

# Fluid Power Projects and Applications

**Ernie Parker CFP AI CFPCC CFPMIH CFPMMH CFPMIP**, Ernie taught at Hennepin Community College and has over 45 years of experience in the fluid power industry. Ernie was recognized by the International Fluid Power Society and inducted into the inaugural class of the IFPS Hall of Fame for his achievements and contributions to the industry. Ernie has a wealth of knowledge of fluid power and has shared some of his projects with NFPA to help inspire students to design and build their own projects.



# 45 HP 4 Wheeler



# 45 HP Loader





# Zero Turn Lawnmower





# Zero Turn Forklift

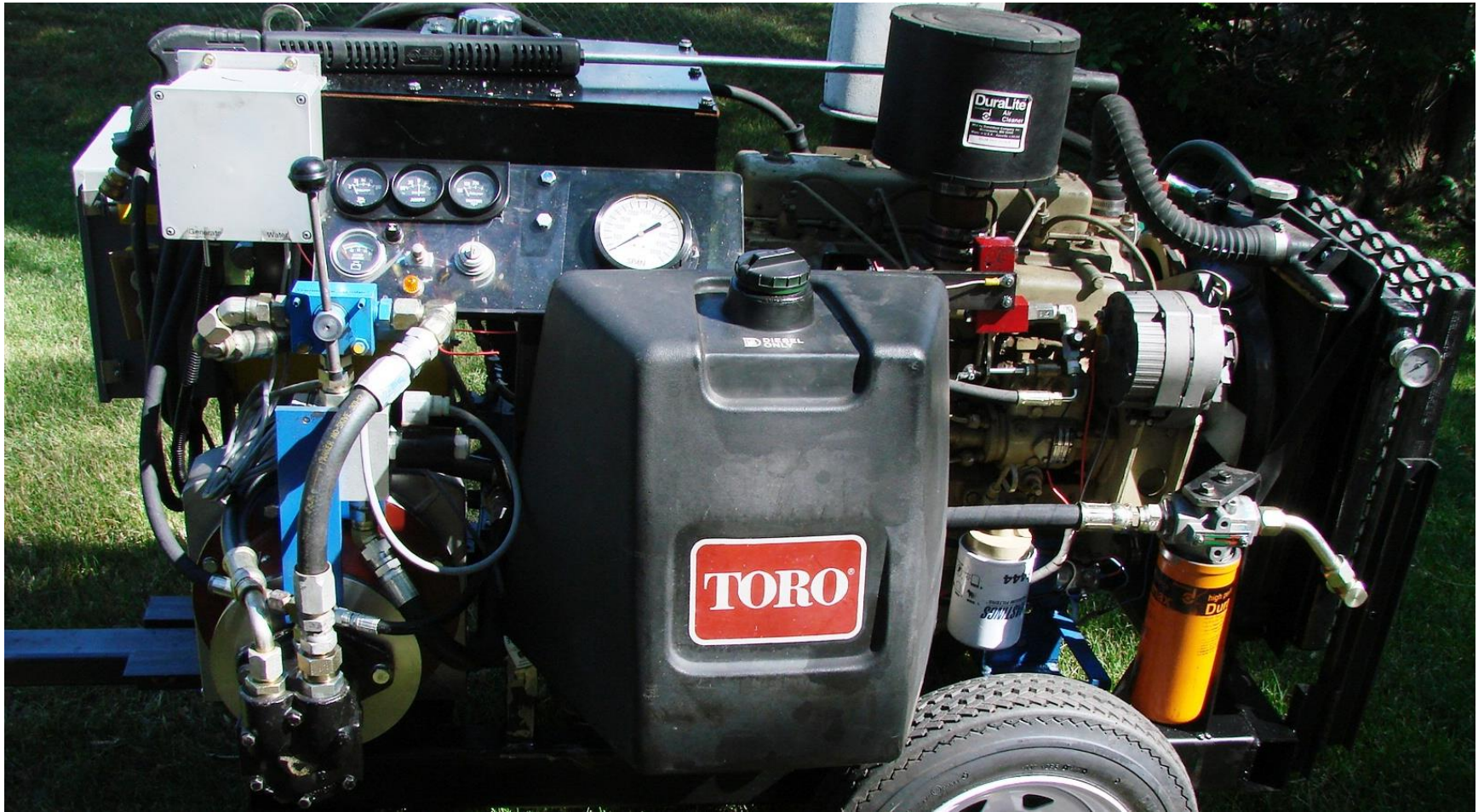


# Log Splitter





# Load Sensing Generator



# Hydraulic Golf Putter





# Bumper Car

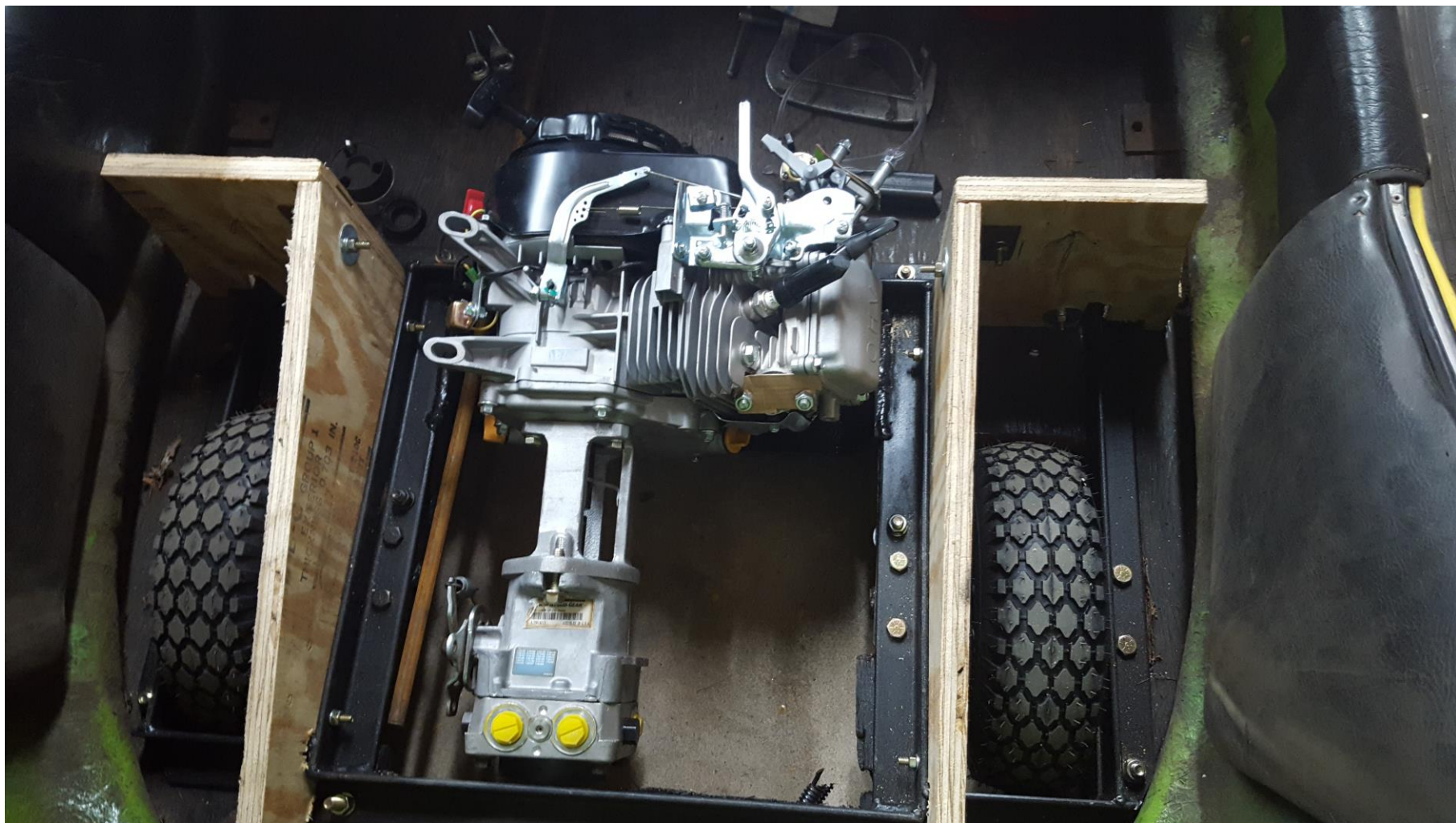


# Bumper Car





# Bumper Car



# Airport Tower





# Train





# Ferris Wheel

**FLUID POWER SPECIALIST (Any Industry)**

Power applications engineer, Fluid Power sales representative, Fluid Power consultant. Analyzes power transmission and motion control situations and designs appropriate hydraulic or pneumatic systems to form required tasks. Selects appropriate components, signs or modifies complete circuits, prepare bills of materials, and specifies fluids, prime movers, and appropriate fluid conductors. Provides instructions on installation and operation. Troubleshoots non-performing systems to determine necessary repairs. Designs appropriate instrumentation and control systems (hydraulic, pneumatic, and electronic) for industrial and mobile machinery. May become involved in sales activities, product warranty claims, and evaluation of prototype machinery. May become involved in instructional activities for Fluid Power Technicians and Fluid Power Mechanics concerning principles of hydraulics and pneumatics as well as the operation and maintenance of particular machines.

This model is one of the many graduates of Fluid Power Technology and is a proud product of the National Fluid Power Association. Contact your local chapter for more information.



## Is Hydraulics and Pneumatics

FLUID POWER IS USED BECAUSE:

- Both linear (straight line) & rotary motion can be obtained from a single power source.
- Force & torque can be controlled & limited.
- Speed & direction of travel & rotation can be controlled.
- Actuators can be sealed until started without damage.
- Energy can be transmitted anywhere thru tubes and flexible hoses.

## APPLICATIONS OF FLUID POWER

<b>AEROSPACE</b>	<b>DEEP HOLE DRILLING</b>
<b>AGRICULTURE</b>	Drilling
Hydraulic Combines	Raising & Lowering Brills & Pipes
Implement Lifts	Shoring & Leveling Platforms
Wheel Drives	
Fertilizer Spreaders	<b>COKE OF ENGINES</b>
Harvesting Machines	LINK - Gears
<b>AMUSEMENT</b>	<b>ENTERTAINMENT</b>
Theme Parks	Special Effects
<b>AIRCRAFT</b>	<b>FACTORY</b>
Braking, Wheel & Thrust	Auto Workstations
Emergency Backup Systems	Clad Comp. Integrator
Flight Controls	Manufacturing
Landing Gears & Doors	Painting
Wingtip Operation	Pressing Stamping
Wheel Actuators	Robotics
<b>AGRICULTURE</b>	<b>MANUFACTURING</b>
Automatic Transmission Shifting	Automotive
Hydraulics & Air Brakes	Crane & Lifter Equipment
Power Steering	
Automatic Clutches	<b>Mining</b>
	Automatic Lifting
<b>BUILDINGS</b>	Drilling
Automatic Doors	Industrial Operating
Elevators	
Environmental Control	<b>PACKAGING</b>
UPS, Security	Sealless Cracking
Trash Compactors	Machine Operating
<b>CONSTRUCTION</b>	<b>PARADE FLOATS</b>
Excavators - Angers	
Autoclaves	<b>PRINTING</b>
Compactors	Blank Mounting
Cranebooms	Engraving
Cranebooms	Injection Moulding
Jack - Lifts - Presses	Preheating
Lifts	Welding Fixtures
	<b>RESEARCH</b>
	Robot Operations & Control

NOV 5 2007



# Water Craft



# Water Craft





# Water Craft



# 27 MPH 3 Wheeler





# Semi Truck





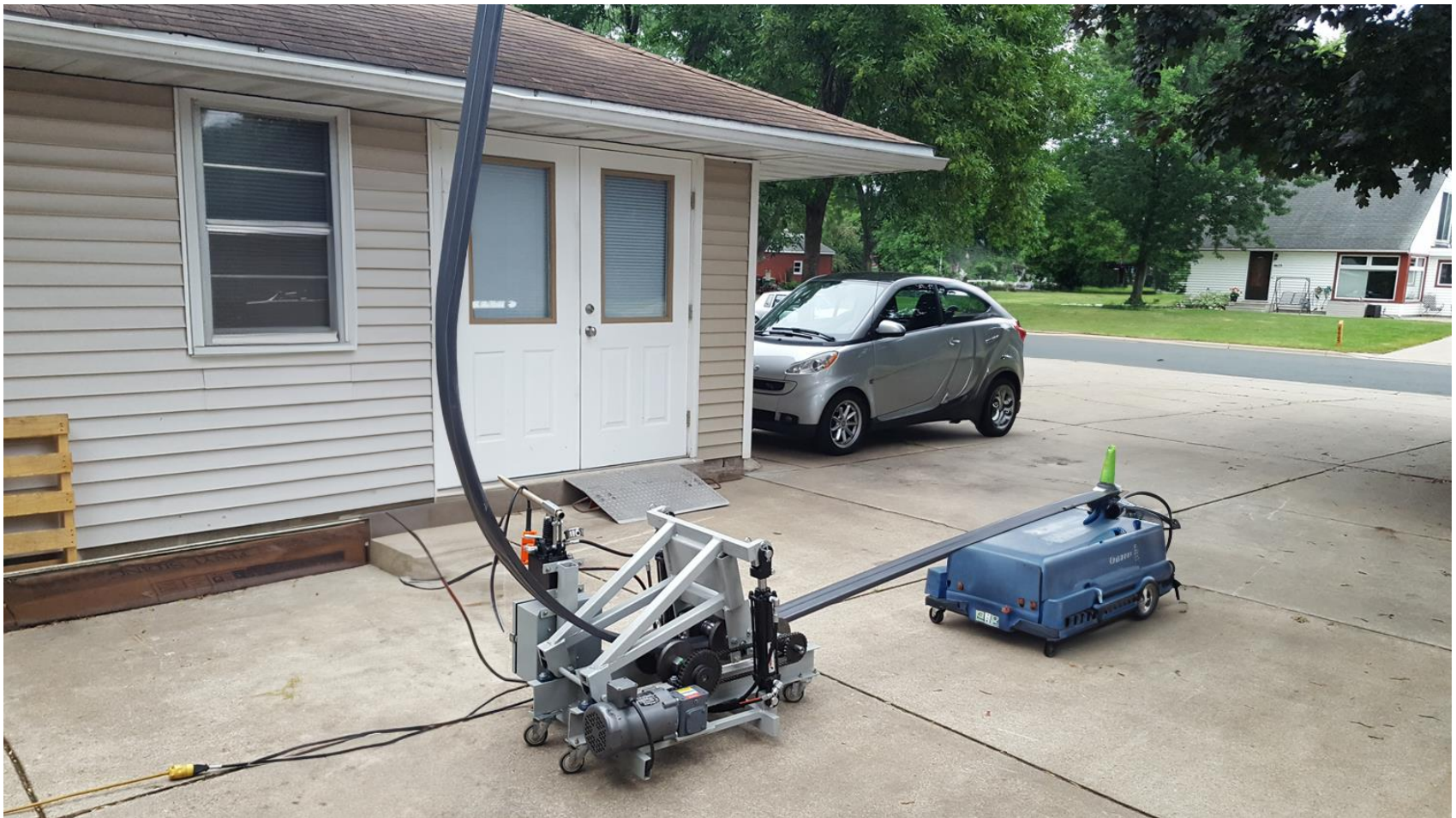




# Semi Truck



# Frame Tube Bender





# Teardrop Campers





# Remote Control Lawnmower





# Off Road Bike



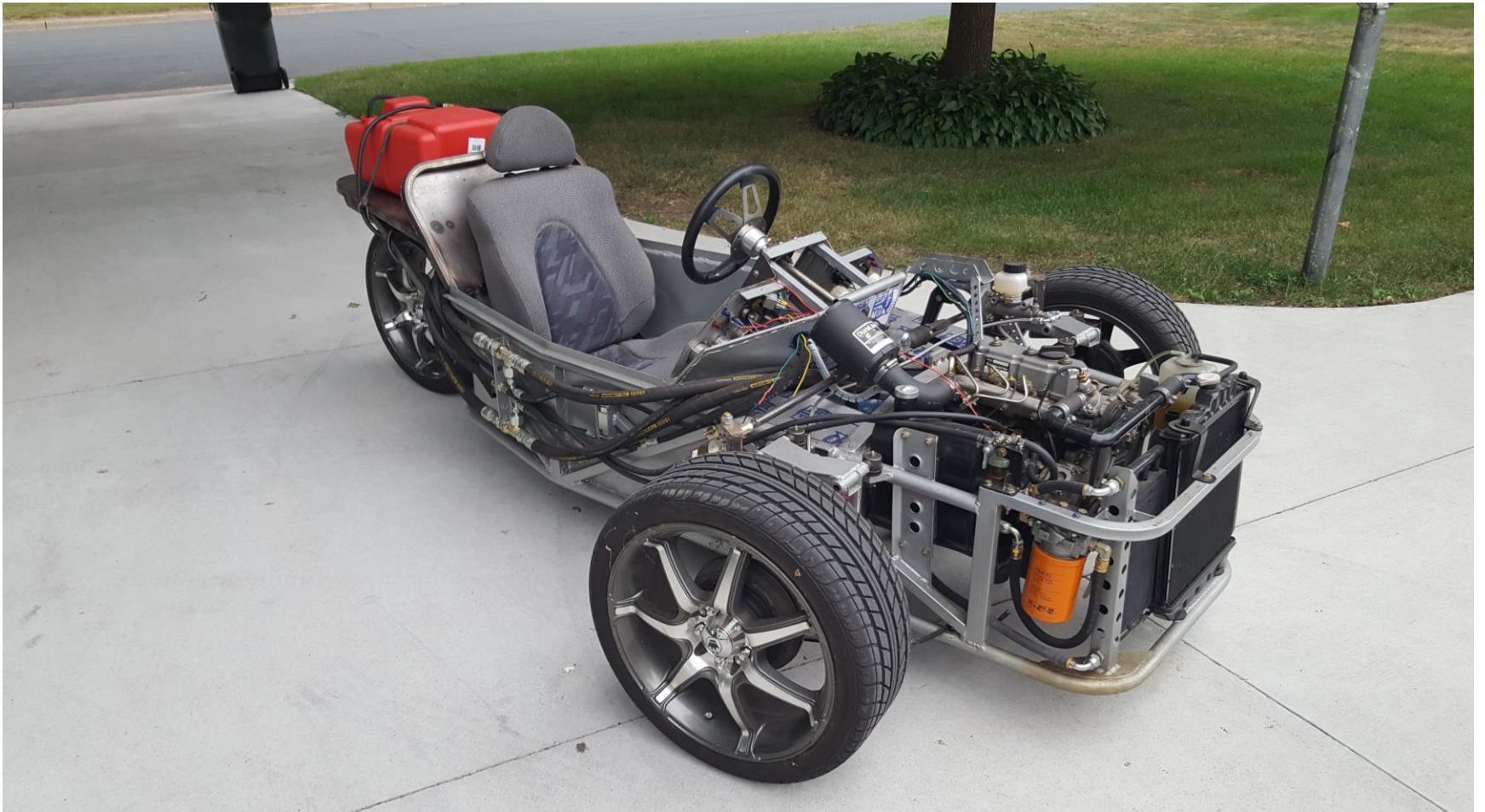


# Off Road Bike





# Highway 3 Wheeler



# Highway 3 Wheeler





# Hydrostatic 3 Wheeler





# Hydrostatic 3 Wheeler





# Hybrid 3 Wheeler





> 100 MPG





# Rock Climber



# Leaning 3 Wheeler





# Mud Jacking



# Helicopter





# Helicopter





# Hydrostatic Motorcycle





# Hydrostatic Motorcycle















# Working 3 Wheeler





# 4 Wheeler





# 4 Wheeler





# Aerial Lift





# Aerial Lift



# Press









# 20 HP Go Kart





# Go Kart



# Hydro-Electric Train





# French Fry Maker



# Pneumatic French Fry Maker





# Moving a Mini Barn



# Remote Control Boat





# My Snowblower 50 HP



# Snowblower





# Skid Steer Loader





# Self Propel Wagon





# Winch



# Dune Buggy





# UTV



# UTV Dumping

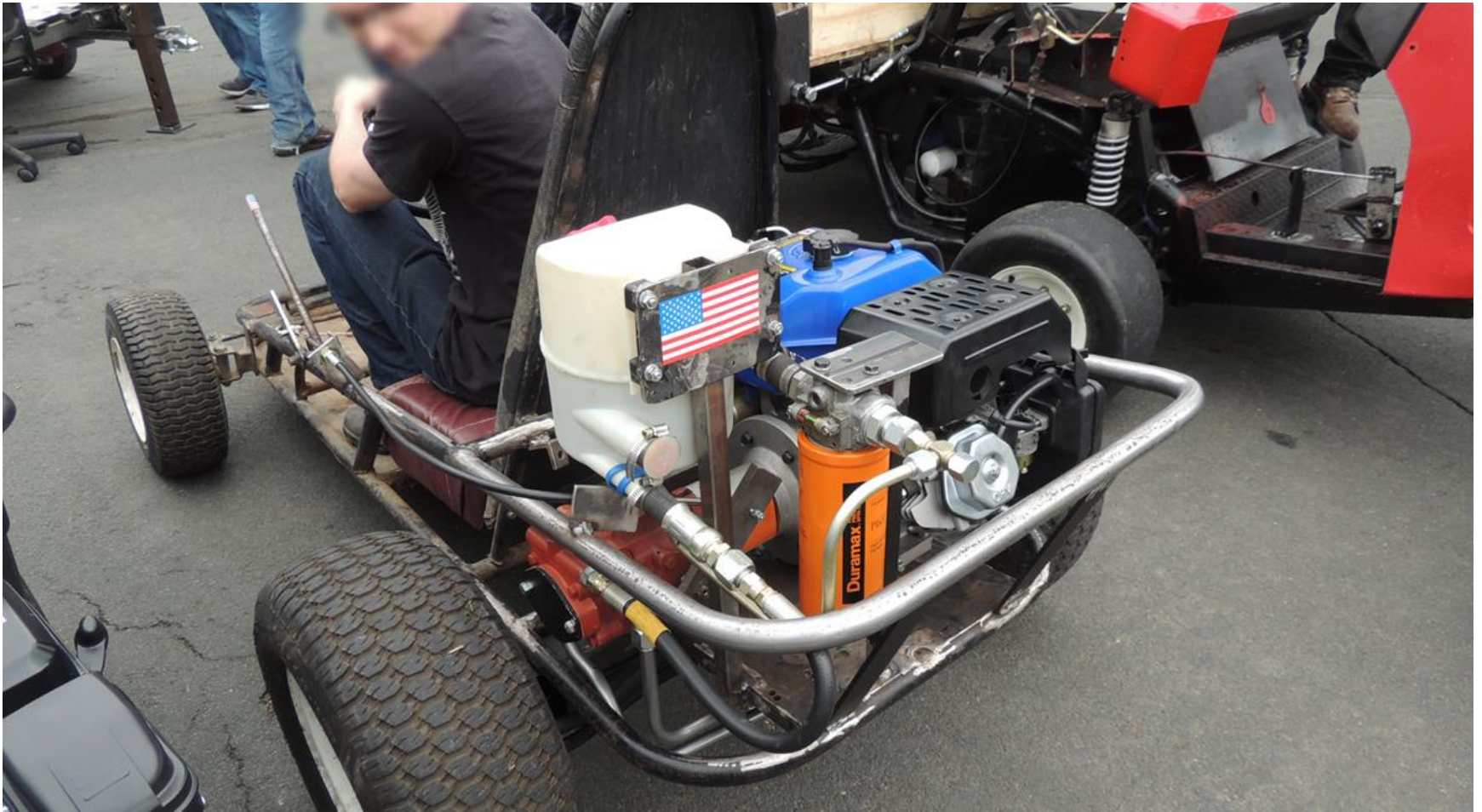




# Leaning 3 Wheeler



# Go-kart





# Self Propelled Trailer



# Whac-A-Mole Game





# 25 HP Car



# Mud Boat





# Blinds



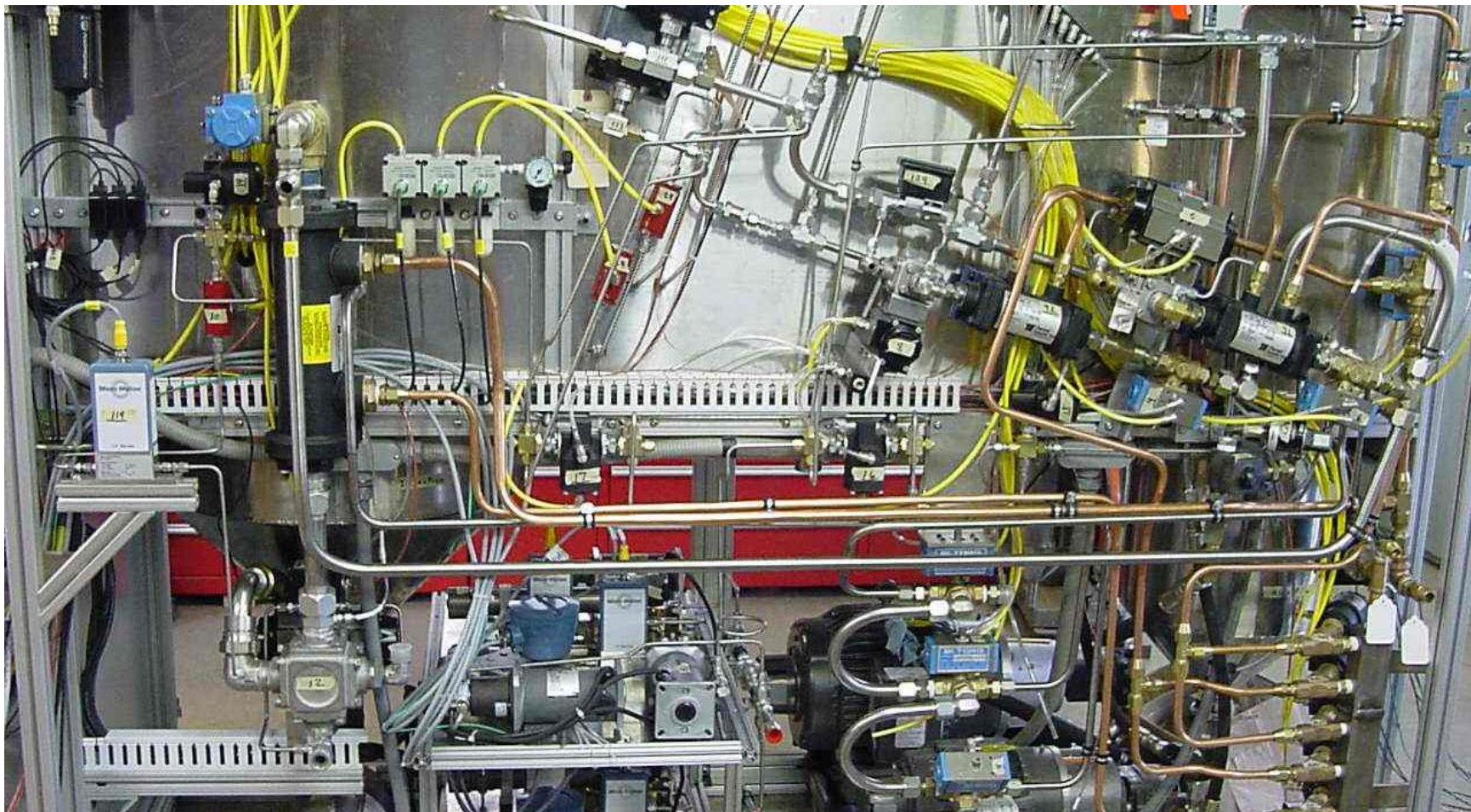




# Multi Pass Test Bench

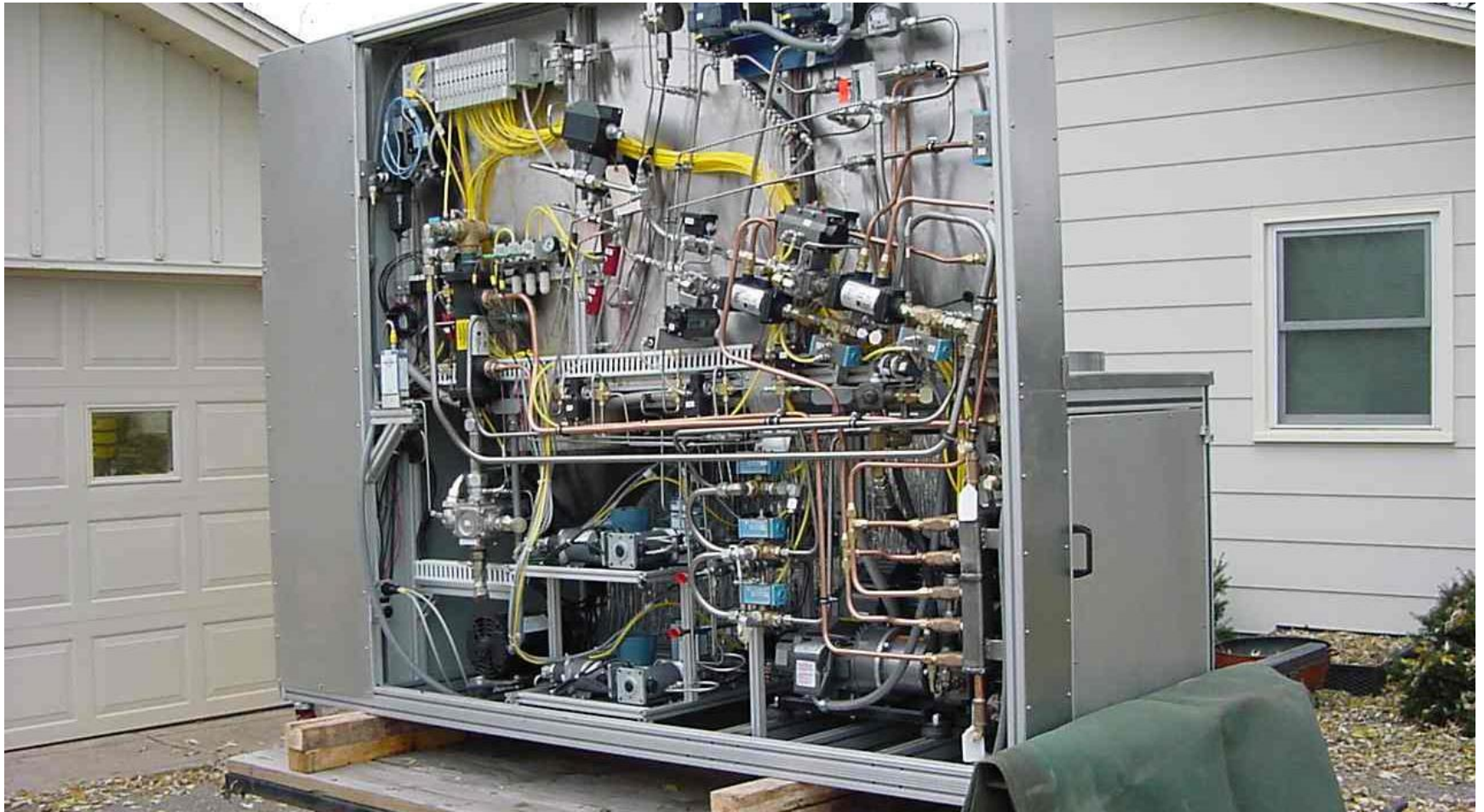


# Multi Pass Test Bench





# Multi Pass









# Questions?

