



XP7HPE

S E R V I C E M A N U A L



REV: XP7HPE_rev05092023

This manual provides information regarding the operation and maintenance of these products. We have made every effort to ensure the accuracy of the information in this manual. We reserve the right to change this product at any time without prior notice.

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844-DUROMAX



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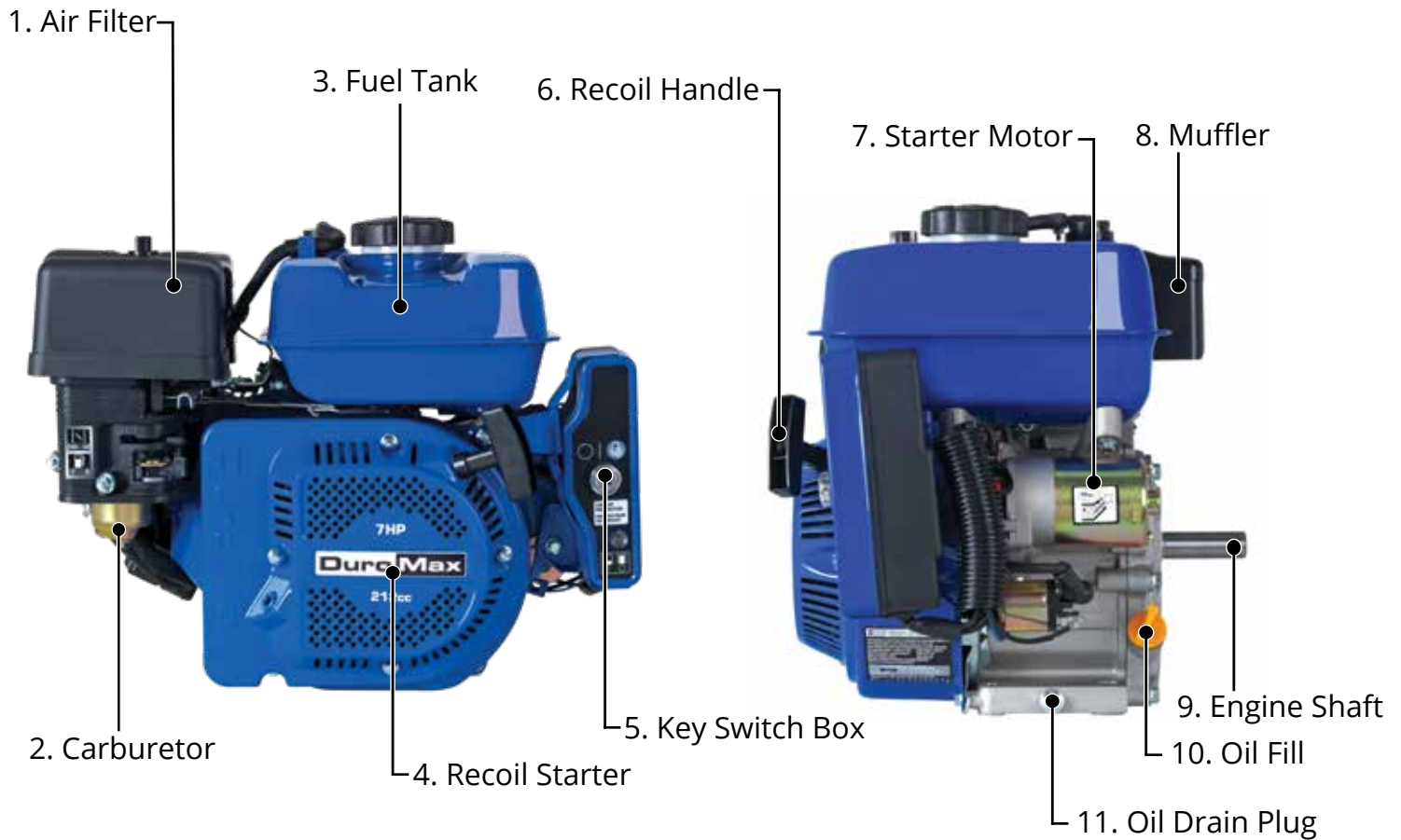


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ENGINE COMPONENTS



1. **Air Filter** - A removable, cleanable, oiled, element that cleans the air going into the engine.
2. **Carburetor** - A component used to control the air fuel mixture of the engine.
3. **Fuel Tank** - All metal 1 gallon gasoline fuel tank.
4. **Recoil Starter** - An easy pull recoil start to start the engine without the electric start.
5. **Key Switch Box** - An electric start switch that engages the starter motor with the turn of a key.
6. **Recoil Handle** - An easy grip handle used to pull the recoil starter rope.
7. **Starter Motor** - Electric motor that starts the generator electrically for easy starting.
8. **Muffler** - A noise dampening component that helps lower the engine decibel level.
9. **Engine Shaft** - A 3/4" diameter, 2-3/8" long, 3/16" key-way.
10. **Oil Fill** - An easy access location to fill the oil for the engine.
11. **Oil Drain Plug** - An easy to remove oil plug that is used to drain the oil.

MAINTENANCE AND CARE

Proper routine maintenance of your generator is essential for safe, economical, and trouble-free operation. It will also help reduce air pollution.



WARNING: Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously injured or killed. Always follow the inspection, maintenance recommendations, and schedules in this instruction manual.

- Make sure the engine is off before you begin any maintenance or repairs.
- Let the engine and exhaust system cool before touching.
- To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a nonflammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.

Maintenance Schedule

Remember that this schedule is based on the assumption that your machine will be used for its designed purpose. Sustained high-load, high-temperature operation, or use in unusually wet or dusty conditions, will require more frequent service.

SERVICE	EVERY USE	1ST MO. OR 8 HRS. (BREAK IN)	EVERY 3 MO. OR 50 HRS. OF HEAVY USE	EVERY 6 MO. OR 100 HRS. OF NORMAL USE	EVERY 12 MO. OR 300 HRS.	EVERY 3 YRS. OR 500 HRS.
ENGINE OIL	CHECK	CHANGE	CHANGE	CHANGE		
AIR CLEANER	CHECK	CHECK	CHANGE	CHANGE		
SPARK PLUG			CLEAN / ADJUST	CLEAN / ADJUST		
SPARK ARRESTOR	CHECK				CLEAN	
IDLE SPEED					CHECK / ADJUST	
VALVE CLEARANCE					CHECK / ADJUST	
FUEL TUBE	CHECK				CHECK / REPLACE	
FUEL TANK / FILTER					CLEAN	
COMBUSTION CHAMBER						CLEAN

Break-In Period

As the best practice for any new combustion motor it's recommended to perform the break in procedure as follows:

- Run the engine for the first 6-8 hours on conventional oil, then change the oil. After the break-in period synthetic oil may be used.
- During the break in period of the first 6-8 hours keep the engine speed under 50% for optimal results.
- Check and clean the air filter if necessary after the break-in period.

High Altitude Operation

At high altitudes, the standard carburetor air/fuel mixture will be too rich. The performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting. Operation at an altitude that differs from that at which this engine was certified, for extended periods of time, may increase emissions. High altitude performance can be improved by specific modifications to the carburetor. If you always operate your engine at altitudes above 3,000 feet (900 meters), have a dealer perform this carburetor modification. This engine, when operated at high altitude with the carburetor modifications for high altitude use, will meet each emission standard throughout its useful life. Even with carburetor modification, engine horsepower will decrease by about 3.5% for each 1,000-foot (300-meter) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

When the carburetor has been modified for high altitude operation, the air/fuel mixture will be too lean for low altitude use. Operation at altitudes below 3,000 feet (900 meters) with a modified carburetor may cause the engine to overheat and result in serious engine damage.

Note: Jet kits available for purchase upon request, please contact us at 844-DUROMAX to set up your parts order.

Altitude Range	Jet Kit Part Number
3,000 ft. - 6,000 ft.	DJ170FD-14100-3KJS
6,000 ft. - 8,000 ft.	DJ170FD-14100-6KJS

Changing the Carburetor Main Jet



1. Turn fuel valve OFF

Turn the fuel valve OFF.



2. Remove carburetor drain bolt

Remove the outward angled bolt that is located on the bottom of the carburetor.



3. Place funnel below drain port

Place funnel with container to catch the gasoline under the drain port location and put drained gasoline in a gasoline safe container.



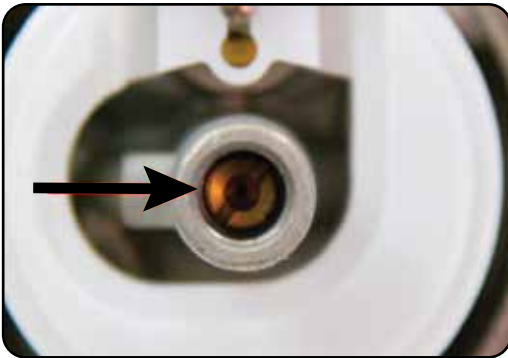
4. Remove carburetor bowl bolt

Remove the carburetor bowl bolt located under the solenoid with a 10 mm socket wrench.



5. Remove carburetor bowl

Remove carburetor bowl from carburetor.



6. Determine main jet location

The carburetor jet is located inside the center metal tube of the carburetor.



7. Remove main jet

Remove the main jet with a flat head screwdriver. If necessary gently tap the carburetor to allow the jet and emulsion tube to fall out.



8. Install new main jet

Place emulsion tube located above the jet back into the carburetor tube in the same position, then install the new main jet.



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Changing the Carburetor Main Jet (Continued)



9. Reassemble engine

Once the new jet is installed, reverse the above instructions to reassemble carburetor.

Checking the Oil



Check the oil

The engine is equipped with an automatic shutoff to protect it from damage due to low oil. Nonetheless, you should check the oil level of the engine before each use to ensure that the engine crankcase has a sufficient amount.

To check the oil level:

- a. Make sure the engine is on a level surface.
- b. Unscrew the oil filler/dipstick cap.
- c. With a dry cloth, wipe the oil off of the stick on the inside of the cap.
- d. Insert the dipstick as if you were replacing the cap and then remove it again. There should now be oil on the stick. If there is no oil on the stick, or oil only at the very end of the stick, you should add oil until the engine crankcase is filled (see “Adding Oil” portion of the “Maintenance” section).
- e. The oil will be visible in the oil fill spout when full.
- f. Be sure to replace the cap when finished checking oil.



Model Number	XP7HPE
Engine Oil Capacity	20.3 fl. oz (0.6 L)

Changing the Oil



CAUTION: Worn out or dirty oil does not cool the engine properly and can lead to catastrophic engine damage.

In addition to regular oil changes, it is necessary to drain the oil from the crankcase if it has become contaminated with water or dirt.



1. Remove drain plug

Using a 10 mm hex wrench, unscrew the oil drain plug, which is located on the crankcase underneath the oil filler/dipstick cap.

Allow all the oil to drain from the engine.



2. Drain oil

Drain oil into an approved oil disposal container. Contact your local auto parts store for information on oil disposal.



3. Replace drain plug

Replace the oil drain plug and tighten with a 10 mm hex wrench.

Changing the Air Filter

MAINTAIN AIR FILTER

Clean air filter after every 50 hours of use
(every 10 hours in unusually dusty conditions)

Wash filter element with household detergents.
Wipe out dust from air filter housing before
replacing filter element.

Never clean with a brush

Routine maintenance of the air cleaner helps maintain proper airflow to the carburetor. Check that the air cleaner is free of excessive dirt after every use.

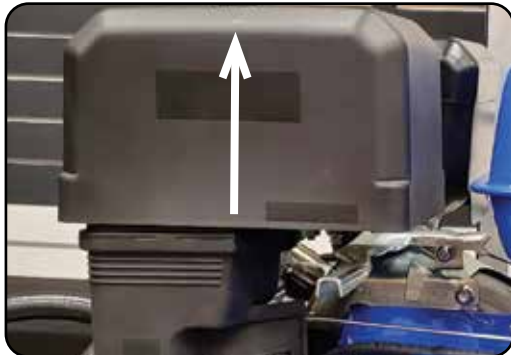


CAUTION: Improper maintenance may cause less air to enter the engine or dirty air to enter the engine causing overheating and engine wear.



1. Remove filter cover wing nut

Remove the wing nut located on the top of the air filter cover.



2. Remove filter cover

Remove the plastic air filter cover by lifting the cover upwards to expose the air filter element.



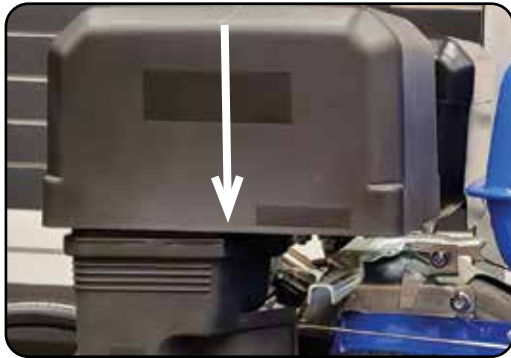
3. Remove old filter element

Remove the wing nut on top of the air filter element and slide filter element off center bolt. This filter is paper and is not reusable. Please call 1-844-DUROMAX to order a replacement filter for your engine.



4. Replace new filter element

Slide new filter element over center bolt, and replace wing nut. Tighten wing nut hand tight to keep filter in place.



5. Replace filter cover

Replace plastic air filter cover over the air filter base.



6. Secure filter cover

Fasten the air filter cover with the air filter cover wing nut and tighten about hand tight.

MAINTENANCE AND CARE (CONTINUED)

Spark Plug Maintenance



The spark plug is important for proper engine operation. A good spark plug should be intact, free of deposits, and properly gapped.



CAUTION: Improper maintenance may cause reduced fuel economy, misfires, trouble starting, or damage to the spark plug threads.



1. Remove spark plug cap

Pull on the spark plug cap to remove it.



2. Remove spark plug

Unscrew the spark plug from the engine using the spark plug wrench included with this product.



3. Inspect spark plug

Visually inspect the spark plug. If it is cracked or chipped, discard and replace it with a new spark plug. We recommend using an F7RTC spark plug such as NGK BPR7ES.



4. Measure plug gap

Measure the plug gap with a gauge. The gap should be 0.7-0.8 mm (0.028-0.031 in).



5. Clean and re-gap

If you are re-using the spark plug, use a wire brush to clean any dirt from around the spark plug base and then re-gap the spark plug.



6. Install spark plug

Screw the spark plug back into its place on the engine using the spark plug wrench.



7. Replace spark plug cap

Replace the spark plug cap.

Emptying the Gas Tank



If you have been using gasoline in your engine, before storing your engine for extended periods of time you should drain your engine fuel tank of gasoline.



CAUTION: Do not store fuel from one season to another. Gasoline sold at the pump today contains additives such as ethanol that even when stored properly may damage the fuel system components.

1. Shut fuel valve OFF

Turn the fuel valve to the "OFF" position.



2. Remove carburetor drain bolt

Remove the outward angled bolt that is located on the bottom of the carburetor.



3. Place funnel below drain port

Place funnel with container to catch the gasoline under the drain port location.





4. Turn fuel valve ON and drain

Turn the fuel valve to “ON” and allow gasoline to drain into the container until the gas tank is empty.



5. Shut fuel valve OFF

Once the gasoline is fully drained, move the fuel valve back to the OFF position.



6. Replace carburetor drain bolt

Reinstall the carburetor drain bolt.



7. Store emptied gasoline

Store the emptied gasoline in a suitable place and add fuel stabilizer to keep fuel fresh and usable.

Storing the Engine for Same Day Use



1. Run the engine

Allow the engine to run for 3-5 minutes.



2. Turn key switch to OFF

Move the key switch to the OFF position to shut the engine off.



3. Store engine

After the engine shuts off and cools, then you can store the engine.



CAUTION: Do not obstruct any ventilation openings and keep the engine in a cool dry area.

Storing the Engine for Use Within 30 Days



1. Run the engine

Allow the engine to run for 3-5 minutes.



2. Shut fuel valve OFF and run dry

Shut the fuel valve off and allow engine to run until it stalls out.



3. Turn the key switch OFF

Move the key switch to the OFF position to shut the engine off.



4. Add fuel stabilizer and store

Add fuel stabilizer to gas remaining in tank, and store the engine.

MAINTENANCE AND CARE (CONTINUED)

Storing the Engine for Longer Than 30 Days



1. Run the engine

Allow the engine to run for 3-5 minutes.



2. Shut fuel valve OFF and run dry

Shut the fuel valve off and allow engine to run until it stalls out.



3. Turn the key switch OFF

Move the key switch to the OFF position to shut the engine off.



4. Empty the gas tank

Fully drain your gas tank as shown in "Emptying the Gas Tank" on page 20-21.



5. Remove spark plug

Remove spark plug as shown in “Spark Plug Maintenance” on page 18.



6. Add oil to cylinder

Add 2 tablespoons of 10W-30 motor oil directly into the spark plug hole, and pull the recoil to lubricate cylinder. After lubricating cylinder reinstall the spark plug as shown in “Spark Plug Maintenance” on page 19.



7. Store engine

The engine is ready to be stored in a cool dry area.



CAUTION: Do not obstruct any ventilation openings and keep the engine in a cool dry area.

Check and Adjust Valve Clearance



The engine intake and exhaust valve clearance should be checked and if necessary adjusted every 300 hours of use or 12 month period, whichever comes first.



CAUTION: If the valve clearance isn't maintained, this can cause the engine to run less efficiently and potentially cause engine damage.



1. Remove muffer

Remove both muffer bolts with a 13 mm wrench, then remove the muffer from the engine.



2. Remove spark plug cap

Pull off spark plug cap from spark plug.



3. Remove spark plug

Remove the spark plug with the provided spark plug wrench.



4. Remove valve cover

Remove all 4 bolts on the valve cover with an 8 mm socket wrench, then remove the valve cover.



5. Set valves to top dead center

Place screwdriver into spark plug hole to help determine the position of the piston, then slowly pull the recoil rope until the piston rises to the top position and both valves are closed (compression step).



6. Check intake valve clearance

The intake valve is on the right side of the cylinder head. Slide a 0.006" (0.152 mm) feeler gauge in-between the valve head and rocker arm. If the feeler gauge is too loose, then tighten the rocker nut until the feeler fits firmly in the gap; but not too tight that you can't remove it. If the feeler doesn't fit in the gap, then loosen the rocker nut until feeler gauge fits firmly inside the gap.



7. Check exhaust valve clearance

The exhaust valve is on the left side of the cylinder head. Slide a 0.008" (0.203 mm) feeler gauge in-between the valve head and rocker arm. If the feeler gauge is too loose, then tighten the rocker nut until the feeler fits firmly in the gap; but not too tight that you can't remove it. If the feeler doesn't fit in the gap, then loosen the rocker nut until feeler gauge fits firmly inside the gap.



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Check and Adjust Valve Clearance (Continued)



8. Reinstall parts

Reinstall the valve cover, spark plug, and ignition coil wire. The valve cover should be tightened to 8 ft/lbs \pm 1.5 ft/lbs (11 \pm 2 N·m). The spark plug should be tightened to 18.5 ft/lbs \pm 3.5 ft/lbs (25 \pm 5 N·m).

SPECIFICATIONS

Displacement	208cc	
Fuel Type	≥87 octane, ≤10% ethanol, unleaded gasoline	
Dry Weight	38 lbs	
Maximum Torque	13.2 N·m @ 2500 RPM	
Compression Ratio	8.5:1	
Bore X Stroke	70mm x 55mm	
Engine Oil Capacity	20.3 fl. oz (0.6 L)	
Fuel Tank Capacity	1 gal.	
Lowest Idling Speed	1600 RPM ± 150 RPM	
Dimensions	LENGTH	16.3 in.
	WIDTH	13 in.
	HEIGHT	13.4 in.
Engine Type	4-Stroke OHV Forced-Air	
Ignition System	Non-Contact Transistor	
Lubrication Mode	Splash	
Starting Type	Electric / Recoil	
Shaft Rotation	Counter-Clockwise	
Shaft Size	3/4" Diameter, 2-3/8" Long, 3/16" Keyway	
Shaft End	5/16" size 24 UNF - Drilled and Tapped	
Center of Shaft to Base	4.175"	
Gasoline Consumption	≤395 g/kWh	

Adjustment and Torque Specifications

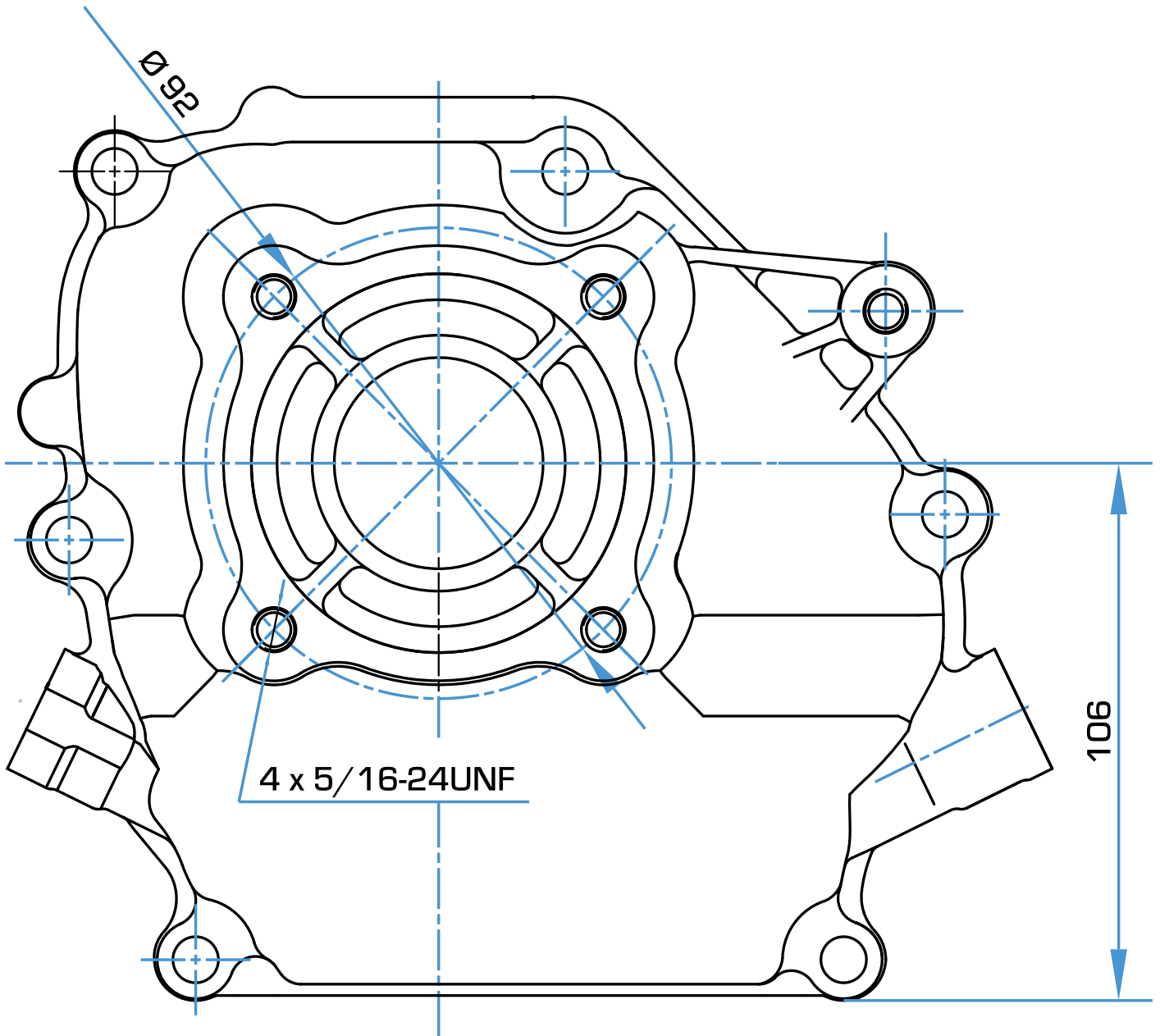
Adjustment Specification

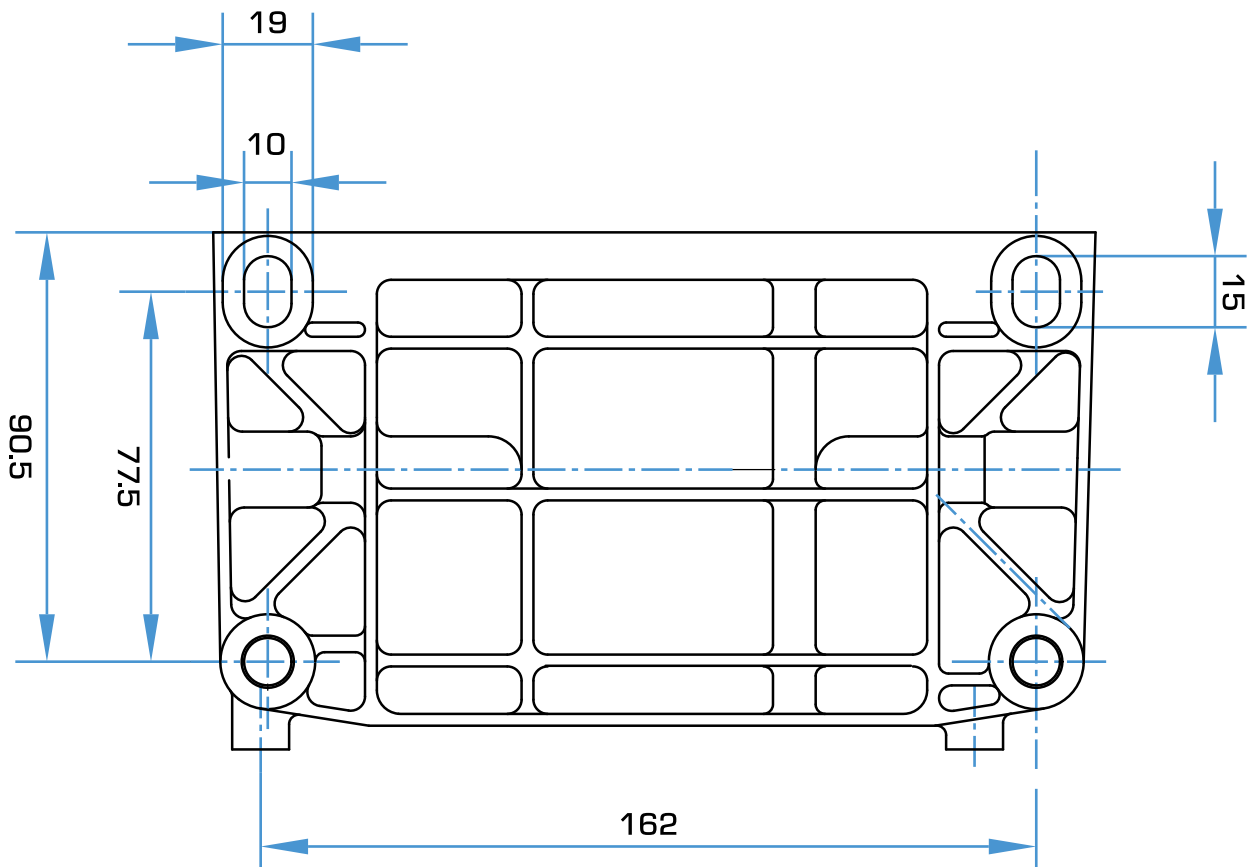
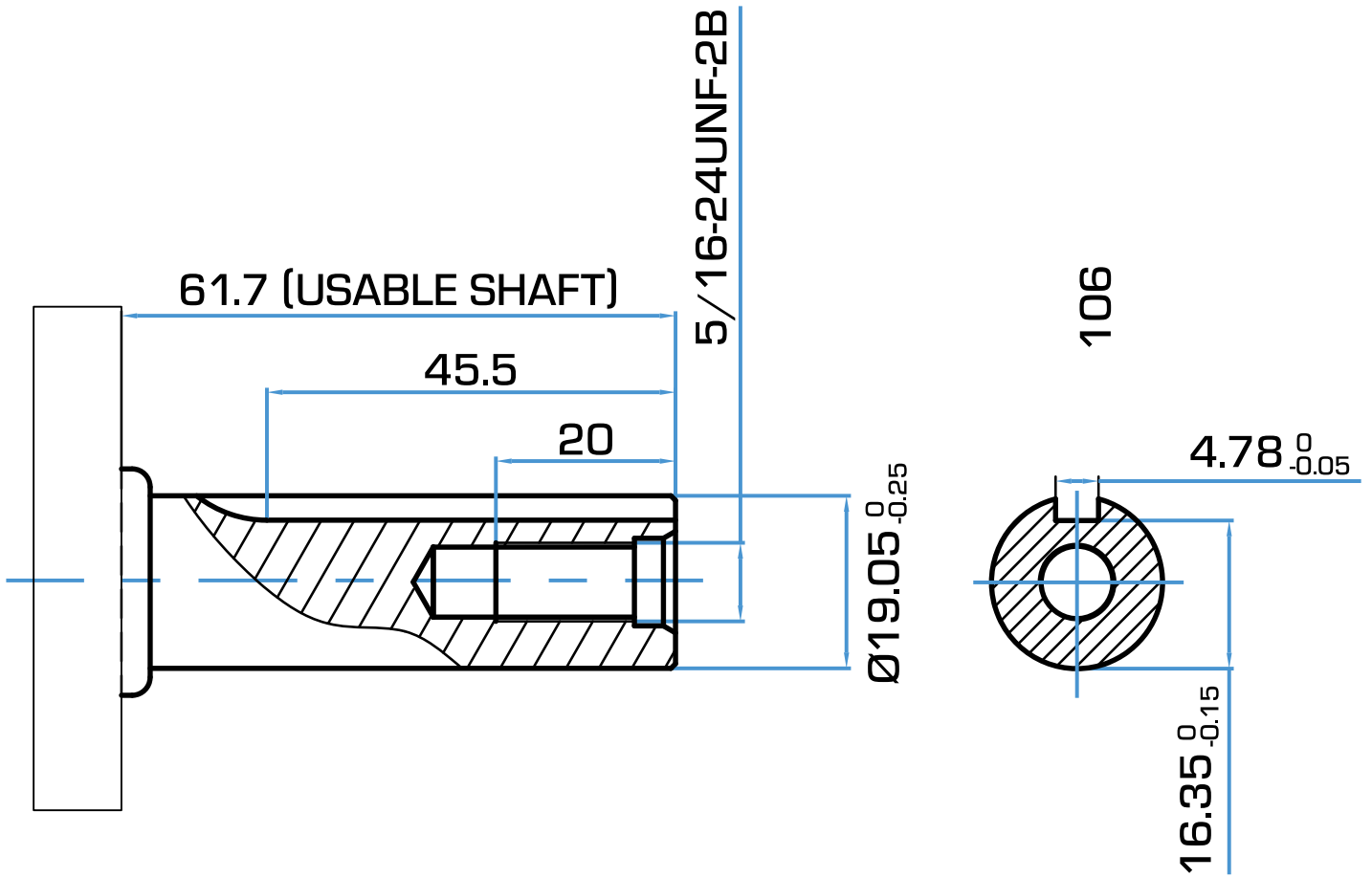
Spark Plug Clearance	.027-.031 in. (0.7-0.8 mm)
Spark Plug Type	BPR6ES (NGK) RN9YC (Champion) WR7DC (Bosch) W20EPR-U (Denso)
Valve Clearance (Cold)	Intake: .006 in \pm .001 in. (0.15 mm \pm 0.02 mm) Exhaust: .008 in \pm .001 in. (0.20 mm \pm 0.02 mm)
Carburetor Idling	1600 \pm 150 rpm

Torque Value

Cylinder Head bolt	7.5 \pm 1.5 ft. lbs (10 \pm 2 N·m)
Flywheel Nut	37 \pm 3.5 ft. lbs (50 \pm 5 N·m)
Crankcase Cover Bolts	8 \pm 1.5 ft. lbs (11 \pm 2 N·m)
Connecting Rod Bolt	9 \pm 0.5 ft. lbs (10 \pm 1 N·m)
Rocker Arm Pivot Bolt	17.5 \pm 1.5 ft. lbs (24 \pm 2 N·m)
Rocker Arm Adjustment Nut	8 \pm 1.5 ft. lbs (11 \pm 2 N·m)
Spark Plug	18.5 \pm 3.5 ft. lbs (25 \pm 5 N·m)
Oil Drain Bolt	15 \pm 3.5 ft. lbs (20 \pm 5 N·m)

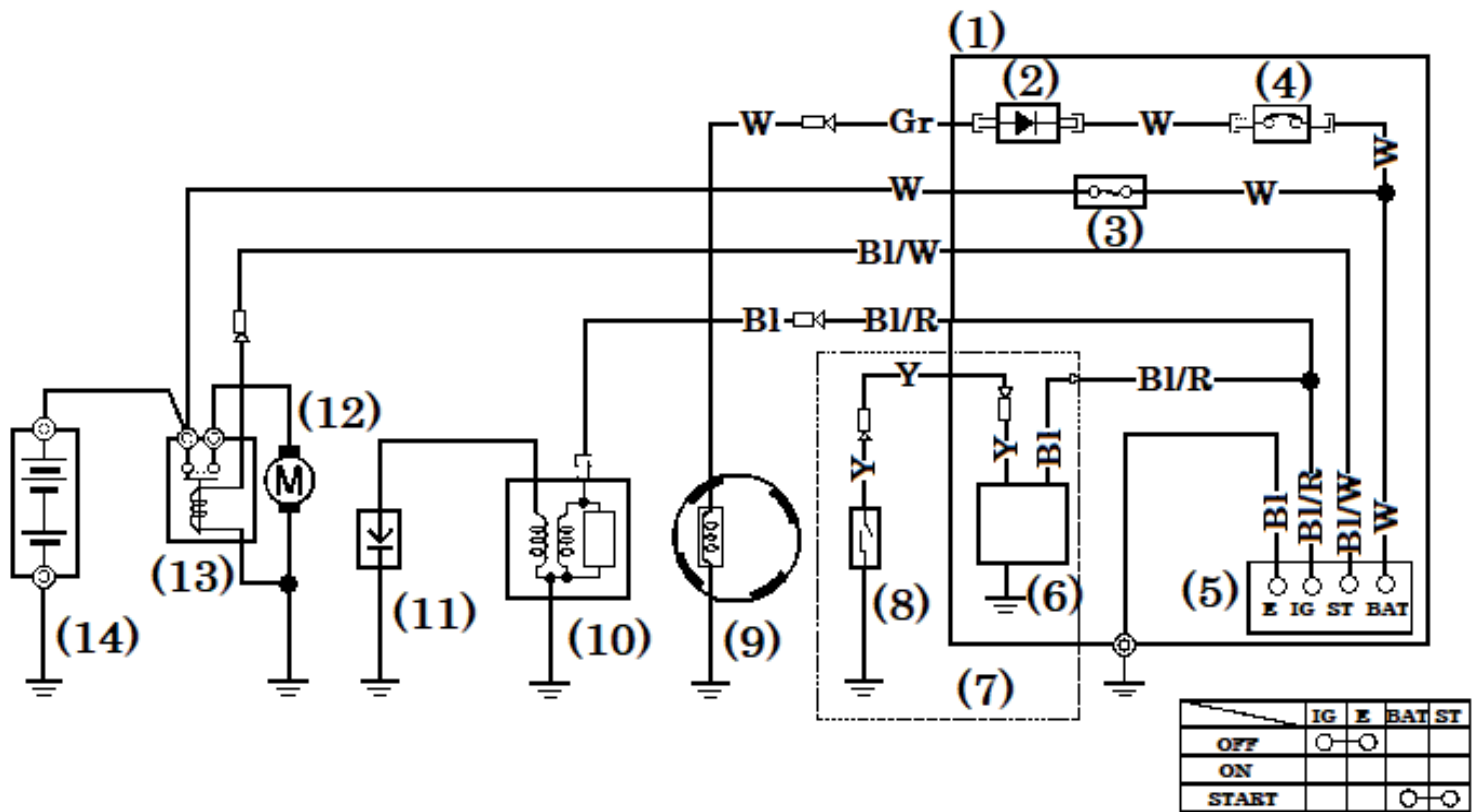
Engine Diagrams





ENGINE DIAGRAMS (CONTINUED)

Wiring Diagram



- | | |
|-----------------------------|----------------------|
| 1. Control Box | 8. Oil Level Switch |
| 2. Rectifier | 9. Charging Coil |
| 3. Fuse | 10. Ignition Coil |
| 4. Circuit Breaker | 11. Spark Plug |
| 5. Engine Switch | 12. Starter Motor |
| 6. Oil Alert Unit | 13. Starter Solenoid |
| 7. Type With Oil Alert Unit | 14. Battery (12V) |

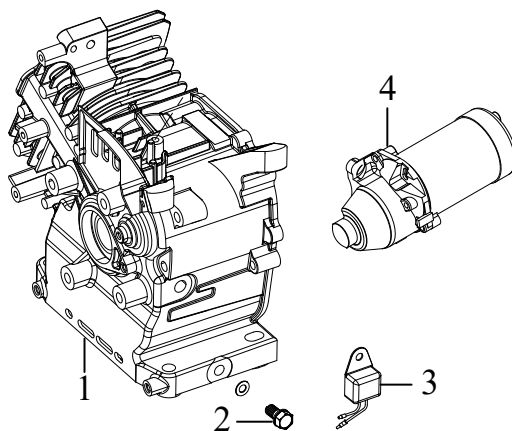
BI	Black
Y	Yellow
Gr	Gray
R	Red
W	White
BI/W	Black/White
BI/R	Black/Red

TROUBLESHOOTING

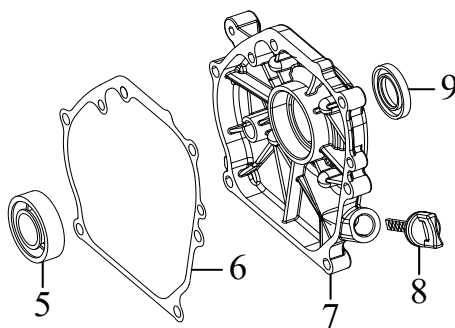
Mode	Description	Solution
Engine will not start	Engine switch is "OFF"	Set engine switch to "ON"
	Fuel valve is "OFF"	Turn fuel valve to "ON"
	Choke is open	Close the choke
	Engine is out of fuel	Add fuel
	Fuel is old or contaminated	Change fuel
	Spark plug is dirty	Clean spark plug
	Spark plug is broken	Replace spark plug
	Engine is not level	Move engine to a level surface
	Oil is low.	Add/change oil
Engine starts, but shuts off after running for short time	Oil level is low	Add/change oil
	Fuel is old or contaminated	Change fuel
	Engine is on incline exceeding 15°	Disconnect low oil sensor
Electric key switch doesn't start or shut off engine	Key switch separated from frame of engine	Run ground wire from engine block to key switch
	Negative battery or positive battery cable aren't connected properly	See installation of battery cables in the owners manual.
	Battery is dead or defective	Charge or replace battery

COMMON ENGINE PARTS

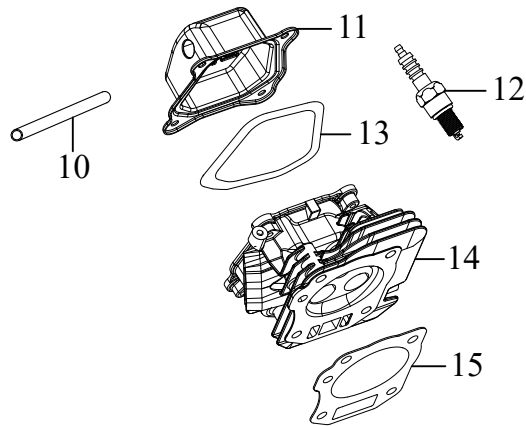
Common Engine Parts



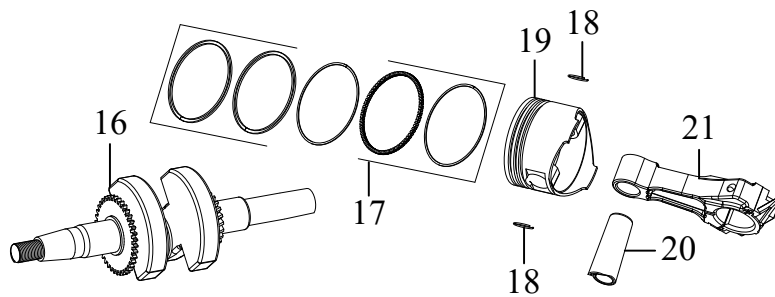
1. Crankcase	240210
2. Oil Drain Bolt	91816
3. Oil Protector	245104
4. Starting Motor Assembly	97402



5. Crankshaft Bearing	93009
6. Crankcase Cover Gasket	96041
7. Crankcase Cover	DJ168F-11001-C
8. Oil Fill Cap/Dipstick	245601-276
9. Oil Seal	93508



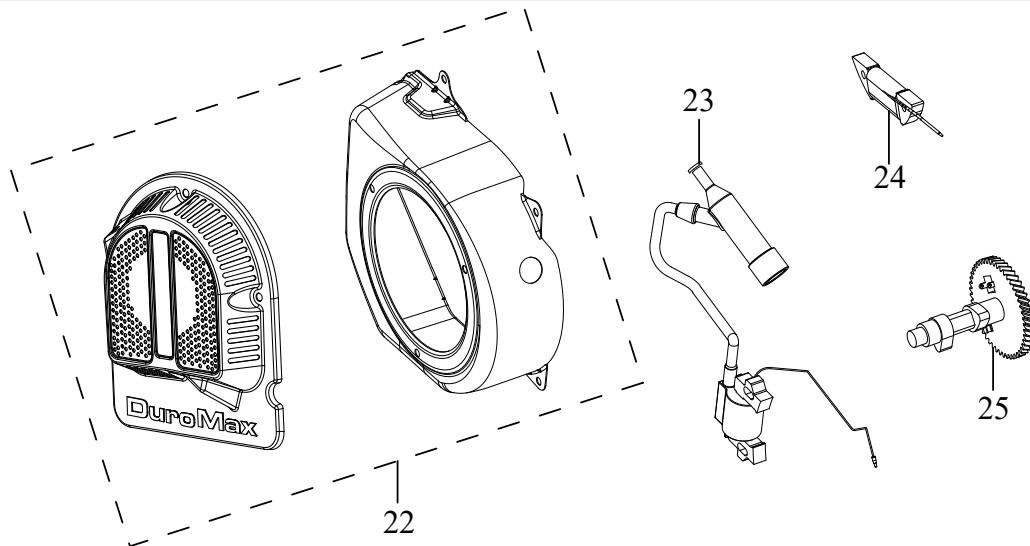
10. Breather Tube	DJ170N-11013-A
11. Valve Cover	241107
12. Spark Plug	97108
13. Valve Cover Gasket	96045
14. Cylinder Head Assembly	241011
15. Cylinder Head Gasket	96058



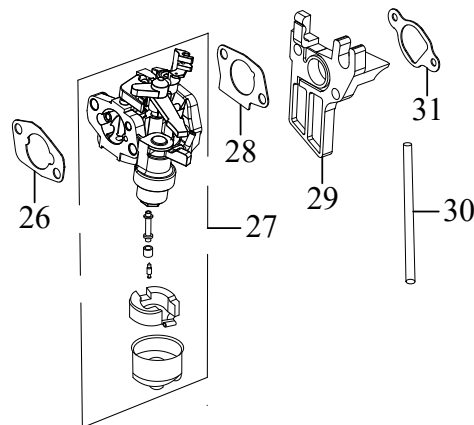
16. Crankshaft Assembly	240346
17. Piston Rings	241606
18. Pin Clip	241301
19. Piston	241208
20. Pin	245503
21. Connecting Rod	241503

COMMON ENGINE PARTS (CONTINUED)

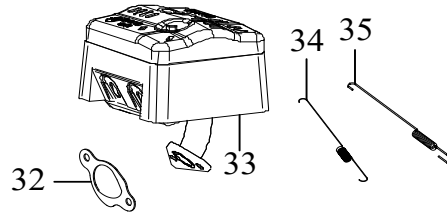
Common Engine Parts (CONTINUED)



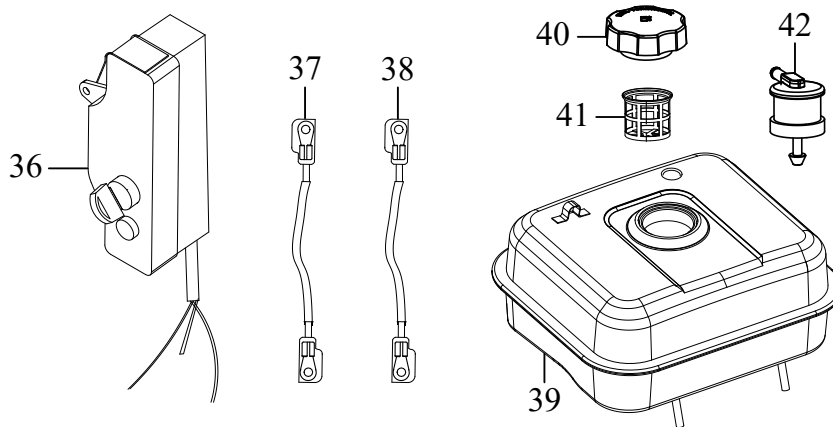
22. Recoil Assembly	247445-072
23. Ignition Coil Assembly	97514
24. Charge Coil Assembly	DJ188F-18101-A
25. Camshaft Assembly	DJ170N-13100-B



26. Carburetor/Air Filter Gasket	94229
27. Carburetor Assembly	242816
28. Spacer/Carburetor Gasket	96051
29. Spacer Gasket	242301
30. Gasoline Fuel Line	95405L
31. Spacer/Cylinder Head Gasket	96047



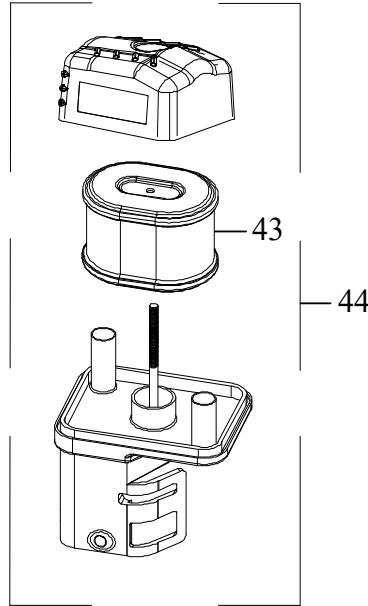
32. Muffler Gasket	96054
33. Muffler Assembly	DJ170N-14400-A
34. Throttle Return Spring	DJ170N-15008-A
35. Governor Spring	244103



36. Key Switch Assembly	245005-072
37. Negative Battery Cable	512012
38. Positive Battery Cable	512003
39. Fuel Tank Assembly	243103L-072
40. Fuel Tank Cap	DJ190N-14301-A
41. Fuel Filter	246903
42. Breather Valve	245405

COMMON ENGINE PARTS (CONTINUED)

Common Engine Parts (CONTINUED)



43. Air Filter Element

5059

44. Air Filter Assembly

242975



5800 Ontario Mills Parkway
Ontario, CA 91764
United States

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