USMW
PROFESSIONAL SERIES
A US Motor Works Brand ®

CERTIFIED • OEM QUALITY • RELIABILITY

SUCCESS IN COOLING

ENGINE WATER PUMPS

usmwpro.com

WARRANTY EXCLUSIONS

USMW Professional Series a brand of US Motor Works, LLC warrants products to be free from defects in material and manufacturing, under normal use and service. The following images are indications of damage caused by improperly maintained systems and modifications.

New water pump with old related parts

Poor AC/ F+W maintenance

Contaminated coolant or cooling system

Poor cooling system condition (Cavitation)

Poor cooling system condition (Electrolysis)

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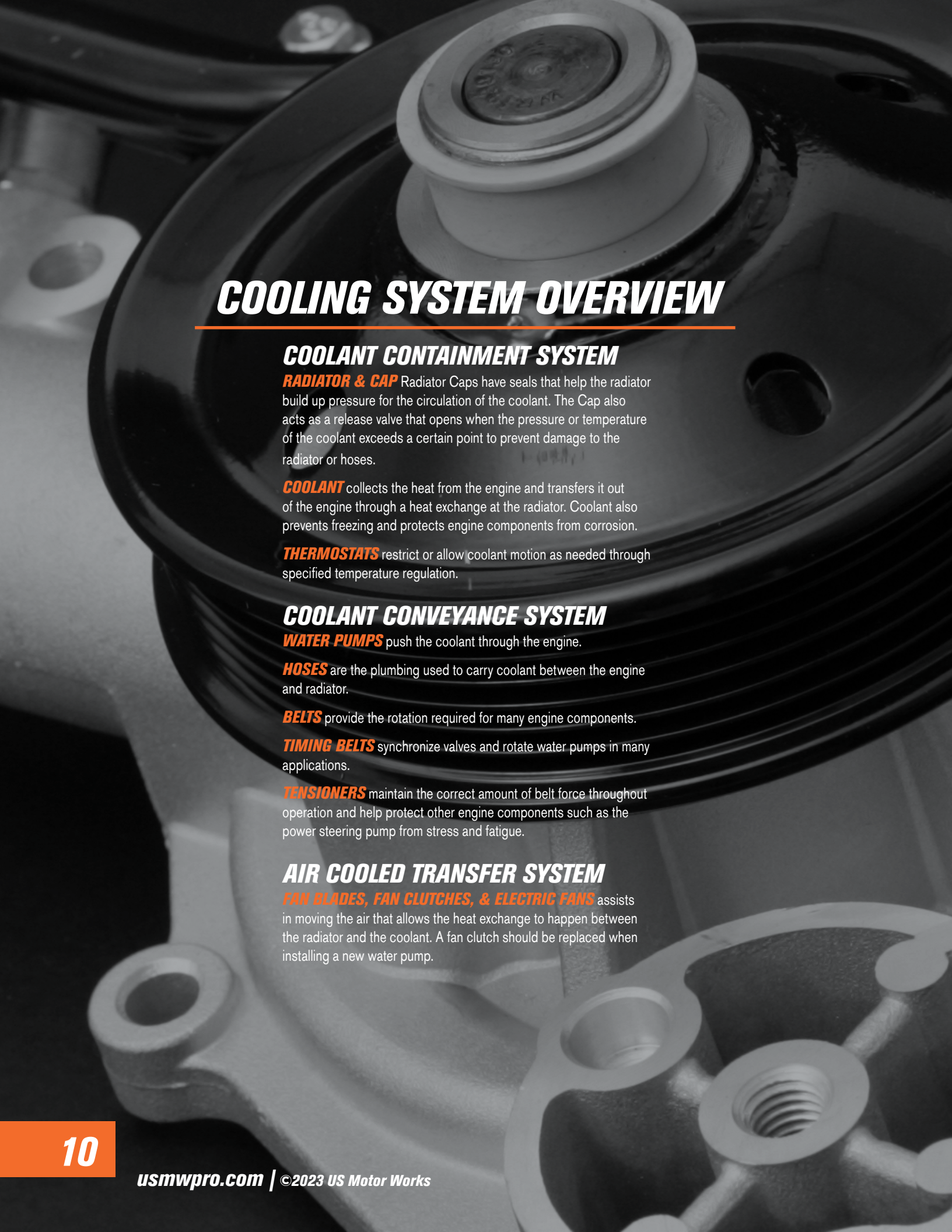

COOLING SYSTEM OVERVIEW

COOLANT CONTAINMENT SYSTEM

RADIATOR & CAP Radiator Caps have seals that help the radiator build up pressure for the circulation of the coolant. The Cap also acts as a release valve that opens when the pressure or temperature of the coolant exceeds a certain point to prevent damage to the radiator or hoses.

COOLANT collects the heat from the engine and transfers it out of the engine through a heat exchange at the radiator. Coolant also prevents freezing and protects engine components from corrosion.

THERMOSTATS restrict or allow coolant motion as needed through specified temperature regulation.

COOLANT CONVEYANCE SYSTEM

WATER PUMPS push the coolant through the engine.

HOSES are the plumbing used to carry coolant between the engine and radiator.

BELTS provide the rotation required for many engine components.

TIMING BELTS synchronize valves and rotate water pumps in many applications.

TENSIONERS maintain the correct amount of belt force throughout operation and help protect other engine components such as the power steering pump from stress and fatigue.

AIR COOLED TRANSFER SYSTEM

FAN BLADES, FAN CLUTCHES, & ELECTRIC FANS assists in moving the air that allows the heat exchange to happen between the radiator and the coolant. A fan clutch should be replaced when installing a new water pump.

BEST PRACTICES CHECKLIST

Safety & Personal Protection	
-Engine is off & cooled	
-Eye protection	
-Gloves	
-Fluid containment	

Coolant Containment System	
Check Radiator. (Flush or Replace If)	
-Obstructions (external)	
-Obstructions (internal)	
-Bent or broken fins	
Check Coolant. (Replace If)	
-Improper type or mixed	
-Rust or discoloration	
-Low coolant level, at or beyond recommended service time	
Check Radiator Cap. (Replace If)	
-Does not hold pressure	
-Rust or discoloration	
-Incorrect model or type	
Check Thermostat. (Replace If)	
-Stuck open or closed	
-Rust or discoloration	
-Installed incorrectly	
Pressure & Stability	
-Check pressure	
-Bleed system of air	

Coolant Conveyance System	
Hoses (Replace If)	
-Cracked, burst, or has abrasions	
-Pinching (hose clamps)	
-Discoloration (oxidation)	
-Collapsed or soft	

Air & Coolant Power System	
Fan Assembly & Fan Blades (Replace If)	
-Damaged, cracked, missing fin(s)	
-Wobble	
-Corrosion	
-Interference	
-Imbalance	
-Not operating properly	
Fan Clutch (Replace If)	
-Leaking	
-Stuck on or off	
-Free spins (spin by hand)	
-Replacing the water pump	

Water Pump Installation	
-Clean mounting surface	
-Torque mounting and fan/pulley bolts properly	
-Check for interference (spin by hand)	
-Check for leaks (after operation)	
Belts - Serpentine, V, Timing (Replace If)	
-Cracking	
-Discoloration (oxidation)	
-Edge wear	
-Splitting	
-Missing ribs	
-Loose fit	
-At or beyond recommended service time	
Tensioners & Pulleys (Replace If)	
-Rust & seal cracks	
-Bearing wear	
-Pulley wear	
-Misalignment	
-Noises (squeaks & grinding)	
-Loss of spring force	
-At or beyond recommended service time	

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