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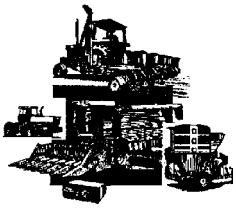
COOPERATIVE EXTENSION



TROUBLE SHOOTING

Farm Machinery Fact Sheet FM-30

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A knowledge of operating principles is essential to determine mechanical problems and their probable cause. When trouble is experienced, make sure of the cause before attempting to make adjustment. When making an adjustment, keep in mind the previous setting or make a mark in case the adjustment doesn't solve the problem, so that the adjustment can be set at the original position. Determine the function, purpose and operation of the component unit before disassembling each individual part. Check the easiest and least difficult problem at first, then proceed with the more complicated procedures until the cause is located. Examine each component part for wear, burrs, misalignment, binding, and undue strain and stress.

ENGINE

Problem	Possible Cause	Possible Remedy
Engine hard to start or will not start.	Hand throttle not in open position.	Open throttle.
	Gear shift lever in gear.	Move lever to neutral.
	PTO engaged.	Disengage PTO.
	No fuel.	Check fuel tank.
	Fuel shut-off valve closed.	Open shut-off valve.
	Cold weather.	Use cold weather starting.
	Slow starter speed.	See “Starter cranks slowly.”
	Crankcase oil too heavy.	Use oil of proper viscosity.
	Improper type of fuel.	Consult fuel supplier; use proper type fuel for operating conditions.

	Water, dirt, or air in fuel. system.	Drain, flush, fill and bleed system.
	Clogged fuel filter.	Replace filter element.
Engine runs irregularly or stalls frequently.	Vent in fuel tank cap obstructed.	Clean cap in solvent. Blow dry.
	Low coolant temperature.	Remove and check thermostat.
	Clogged fuel filter.	Replace filter element.
	Water, dirt, or air in fuel system.	Drain, flush, fill, and bleed system.
	Dirty or faulty injectors.	Have machinery dealer check injectors.
	Improper type of fuel.	Use proper fuel.
Engine knocks	Insufficient oil.	Add oil.
	Injunction pump out of time.	See your machinery dealer.
	Low coolant temperature.	Remove and check thermostat.
	Engine overheating	See "Engine overheats."
	Idle speed too slow.	Check idle speed.
Lack of engine power.	Engine overloaded.	Reduce load or shift to lower gear.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter element.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	See "Engine overheats."
	Below normal engine temperature.	Remove and check thermostat.
	Improper valve clearance.	See your machinery dealer.

	Dirty or faulty injectors.	Have machinery dealer check injectors.
	Injection pump out of time.	See your machinery dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Improper ballast.	Adjust ballast to load.
Engine overheats	Engine overloaded.	Shift to lower gear or reduce load.
	Low coolant level.	Fill cooling system to proper level; check radiator, coolant recovery tank, and hoses for loose connections or leaks.
	Faulty radiator cap.	Have service person check.
	Loose or defective fan belt.	Adjust fan belt.
	Dirty radiator core or grille screens.	Remove all trash.
	Cooling system needs flushing.	Flush cooling system.
	Defective thermostat.	Remove and check thermostat.
	Defective temperature gauge or sender.	Check water temperature with thermometer and replace if necessary.
Low oil pressure	Low oil level.	Add oil.
	Improper type of oil.	Drain, fill crankcase with oil of proper viscosity and quality.
High oil consumption	Crankcase oil too light.	Use proper viscosity oil.
	Oil leaks.	Check for leaks in lines, around gaskets and drain plug.

Engine emits white smoke	Improper type of fuel.	Use proper fuel.
	Low engine temperature.	Warm up engine to normal operating temperature.
	Defective thermostat.	Remove and check thermostat.
	Engine out of time.	See your machinery dealer.
Engine emits black or gray exhaust smoke.	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a lower gear.
	Injection nozzles dirty.	See your machinery dealer.
	Engine out of time.	See your machinery dealer.
High fuel consumption.	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a lower gear.
	Improper valve clearance.	See your machinery dealer.
	Injection nozzles dirty.	See your machinery dealer.
	Engine out of time.	See your machinery dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Low engine temperature.	Check thermostat.
	Restricted air intake	Check system.

	system.	
	Plugged crankcase vent tube or baffle.	Clean vent tube or baffle.
ELECTRICAL SYSTEM		
Battery will not charge.	Loose or corroded connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Loose or defective fan belt.	Adjust belt tension or replace belt.
Charging system indicator glows with engine running.	Low engine speed.	Increase speed.
	Defective battery.	Check electrolyte level and specific gravity.
	Defective alternator.	Have your machinery dealer check alternator.
	Slipping fan belt.	Tighten belt.
Starter inoperative.	Loose or corroded connections.	Clean and tighten loose connections.
	Low battery output	Check electrolyte level and specific gravity.
	Gear shift lever in gear.	Move lever to neutral.
	PTO engaged.	Disengage PTO.
Starter cranks slowly.	Low battery output.	Check electrolyte level and specific gravity.
	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
One lighting circuit does not function.	Fuse blown.	Replace fuse

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