0015 - .0035
Bottom Groove - Oil			.0015 - .003
Connecting Rod Bearing Clearance			.0015 - .003
Connecting Rod End Play - Side Clearance			.008 - .015
Crankshaft Main Bearing Clearance			.002 - .0035
Crankshaft End Play - Thrust Clearance			.003 - .004
Crankshaft Journal Diameters			
Main - Standard			2.623 - 2.622
Connecting Rod - Standard			2.248 - 2.247
Camshaft Bearing Clearance			.0015 - .0025
Idler Bearing Clearance			.001 - .0015
Accessory Drive Shaft Bearing Clearance			.0015 - .0025
Distributor Shaft End Play			.003 - .010
Camshaft End Play			.002 - .004
Idler Shaft End Play			.002 - .004
Accessory Drive Shaft End Play			.002 - .003
Accessory Drive Gear Backlash to Idler Gear			.002 - .004
Crankshaft Gear Backlash to Camshaft Gear			.000 - .001
Idler Gear Backlash to Camshaft Gear			.001 - .002
Oil Pump Gear Backlash to Camshaft			.008 - .010
Distributor Drive Gear Backlash to Distributor Driven Gear			.003 - .008
Distributor Point Gap			.022
Spark Plug	Champion J-8JM	Gap	.028

TORQUE SPECIFICATIONS

Cylinder Head	70 ft. lbs.
Connecting Rod	53 ft. lbs.
Main Bearings	
Front & Inter.	105 ft. lbs.
Center & Rear	70 ft. lbs.
Flywheel	120 ft. lbs.
Manifold	55 ft. lbs.
Spark Plug	30 ft. lbs.