



SUBJECTS: 1. Poor Engine Performance (Misfire, Backfire, Spark Plug Fouling, and Valve Sticking) – All XV1700 (Road Star® Models

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Poor Engine Performance (Misfire, Backfire, Spark Plug Fouling, and Valve Sticking) – All XV1700 (Road Star®) Models

Please use the information in this bulletin to assist you in handling customer concerns about XV1700 Road Star engine performance. Recently, Yamaha has received an increase in reports of misfire, spark plug fouling, and valve sticking on XV1700 Road Stars. We have determined that these issues generally have one of three causes.

In most cases, once the cause of the poor performance has been identified and corrected, running a full tank of fuel mixed with Ring Free™ Fuel Additive (ACC-RNGFR-12-00) at "shock treatment" concentration will remove carbon build-up and restore proper performance. However, very severe carbon build-up may require top end disassembly to remove deposits from combustion chambers, valves, and valve guides.

IMPORTANT: Be sure to change the engine oil and filter after the shock treatment of Ring Free™.

Cause #1: Engine Performance Modifications

One cause of these issues is improper engine modification. Performance tuning for closed-course competition is a complicated process, requiring extensive mechanical and tuning knowledge of 4-stroke motorcycle engines.

Incorrect combinations of components can cause performance problems (e.g., low fuel mileage, spark plug fouling, and excessive carbon buildup or engine mechanical component damage). Yamaha Speedstar® components designed for closed-course racing applications, for example, are intended to be used in "stages," and all components in a stage should be used together for proper performance.

Lack of correct tuning after component installation is also a common problem. An Exhaust Gas Analyzer and a dynamometer are usually required if more than the exhaust system is changed. Simply adjusting the idle mixture screw is not enough to prevent incorrect carburetor settings.

Also, engines that are performance-tuned for maximum acceleration or power will often exhibit performance or drivability issues when operated under conditions that are common to street riding, such as constant speeds or a mild rate of acceleration.

In fact, an engine tuned for maximum acceleration (e.g., drag racing) will often appear to warm up very quickly and seem to run better. However, when operated at constant speed or low acceleration, it will eventually cause problems like fouled spark plugs, excessive carbon build-up, and sticking valves.

Another important point is that jet size numbering varies according to the jet manufacturer (see chart below).

Equivalent Main Jet Sizes				
Mikuni	Dynojet		Mikuni	Dynojet
100	106.7		147.5	157.3
102.5	109.3		150	160
105	112		152.5	162.7
107.5	114.7			165
	115		155	165.3
110	117.3		157.5	168
112.5	120			170
115	122.7		160	170.7
	125		162.5	173.3
117.5	125.3			175
120	128		165	176
	130		167.5	178.7
122.5	130.7			180
125	133.3		170	181.3
	135		172.5	184
127.5	136			185
130	138.7		175	186.7
132.5	141.3		177.5	189.3
135	144			190
	145		180	192
137.5	146.7		182.5	194.7
140	149.3			195
	150		185	197.3
142.5	152		187.5	200
145	154.7		190	202.7
	155			

if the customer is having poor performance problems with a modified engine used on public roads, recommend that the unit be returned to its original equipment specification or that components which are EPA (or in California, CARB) approved be installed. Alteration of emission-related components on motorcycles, including exhaust systems and carburetion, as well as more extensive modifications, constitutes tampering under Federal and State laws (including Yamaha policies) and can lead to substantial fines and penalties if used other than in closed-course competition. Your dealership could be at risk if you knowingly assist the customer with illegal tampering.

NOTE: Performance problems caused by engine modifications are not a warrantable defect.

Cause #2: Engine Oil Level is Too High

Too high of an oil level will cause excessive oil vapor in the crankcase ventilation system. The excessive oil vapor enters the intake system and can also saturate and restrict the air filter; either of which will eventually cause performance problems (e.g., low fuel mileage, spark plug fouling, and excessive carbon build up on valves and the combustion chamber).

A high oil level also results in increased drag on engine and transmission components, reducing power.

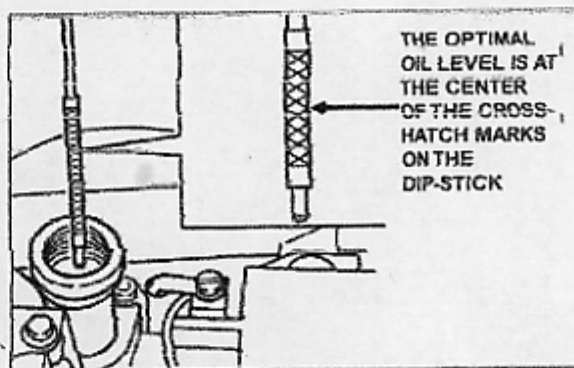
Simply removing the air filter cover to check for oil saturation is not enough. Inspect the air filter from the inside by holding it up to a light. Lowering the oil level without correcting an oil saturated filter will lead to continued rich condition and poor performance.

XV1700 engines have a large internal surface area and much of the oil remains in the crankcase. It is critical to use the correct oil viscosity and achieve the correct engine oil temperature (60° C / 140° F) when checking the oil level. If you are unable to determine whether there is the minimum amount of oil in the engine, drain and refill it with the correct amount.

Start and run the engine until the engine oil temperature is at least 60° C (140° F). Ride the unit for 15 minutes to obtain this temperature. Then, allow the engine to idle with the unit upright and level for 30 seconds. Allowing the engine to idle for 30 seconds is very important. If the engine is revved immediately prior to checking the oil level, the oil level will appear too high. Next, turn the engine off and wait 2 to 3 minutes before checking the oil level (see adjacent illustration) with the unit upright and level (refer to Tech Exchange M2005-002 for an additional discussion).

Be sure to check the oil level after oil changes. The oil quantity specified in the Service and Owner's

Manual is the maximum quantity. To prevent an over full situation, always refill with about a half quart less than specified, check the oil level as described previously and add additional oil as necessary to bring the level to the middle of the hash marks on the dipstick.



NOTE: Performance problems caused by too high of an oil level are not a warrantable defect.

Cause # 3: Insufficient Time Allowed for Engine Warm-up

Even with a stock unit and the correct oil level, insufficient warm-up causes a variety of running issues including: stalling during acceleration, low idle speed, and backfire from the intake.

Unlike fuel injected engines and multi-cylinder engines, the single carbureted Road Star engine cannot run correctly until the engine has reached the operating temperature.

The carbureted Road Star is equipped with an enricher circuit (choke). Only use the enricher during starting and warm-up, never during riding, and never with a warmed up engine. When starting a cold engine, open the enricher knob fully for 7 to 35 seconds, depending on the air temperature. Then, close it half way for another 2-1/2 minutes or so, before closing the knob completely. After that, the engine must be allowed to continue to warm until it has rapid throttle response with the enricher pushed fully in and idles at normal speed. This can take another few minutes (up to 10 minutes or even longer in very cold temperatures).

NOTE: Running issues caused by insufficient warm-up are not a warrantable defect.