

BONNEVILLE WRAP-UP



STUDEBAKER STOCKERS

A factory assault on the coveted record book of the United States Auto Club (USAC) and its world record affiliate, FIA, launched over 10 days of endurance and high speed trials, was conducted by Studebaker in October of 'sixty-three. Two young women, novices at driving the Bonneville Salt Flats, took the lead in the record attempts, with timing by USAC officials.

The South Bend auto builders came off the Bonneville salt with a grand total of 349 performance and speed records tucked in the record books for next year. And most of the big bagful of new marks are held by the two speedy gal chauffeurs, Paula Murphy of Granada Hills, California, and Barbara Neiland, Whittier, California.

Although both are novices to the salt flats and the hot rod sport generally, neither is an unknown at the wheel of a good, fast automobile. Paula, a housewife and mother, has spent the past five of her 28 years at rallying and road racing in the Southern California area behind the wheel of such machinery as very hot Porsches, Birdcage Maserati sports cars and a Testa Rossa Ferrari.

Barbara has been on road racing circuits even longer, with a wider variety of mounts, and has been known to

Studebaker's lineup of cars included a variety of production models; the Lark convertible shown above, equipped with an R-4 (unblown) engine, was driven to 12 records by Andy Granatelli, its best a 139.49 mph two-way flying-mile average.

give good account of herself aboard some very fast motorcycles. Both girls have extensive economy run experience and they recently teamed up to establish four transcontinental records, their first appearance on the Studebaker performance team.

Of course, there were far more people involved in the 10-day Studebaker assault on Bonneville than two frail girls, totally unfamiliar with salt flats driving techniques. Behind the effort was Studebaker's master of car preparation, Andy Granatelli, who had worked wonders with the production engines of other Detroit car builders before he joined forces with Studebaker a couple of years ago. Andy, with his brothers Joe and Vince, and a mechanical team of 20 people, all experienced in such exotic mechanical wonders as the Novi Indy racing cars, set up the vehicles and did a fair share of the driving chores which led to the accomplishment of 349 broken records.

In past years, such mass factory assaults on the record books have been pretty much confined to running very long, very fast and very hard with a single automobile. But Granatelli and Studebaker changed the script to include almost every car built by Studebaker. They showed up with

Subsequent to the annual Bonneville National Speed Trials a series of reservations were made for the famous Utah salt flats and United States Auto Club timing was set up for final attempts at the records in 1963

12 cars, ranging from the company's lowest priced and thriftiest little six cylinder model to a factory experimental boomer which bore the Italianate name, "Due Cento," which translates to "200," the number of miles per hour this little stockbodied car is calculated to achieve.

Other cars included convertibles, hardtop sports coupes, a pair of stock Avanti models and some bread-and-butter two-door sedans. Engines, in addition to the humble little six and the double-supercharged experimental 304.5 V8 of Due Cento (pronounced doo-ay chento) included the standard single supercharged V8 engine of 289 cubic inches, the high performance 304.5 single supercharger R-3 engine and a new powerplant, the R-4, which is a 304.5 unblown engine with two four barrel carburetors mounted on a refined manifold.

Although at least three of the engines are comparatively new with Studebaker (the R-4 double-jug, the improved new six and the R-3 super-blower), Granatelli put on his usual display of no excuses for engine failures. The girls were well enough schooled to keep the cars going straight on the salt and to keep the engines running sweet and hot. Not a single mechanical failure went into the books during the whole 10 days, and through many of the runs, including one all-girl go of 1,000 miles, the hood remained sealed during the entire time and only a half pint of oil was consumed.

The crew arrived and unloaded all 12 cars on a Monday, October 14, and the following morning Andy was on the salt with the modified job testing track conditions for a 200 mph run with the stock body.

Salt conditions were just too wet and slick for the big red car to get well hooked to the surface and the next day found Barbara and Paula deep in practice on the rain-slicked International Record course, by now shrunk to 10 miles, of which about eight miles were fairly smooth. That day, Paula punched a supercharged Hawk through the traps at 154 in practice, thus beating the hot time of the previously recorded fastest woman driver, Vicki Wood of Detroit, who just topped 150 on the sand at Daytona a few years back. Paula didn't get serious with her throttle foot until the following day, however, when she ignored the Granatelli advice and took an R-3 Avanti through the traps at 162.70. Interestingly enough, the fastest time that Andy was able to get in the same car that day was 166 mph, and after that, he shut down the high-speed runs by both girls.

This distaff time, incidentally, compares with Mickey Thompson's best production car runs on the Bonneville straight at 153 mph with a Pontiac Catalina and Andy's all-time top production car run of 170.75 mph in the very same R-3-engined Avanti.

After a day of rest, while USAC moved their timing equipment to the circle, the girls got going in earnest with endurance runs on Saturday, October 19. They alternated at the wheel of a little Studebaker Commander Six and, running for 10 hours, from dawn to dusk, ground up a whole page of records to average 100.29 mph for 1,000 miles on a very soft and greasy 1-mile circle which had previously been softened by a rainstorm. Barbara wrote 28 of her own records into the book. And while a 100.29 mph average may

(Continued on following page)



TOP—Valvoline Oil Company furnished gas for Stude speed trials; trucked petrol in from their Ashland, Ky., refinery. SECOND FROM TOP—Paula Murphy became the "fastest woman on wheels" when she drove a production model Studebaker Avanti to a two-way average of 161.29 on the salt. THIRD FROM TOP—The "Due Cento" Avanti featured a 304.5 cubic inch experimental R-3 engine with dual blower. BOTTOM—Miss Barbara Nieland set a total of 26 records on the salt, is shown here with Andy Granatelli of Stude's STP division. Andy serves as Studebaker's performance chief.



ABOVE—Joe Petrali (center), USAC's director of record attempts on the salt, supervised timing of Stude speed runs.

ABOVE LEFT—Surprise performer was this six-cylinder Lark which, during circle-track endurance runs, produced a 100.13 mph average for 500 miles, 100.29 for 1000 miles. A total of 46 records were set with a 13 mpg average at speed.

LEFT—Due Cento's streamlining was achieved through use of body panels, shown here being installed prior to 194.12 mph sprint which was not a record, certified for time only.

BONNEVILLE WRAP-UP *continued*

not seem too hot compared with straightaway runs by the streamliners, the records earned by the girls were wrested from none other than the late John Cobb, British holder of the World Land Speed Record. He had set the long-lived six cylinder records in Class D back in 1939 aboard a flying Hudson Six.

In all, the girls took away 46 records with their six cylinder car.

Next day, a Sunday, was no vacation period for the crew and Barbara teamed with Vince Granatelli to hurtle around the worsening 10-mile circle in a Studebaker Daytona convertible fitted with an unblown R-4 engine. Right behind them came Paula and Joe Granatelli in a supercharged car of the same model to clean house on the separate records set up last year for blown engines.

But Barbara and Vince went faster than the blown car, mostly by virtue of spinouts which slowed the supercharged job. When a day's run of 500 kilometers was ended the man/woman team had records in the American Class C open car division and in the Unlimited American open car category. The car averaged 118.33 mph and took records away from Danny Eames and Bill Taylor who had set them in a 1957 Ford and a 1954 Dodge, respectively. The record count at the close of this spirited Sunday was 68 for both cars. This, added to earlier counts, showed the Studebaker team with 204.

Then came Monday, October 21, and it turned out to be Barbara's day to celebrate. Teamed with Vince Granatelli, she spun the circle in an unsupercharged R-4-engined Hawk, running ahead of Paula and Joe Granatelli in a supercharged Hawk model. This run went 1,000 kilometers after waiting for the track to dry and the unblown car outran its faster brother car by virtue of a long spinout by Paula on the

slick part of the course, by now made up almost wholly of clay, churned up from the lake bed by the grinding wheels.

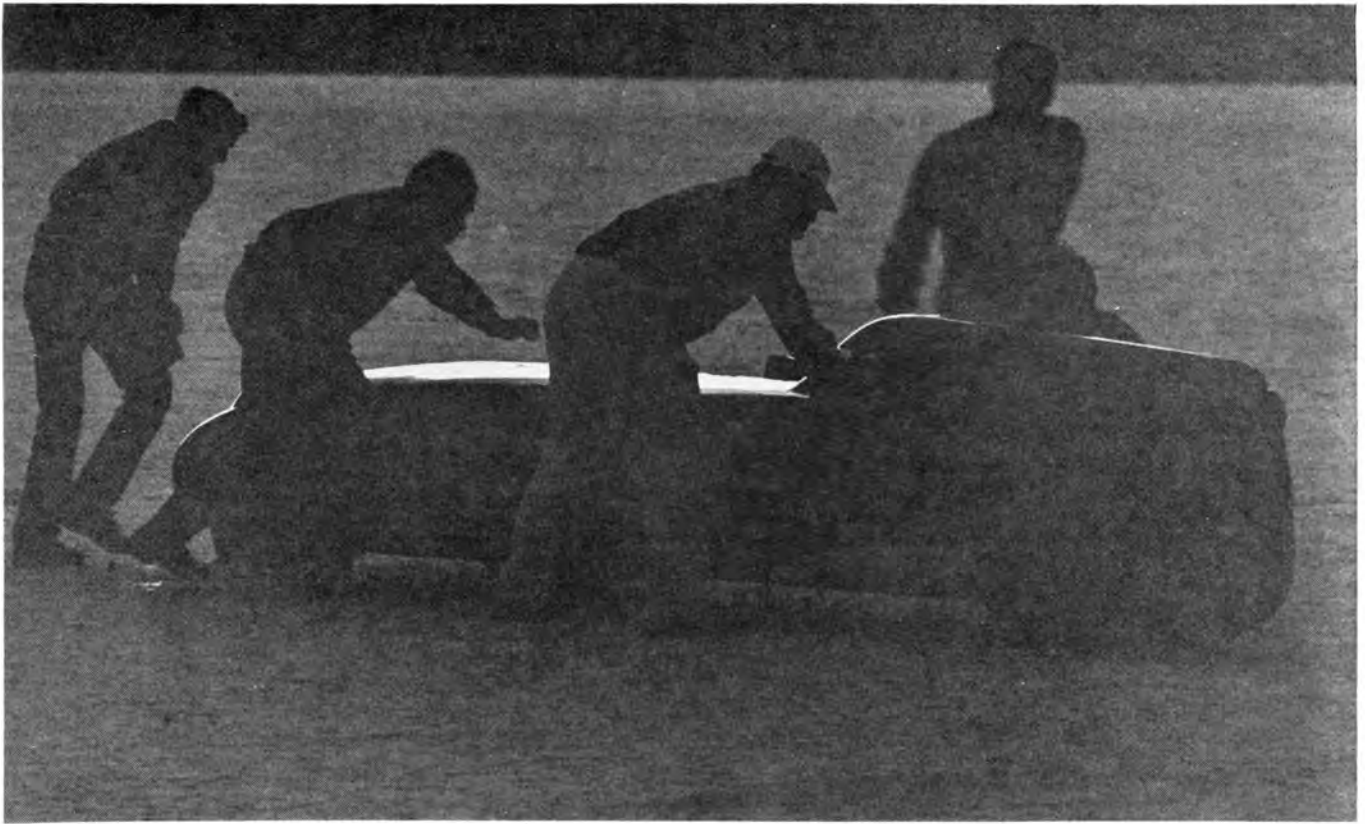
The Barbara/Vince team knocked off one batch of records set only a few days earlier by a Comet at Daytona Beach. Both Hawks, with men driving, pounded out 139 and 140 mph laps consistently.

It was later in the day, with Barbara at the wheel of the R-4-engined car, that three International records tumbled to her skill on the salt circle. She bagged the 500-mile mark, the 1,000 kilo record and the 3-hour running at just over a 135 mph average for all three on a very mushy circle. This set turned into a ding-dong racing event, for Paula and Joe, in the faster supercharged job, missed the International records only by a hair. They covered the three hours at 135.27 mph.

The world marks were gained at the expense of another famous old driving team, Veyon and Benoit in a 1936 Bugatti race car which ran at the French Montlhery track. Upshot of the effort was that Barbara became the only living woman to hold International endurance records — (providing, of course, that FIA okays her marks).

Both girl drivers that day drove a steady succession of laps at 140 mph, despite conditions which kept the experienced men drivers going at a pace not one mile faster. This foray brought the Studebaker record total to 297 for the week.

Next day was Wednesday, October 22, and the Granatelli brothers took over for some even faster exercises in circle driving. The girls were relegated to a backup car and instructed to simply keep the car un-bent and finish the run. This time it was convertibles again, Joe and Vince in a supercharged convertible and the girls in a sister car. The lead car went deeper than ever into the slippery salt



Although there was only a whisper of light, the Summers brothers hastily prepared car for return run to establish new Class C records; 279.74 mph (mile) and 283.71 (kilometer).

of the circle and turned steady laps at 147 mph. Although handicapped by one tire change and a long delay of more than seven minutes when Vince ran out of gas on the circuit and had to push the car to the refuel truck, the convertible averaged 146 for the first 100 miles and set a new mark of 140.45 for the flying 500-mile distance. Here again, records fell in the International Class, in American Stock Cars, open division, and elsewhere around the record book. In all, 42 new marks fell to the blown convertible.

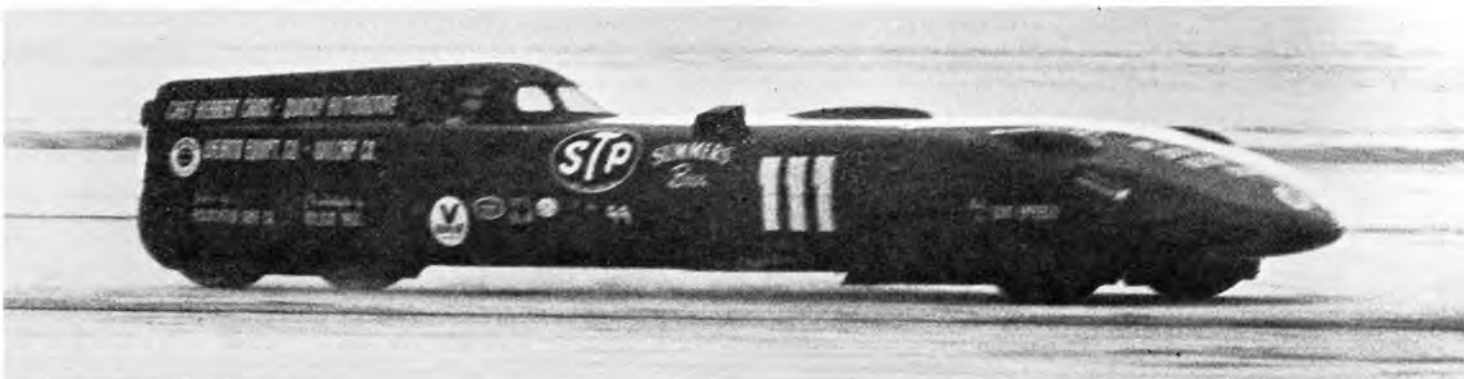
Then as night began to fall on the salt the Granatelli brothers brought out Paula's old reliable Avanti for a practice session. Andy failed to get traction enough for a decent

BELOW—Summers streamliner incorporates tandem wheel setup at rear, front wheel drive. Body is a teardrop shape for minimum air resistance. Small scoop picks up air for driver.

lap time, then Vince tried and spun out badly in the soft spot. Joe, eldest Granatelli, was last to try and he held the car in the groove so well he kept running and ended by breaking 10 records previously held by Mickey Thompson in a Pontiac Catalina. They ranged from 25 through 75 kilos, flying and standing and included a flying 50 kilo average of 155 mph flat. This additional bonus of records added 52 marks to the old total of 297 and found Studebaker cars laying claim to the grand total of 349 for the 10-day period.

SUMMERS STREAMLINER

Immediately following Studebaker's tour on the salt, the Summers brothers arrived with their little rear-tandem-wheeled, front-wheel drive streamliner (see *HOT ROD Magazine*, March '63, "Bonneville's Most Unusual Streamliner"), which was entered under the partial sponsorship of Andy Granatelli's Studebaker STP division. The Summers brothers, Bob and Bill, had taken time out from work on their
(Continued on following page)





LEFT—Jim Cox of Quincy Automotive (left) and Jim Crosby lower canopy of streamliner over Bob Summers prior to run. **RIGHT**—First engine used by Summers brothers was a 302-inch Chrysler for Class C record attempts. After successful tour with small mill, a 450 cubic inch Chrysler was dropped in for Class B. The engine, which was built by Jim Brissette, produced 873 hp on alky at 6000 rpm, blew on its first run. Here, Bob Summers (center) and crew install the larger block.

BONNEVILLE WRAP-UP *continued*



ABOVE—Bob Summers, a 25-year-old Heliarc welder and machinist in Monrovia, Calif., drives the streamliner. Brother Bill is crew chief. Tube to mask carries air from the exterior body scoop.

BELOW—With body removed, front water tank and fuel tank are exposed, as are Goodyear tubeless land-speed tires.

new Land Speed Record car—a 4-engine streamliner still in its earliest designing stages—to prepare the single-engine car for a try at the records in both International and National C classes.

The car, driven by Bob, or “Butch” as he is more commonly known, is a teardrop-design liner considered to be unorthodox because of its chassis but recognized as an excellently engineered car of superb workmanship. Frame for the novel streamliner is made up of main members formed from 1½-inch outside diameter, 3/32-inch mild steel tubing, diagonally braced with 3/4-inch o.d. tubing. The front suspension system is fully independent, employing use of torsion bars, and rides on two 50-50 action Monroe shock absorbers on each wheel. Front spindles are standard four-wheel drive components and hubs are standard Jeep. Front tread measurement is 39 inches.

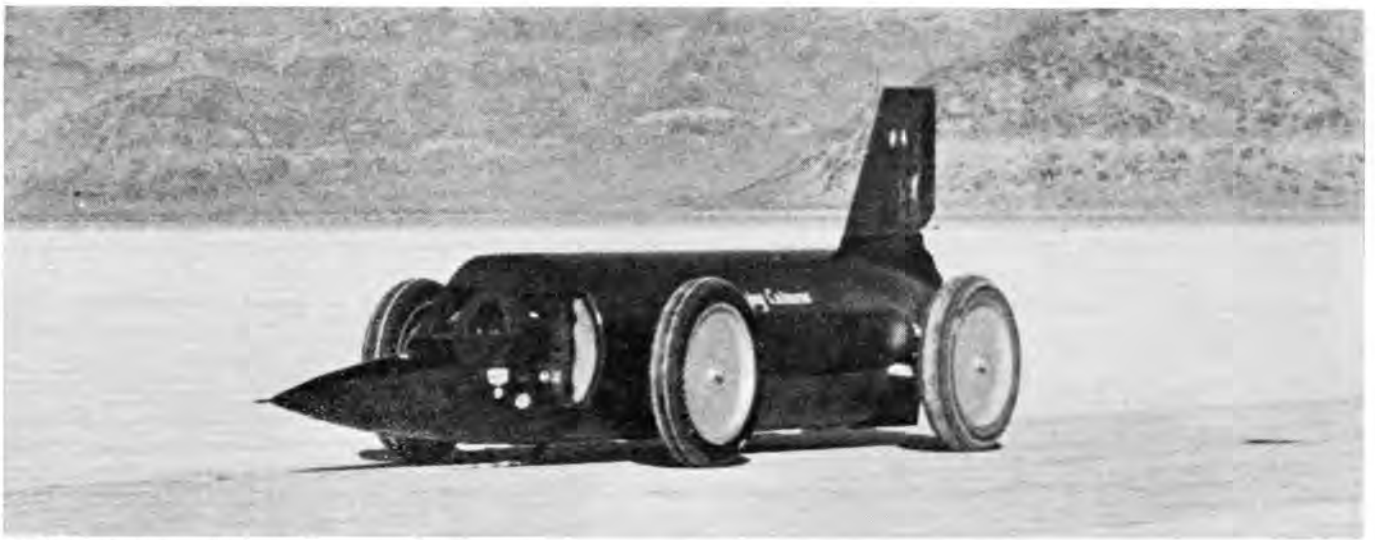
The frame’s rear end is supported by a trunnion shaft that passes through the carrier for the two rear wheels. The wheels, one in front and one behind the shaft, are bolted to axles that rotate in double-row, axial-thrust ball bearings supported in housings that bolt to the carrier. This is the part of the car that’s “really different”; the tandem-wheel arrangement with a central pivot point permits both wheels to stay on the ground during all car attitudes, an obviously essential feature for high-speed runs. The car’s only brake, a disc assembly, is on the rear wheel. It has an 11-inch disc and a Halibrand single-spot caliper assembly. Use of the brake is confined to very low speeds, such as movement in the pits, and high-speed braking is controlled by a Deist drag

chute which is carried in a container mounted on top of the extreme rear end of the frame.

When the brothers arrived at the salt the streamliner was equipped with a ’55 Chrysler 299 block which had been boosted to 302 inches by a .020-inch overbore. Intended for the Class C records, the engine, using a 6-71 GMC blower and on straight alcohol, delivered 744 horsepower. The first speed attempts were made on October 23. The little car, running at day’s end in almost total darkness, cut a two-way mark of 279.74 mph for the flying mile and 283.71 mph for the kilometer. The runs were made in a 17 mph head wind and the last run started at 6:02 p.m., with sunset officially listed at 5:48 p.m. Old records were held by Bob Bowen, who was driving the famous Shadoff streamliner, set in August of 1960. The old marks were 251.98 for the kilo and 252.22 for the mile.

The final tally for the Summers brothers shows four new records; International Class C (3000 to 5000 c.c.) mile and kilometer (subject to FIA approval), and National Class C, mile and kilo, certified by the United States Auto Club (USAC).

During the same night, the 302-inch Chrysler was replaced with a 450 cubic inch Chrysler for a try at the International and National Class B records. The engine, which developed 873 horsepower at 6,000 rpm on alky, was built by Jim Brissette. And although it showed great promise, the husky mill blew before the car hit the one-mile traps on its first run, but not before it had tached out the equivalent of 351 mph. This was the fastest time ever hit by the Summers car.



ABOVE—“Flying Caduceus” approaches track for LSR run. Note fin, added to improve directional stability at speed.

RIGHT—Enormous J47 jet performed well up to 359 mph but a malfunction in fuel system restricted output to 90 per cent, robbing car of 25 per cent thrust.

BELOW—Dr. Ostich, prominent Los Angeles surgeon, is strapped into cockpit of Caduceus prior to 300-plus mph jog.



DR. N. OSTICH JET

Dr. Ostich's attempt, which began on the Bonneville salt September 21 and ended several days later, was his third in three years. He tried for the first time in 1960 but his J47 jet-engined Flying Caduceus had front wheel stability problems that were traced to steering linkage of inadequate strength. Stronger linkage was installed for 1961 but the car couldn't be run that year because a poor salt condition prevented preparation of a suitable course. In '62 the second attempt ended almost seriously when the car veered off the course while traveling approximately 300 mph and lost the left front wheel while sliding sideways. For the '63 attempt the car's suspension system was modified by installing large Heim joints in place

of the Chevrolet truck ball joints at the lower ends of the spindles, and its directional stability was improved by adding a fin fitted with a steerable rudder to the top of its tail. A smaller fin, which doesn't have a rudder, was added to the tail's underside.

The theory of the upper and lower fins is to cause force exerted on the car by side winds to act equally on its front and rear ends. Without the fins the car's shape is such that force exerted against it by a side wind acts equally along its length except for the force exerted against its long nose. Force acting on the nose would tend to cause the car to change its direction away from the direction the wind was blowing. With the new fins, which have a total area equal to that of the nose, force acting on the nose and tail are equal and the wind doesn't steer the car.

The theory of the rudder on the upper

fin, which is connected to the steering linkage for the front wheels so it turns three degrees for each one degree the wheels turn, is to provide steering force in addition to that effected by the front wheels. Computations have indicated that, at speed, the front tires will lose traction on the salt and be unable to change the car's direction after they have been turned more than one degree from their straightahead position. In other words, directional corrections requiring more than one degree of front wheel movement either way from straightahead can't be made with the front wheels alone. The tires will slide over the salt and the car will continue in the direction it is moving. The rudder, by steering the car aerodynamically, adds to the driver's control over the direction of movement. When the wheels are steered to the right, the

(Continued on following page)



ABOVE—Pointed tail of Mangham-Alen Chevy-bike keeps air turbulence down at high speeds. Outriggers are used for balance on starts and stopping.



FAR LEFT—Engine in "Big John" is a 351-inch Chevy which has a standard starter, energized with current from a full-size battery connected for starts.



LEFT—Johnny Allen, experienced at the controls of fast bikes, drives the 425 hp two-wheeler, reached a best of 267.08 mph on LSR attempt. Poor condition of salt forced team to stop runs.

BONNEVILLE WRAP-UP *continued*

rudder moves to the right, so air pressure acting against it will push the car's tail to the left. This pressure helps the car turn. The action is reversed for left turns.

Another improvement for '63 was in the Firestone tires. Previous tires had a cross-sectional width of eleven inches but the new ones have a width of slightly less than ten inches. The width difference isn't much but as the tires must be pushed through the air, reducing their width any amount is an improvement.

A very important part of any speed run at Bonneville is the condition of the salt. With the exception of being on the rough side at the south end where it parallels the potash company's drainage canal, the course was in very good condition prior to Thursday, the 19th of September. Thursday evening a rain storm hit the area and when it was over most of the salt flat was covered with water. On Sunday, when Doc and his crew arrived, about ¼-inch of water covered the salt where they set up their work area and about three miles of the course's north end were under water.

By Sunday the water level had dropped a little and most of the course's previously flooded north end was clear but the salt was soggy. By Monday the course was dry enough for runs to be made and between Monday morning and Thursday afternoon the 6985-pound Flying Caduceus thundered the full length of the nine-mile course eight times. The first run was scheduled to be

TEXT BY DON FRANCISCO

at about 150 mph to check the car's handling but the actual speed was 253 mph. After the run Doc reported that he had gone faster than planned because the car felt so secure. The second run was at 323 mph and this was the only run on which Doc had any trouble. It was from south to north, toward the course's soggy end and a large body of water.

After passing through the measured-mile Chrondek timing trap, Doc thought he had plenty of course left to stop the car without popping its drag chute.

The car's four huge disc brakes could have done the job if the course had been in its normal dry condition but traction on the wet salt was nil.

As he rapidly bore down on the end of the course, and the lake ahead of him became closer and closer, Doc kept applying pressure to the brake pedal, thinking that the brakes weren't holding when actually they were locked and the tires were sliding. By this time the chute wouldn't have been of any help because the car was traveling too slow, although it was moving fast enough to travel quite a distance into the lake, from which it might have been extremely difficult to remove. But about half a mile from the lake, with its wheels locked, the car veered off the course to the right into soft salt and then, following a path that roughly paralleled the course, turned sideways with its left side forward, hit and shattered a large course marker made of plywood and two-by-four lumber with the left side of its nose, continued on to spin at least once, and finally came to rest several hundred feet later.

Doc wasn't hurt physically in the
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spin but his ego suffered a little, and damage to the car was limited to a dent in the nose just ahead of the cockpit and a cut in the left front tire. The crew repaired the nose and installed a spare wheel and tire in time for runs Tuesday morning. Speeds for the six runs that followed were 314, 350, 359, 354, and 355 mph.

Beginning with the first 359 mph run, which was made Wednesday morning, all runs were made with full throttle. This was bad news. The car was handling beautifully for the first time in its history but the huge engine wouldn't indicate more than 90 per cent rpm. This last 10 per cent would have accounted for a thrust increase of an estimated 25 per cent. Without this very important 25 per cent of thrust, Flying Caduceus couldn't possibly exceed Craig Breedlove's 407 mph average.

Before the first full-throttle run was made Wednesday morning, work on the car, with the exception of repairing the damage inflicted during the spin, had been of a routine nature. Fill the fuel tank with Mobil JP4, check the tires for pressure and growth, check wheel bearing temperatures, repack the drag chute and re-arm its release mechanism, wash the salt off the body, etc. Now there was something else to do.

Because the engine in Caduceus had seemed to be o.k. when the car was run on its two previous times on the salt, an engine expert hadn't been considered necessary on the crew. So, when the shortage of rpm became known, Ray Brock and Allen Bradshaw, who are respectively, Project Engineer and Chief Mechanic for Flying Caduceus, were stuck with trying to find and correct the engine's ailment. Armed only with a set of service and operation manuals, Ray and Allen went to work.

A jet engine is, basically, a set of rotating members inside a housing, and a fuel supply system. As the rotating members seemed to be functioning satisfactorily, this left only the fuel supply system as the possible culprit that was preventing the engine from turning tight enough. Also, an indication that seemed to point to the fuel system was that the engine wasn't using enough fuel on its runs.

The first thing Ray and Allen did was readjust the throttle stop on the fuel control valve to guarantee full throttle opening. This didn't help. They then removed and checked various fuel control devices, the nozzles through which fuel is sprayed into the burner com-

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BONNEVILLE WRAP-UP

continued

partments, the fuel pump, and other minor parts. Nothing helped. Finally, a civilian jet expert was flown to the salt in a chartered plane from Salt Lake City. He couldn't help, either.

The effect of some of the adjustments and checks were determined by running the car on the course, but after the eighth run for the week all further tests were made by running the engine "static" while the car was standing still. To hold the car while the engine was delivering maximum thrust, it was rolled onto large wooden chocks that conformed to the circumference of its tires and then chained to two large trucks. The trucks were positioned behind the car, with their brakes set, at angles that allowed the heat from the jet tailpipe to pass between them.

After the third static test the car was loaded on its trailer, a failure for the third time, and hauled to its home in Los Angeles. Doc and his crew were deeply disappointed but not to the point of turning in their T-shirts. What they want to do now is repair the engine as soon as possible and return to Bonneville. But they won't return with less than 100 per cent rpm and thrust.

STORMY MANGHAM CHEVY

Shortly after the hot rodders finished their '63 Bonneville Nationals meet and evacuated the salt, Stormy Mangham and Johnny Allen moved in to make test runs with their Chevy-powered streamlined motorcycle. This is the bike called "Big John" which was described in the article, "Chevy on a Stick" that appeared in the August, 1963, issue of HRM. The runs were made to be sure the bike handled well at speed and to expose any unexpected problems. Stormy owns the bike and Johnny rides it.

The test runs were completely successful. Big John handled well, the chutes worked, and no serious problems were encountered. The fastest run, clocked unofficially with a hand-held stopwatch, which can be done quite accurately, was 310 mph. Johnny reported that at that speed he had another handful of throttle left and the engine was just starting to pull well. The rear wheel, which drives the bike, was getting good traction and stopping wasn't any problem. Things looked good for a try at the World Land Speed Record as soon as a reservation on the salt could be had.

Walt Arfons and his Wingfoot Express were due at Bonneville September
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BONNEVILLE WRAP-UP

continued

28 and when Walt decided not to run this year Stormy moved in on the 29th, which was Sunday. The plan was to run Tuesday morning, when Joe Petrali and his crew would have the United States Auto Club timing equipment set up, but a change in the weather Monday morning, in the form of a solid overcast of black clouds, prompted a switch to Monday afternoon to beat the rain that seemed to be imminent. The bike was towed from Wendover to the salt on its special easy-loading trailer and Petrali's crew was slipped into a higher gear to move their work along a little faster.

Stormy and the members of his crew didn't realize it at the time but an indication of the pattern of the events for Monday and Tuesday occurred when an effort was made to inflate the bike's rear tire. Because of a defective O-ring that was supposed to seal the joint between the wheel and its removable flange so tubeless tires could be used, the wheel wouldn't hold a pressure higher than 100 pounds. This was considerably less than Firestone representative Steve Petrusek wanted in the Bonneville low-crown tires. The wheels, which were machined from aluminum forgings, were made with removable flanges to simplify tire mounting.

The day was almost gone by the time the rear wheel had been removed, fitted with a new O-ring and reinstalled, and the bike made ready otherwise for its first run. USAC was ready. With the sun setting behind the mountains, Johnny strapped himself into the cockpit and the engine was fired and idled for a minute or two while the cockpit canopy was latched in place. Johnny opened the throttle, engaged the hydraulic clutch, and the bike started to move.

One of the bike's features is a pair of outriggers its rider can retract after it gets moving. When the rider gets ready to stop, he can lower the outriggers. This is advantageous because it allows the outriggers to be left down until the bike reaches a speed where it is absolutely stable. But Johnny, like all motorcycle riders who have been dumped, or almost so, by a kickstand they forgot to raise, found habit to be greater than the order to leave the outriggers down until he got well under way. As soon as the bike started to move, he retracted the outriggers. This proved to be a mistake because the engine, which was too cold to run as it should, sputtered for a hundred yards or so while the bike staggered off the course and then quit. When the engine stopped running, the bike rolled onto its left side. Johnny wasn't hurt and

damage to the bike, which was minor, was confined to the air inlet for the engine compartment.

Tuesday morning a run was made from the north end of the course at 196 mph. The bike's tach indicated 3500 rpm. Everything was fine until the rough south end was reached, where, Johnny reported later, the bike bounced so badly that several times he almost lost it, it shook so violently that he had trouble getting his foot on the brake pedal and his vision blurred to the extent that he couldn't see where he was going. For the next run, from south to north, USAC timing showed 164 mph but Johnny accelerated to about 240 mph on the smooth salt north of the measured mile.

To get away from the rough south-end salt, USAC moved their measured-mile trap two miles north. This gave an acceleration distance of about 3½ miles of smooth salt north of the trap and about 3 miles south of it for a total distance of approximately 7½ miles.

On his first run on the shorter course Johnny clocked 267.08 mph. For some reason the drag chute didn't open and in his effort to stop the bike Johnny stood as hard as he could on the brake pedal. By the time the bike came to a stop he was almost overcome with smoke and fumes from the front brake.

The second run on the short course had hardly started when Johnny pulled the chute and stopped. He had tried to accelerate at a more rapid rate to build up the bike's speed as much as possible before getting to the trap but the bike had started to fishtail so badly that he thought it was going to go down. The still moist salt was too slippery to let the rear wheel get the traction it needed for maximum acceleration. After restarting the run Johnny managed to keep the bike in a straight line by accelerating less violently but the speed was another 267 mph. Another run was tried but on this one the clutch gave up before the bike got going. This was the bitter end.

With the lousy luck it was having, and on the course on which it had to run, there wasn't any doubt that Big John didn't have even the tiniest chance of cracking 400 mph. Johnny said the bike would really go if he could turn it on but with the bad traction he couldn't blast it without taking a chance of losing it. The course just wasn't long enough for the bike to build up to speed as gradually as the poor traction condition required.

There wasn't any alternative but to give up for now and wait for more favorable conditions in the form of a longer, smoother course. From all indications such a course won't be possible before next season. ■ ■

