

Section E13

Fault diagnosis**Symptoms**

1. Engine fails to start (starter motor inoperative).
2. Engine fails to start (starter motor operates but fails to turn engine).
3. Engine fails to fire.
4. Poor engine idling.
5. Incorrect engine idle speed.
6. (i) Irregular running.
(ii) Engine misfires.
7. Loss of power.

Possible cause

1. (a) Gear range selector out of 'Neutral' or 'Park' position
(b) Ignition fuse blown.
(c) Battery discharged.
(d) Break or high resistance in battery connections and starter relay connections.
(e) Auxiliary starter relay faulty.
(f) Faulty starter motor.
2. (a) Battery discharged.
(b) Faulty starter motor circuit (refer to Chapter M).
(c) Faulty starter motor.
(d) Faulty starter solenoid (refer to Chapter M).
3. (a) No fuel delivered to engine (refer to Chapter K and/or Chapter U).
(b) Faulty ignition system (refer to Chapter M).
(c) Excess fuel in engine (refer to Chapter K and/or Chapter U).
(d) Incorrect metering of fuel (refer to Chapter K and/or Chapter U).
4. (a) Incorrect metering of fuel (refer to Chapter K and/or Chapter U).
(b) Incorrect ignition timing (refer to Chapter M).
(c) Air leaks in induction system (refer to Chapter K and/or Chapter U).
(d) Air leaks in exhaust system on engines fitted with a fuel injection system (refer to Chapter U).
5. (a) Incorrect metering of fuel (refer to Chapter K and/or Chapter U).
(b) Throttle controls sticking (refer to Chapter K and/or Chapter U).
(c) Air leaks in induction system (refer to Chapter K and/or Chapter U).
6. (a) Faulty sparking plug(s) (refer to Chapter M and/or Chapter U).
(b) Faulty ignition system (refer to Chapter M and/or Chapter U).
(c) Air leaks in induction system (refer to Chapter K and/or Chapter U).
(d) Air leaks in exhaust system on engines fitted with a fuel injection system (refer to Chapter U).
(e) Incorrect metering of fuel (refer to Chapter K and/or Chapter U).
(f) Inlet and exhaust valves not seating correctly (refer to Section E8). Examine valve seats and springs.
(g) Defective cylinder head gasket(s) (refer to Section E8). Examine the cylinder head gasket(s).
7. (a) Faulty sparking plug(s) (refer to Chapter M and/or Chapter U).
(b) Faulty ignition system (refer to Chapter M and/or Chapter U).
(c) Air leaks in induction system (refer to Chapter K and/or Chapter U).
(d) Air leaks in exhaust system on engines fitted with a fuel injection system (refer to Chapter U).
(e) Blocked air cleaner filter (refer to Chapter K and/or Chapter U).
(f) Incorrect metering of fuel (refer to Chapter K and/or Chapter U).
(g) Throttle linkage sticking or incorrectly adjusted (refer to Chapter K and/or Chapter U).

Symptoms	Possible cause
7. Loss of power (continued).	(h) Worn or burnt valves. Broken or weak valve springs (refer to Section E8). (i) Defective cylinder head gasket(s) (refer to Section E8).
8. Engine 'spits back'.	8. (a) Incorrect metering of fuel (refer to Chapter K and/or Chapter U). (b) Inlet valves not seating correctly (refer to Section E8). (c) Incorrect grade of fuel. (d) Faulty ignition system (refer to Chapter M and/or Chapter U). (e) Heavily carboned engine.
9. Engine 'runs on' (diesels).	9. (a) Engine overheating. (b) Faulty ignition timing. (c) (i) S.U. HIF7 Carburetters Faulty weakening system (refer to Chapter K and/or Chapter U). (ii) Fuel injection system Refer to Chapter U.
10. Detonations in silencer.	10. (a) Incorrect metering of fuel (refer to Chapter K and/or Chapter U). (b) Faulty ignition system (refer to Chapter M and/or Chapter U). (c) Air leaks in exhaust system (refer to Chapter Q and/or Chapter U). (d) Faulty temperature controlled air intake system (refer to Chapter K and/or Chapter U). (e) Exhaust valve(s) sticking (refer to Section E8).
11. Overheating.	11. (a) Loss of coolant. (b) Faulty thermostat. (c) Broken or slipping drive belt. (d) Faulty coolant pump. (e) Weak fuel/air mixture. (f) Inadequate engine lubrication. (g) Faulty ignition system (refer to Chapter M and/or Chapter U). (h) Blocked cooling system. (i) Restricted air flow through matrix.
12. Low oil pressure.	12. (a) Inadequate oil supply. (b) Low oil level in sump (see Section E10). (c) Defective oil pressure gauge. (d) Worn or defective oil pump (see Section E10). (e) Blocked oil pick-up strainer. (f) Defective seal(s) on oil pick-up assembly. (g) Defective seal(s) in main oil galleries (core plugs). (h) Engine overheating.
13. Excessive fuel consumption.	13. (a) Leaks from fuel system. (b) Incorrect metering of fuel (refer to Chapter K and/or Chapter U). (c) Blocked air cleaner filter (refer to Chapter K and/or Chapter U). (d) Faulty ignition system (refer to Chapter M and/or Chapter U). (e) Loss of engine cylinder compression.