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STARTING & CHARGING

STARTER TROUBLESHOOTING 1.1

Table 1-1. Starter Does Not Run or Runs At Very Low Speeds

SOURCE OF PROBLEM	PROBABLE CAUSE	SOLUTION
Battery	Voltage drop due to discharged battery.	Charge battery.
	Short-circuited or open between electrodes.	Replace battery.
	Poor contact condition of battery terminal(s).	Clean and retighten.
Wiring	Poor or no connection at either battery positive or negative cable, at either end.	Repair or replace cable(s).
	Cracked or corroded battery cable ends.	Clean, tighten or replace cable(s) as needed.
	Open wire(s) or poor connection at handlebar switch or starter relay, especially relay ground wire.	Tighten connections or repair or replace wire(s).
Handlebar start switch	Poor switch contacts or open switch.	Replace switch.
Starter relay	Open coil winding.	Replace relay.
	Poor or no continuity at relay points.	Replace relay.
	TSM/TSSM has disabled starter relay.	Check for open on wire to TSM/TSSM. Correct lack of ground.
Solenoid	Poor contact condition caused by burnt contact.	Polish contact surface or replace solenoid assembly.
	Pull-in winding open or short-circuited.	Repair or replace solenoid assembly.
	Hold-in winding open or short-circuited.	Repair or replace solenoid assembly.
Starting motor	Brushes worn below specification.	Check brush spring tension. Replace field frame and holder.
	Commutator burnt.	Re-face or replace.
	Commutator high mica.	Correct by undercutting.
	Field winding grounded.	Replace.
	Armature winding grounded or short-circuited.	Replace.
	Reduction gears damaged.	Replace.
	Insufficient brush spring tension.	Replace.
	Disconnected lead wire between solenoid and field windings.	Repair or replace lead wire.
	Ball bearing sticks.	Replace bearing.
Temperature	Incorrect oil for low temperature	Use recommended viscosity oil for temperature range. consult owner's manual

Table 1-2. Pinion Does Not Engage With Ring Gear While Starter is Cranked or Engine Cannot Be Cranked

SOURCE OF PROBLEM	PROBABLE CAUSE	SOLUTION
Battery	Voltage drop due to discharged battery.	Charge battery.
	Short-circuited or open between electrodes.	Replace battery.
	Poor contact condition of battery terminal(s).	Clean and retighten.
Overrunning clutch.	Overrunning clutch malfunction (rollers or compression spring).	Replace overrunning clutch.
	Pinion teeth worn out.	Replace pinion.
	Pinion does not run in overrunning direction.	Replace overrunning clutch.
	Poor sliding condition of spline teeth.	Remove foreign materials, dirt or replace overrunning clutch or pinion shaft.
	Reduction gears damaged.	Replace overrunning clutch and idler gear.
Jackshaft assembly	Improper jackshaft parts assembly	Disassemble and assemble parts properly.
Gear teeth on clutch shell	Excessively worn teeth.	Replace clutch shell.

Table 1-3. Starter Does Not Stop Running

SOURCE OF PROBLEM	PROBABLE CAUSE	SOLUTION
Starting switch or starter relay.	Unopened contacts.	Replace starting switch or starter relay.
	Poor return caused by sticky switch or relay contacts.	Replace starting switch or starter relay.
Gear teeth on clutch shell	Excessively worn teeth.	Replace clutch shell.
Solenoid.	Return spring worn.	Replace spring.
	Coil layer shorted.	Replace solenoid.
	Contact plate melted and stuck.	Replace solenoid.

STARTING SYSTEM DIAGNOSIS 1.2

DIAGNOSTICS

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the starter system flow charts.

1. See VOLTAGE DROPS under 1.4 DIAGNOSTICS/ TROUBLESHOOTING.
2. Remove starter motor. Connect jumper wires as described under FREE RUNNING CURRENT DRAW TEST under 1.6 TESTING ASSEMBLED STARTER.
3. Remove TSSM and use HARNESS CONNECTOR TEST KIT (Part No. HD-41404) to short terminal 9 on connector [30] to ground. If starter motor cranks, replace TSSM.
4. Connect BREAKOUT BOX (Part No. HD-42682) (black) and 6-pin Harness Adapters (Part no. HD-42962) between wiring harness connector [22A] and Right Hand Control harness connector [22B] (adapters not required on FXDP).
5. See Starter Current Draw Test under 1.5 STARTER SYSTEM TESTING.
6. See FREE RUNNING CURRENT DRAW TEST under 1.6 TESTING ASSEMBLED STARTER.

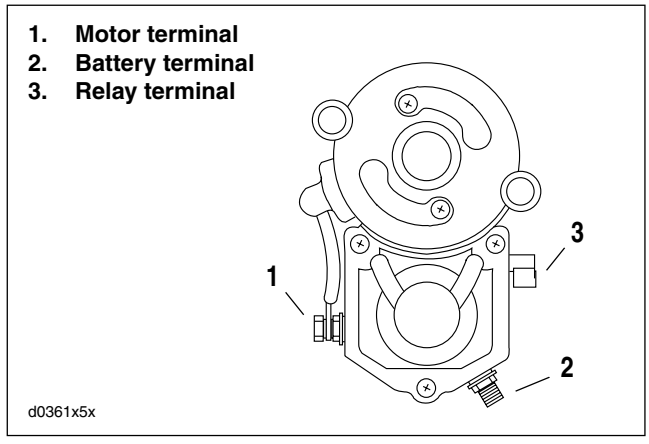

Figure 1-1. Starter Terminals