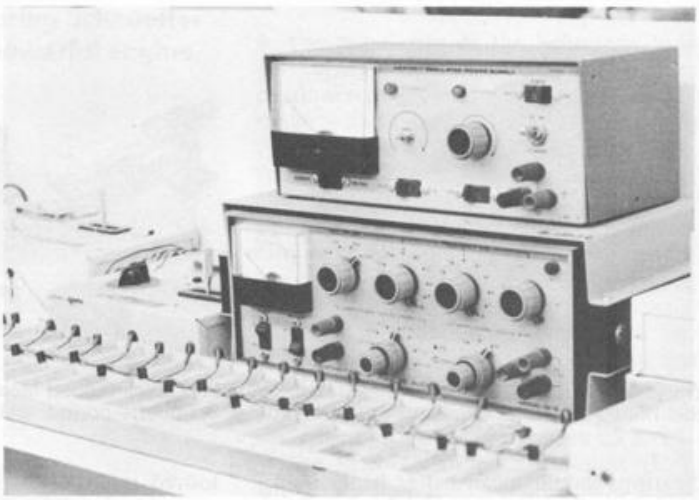
PYLON PIT PATTER

BY JIM MAKI

Jerry Bonzo proudly shows "PPP" a promotional pamphlet they produced explaining R/C.

We Visit Pro Line

Part of the service area where all system repairs are performed.



All RF boards are burnt-in for initial component failure check.

Hand-soldering of transmitter RF board plugs. Sample used as a constant reference.

• This month, we take you on a trip to Phoenix, Arizona, for an interesting look inside the Pro Line Electronics facility. Since its very inception by Jim Fosgate almost a decade ago, Pro Line has been one of the design leaders in the radio industry. Open gimbal stick assemblies, dual-rate charging systems, diode protected battery packs and numerous new concepts in circuitry design were all innovations of this small but progressive company. This advanced approach continues today with the domestic appearance of the new, low-maintenance Giezendanner wiper assembly as standard equipment in Pro Line servos.

Over the past few years, many radio failures and resulting crashes have been attributed to problems in the servo feedback pot (potentiometer): a small, variable resistor that senses the position of the output arm. During that interim, many radio manufacturers were experimenting with various pot and wiper materials in an

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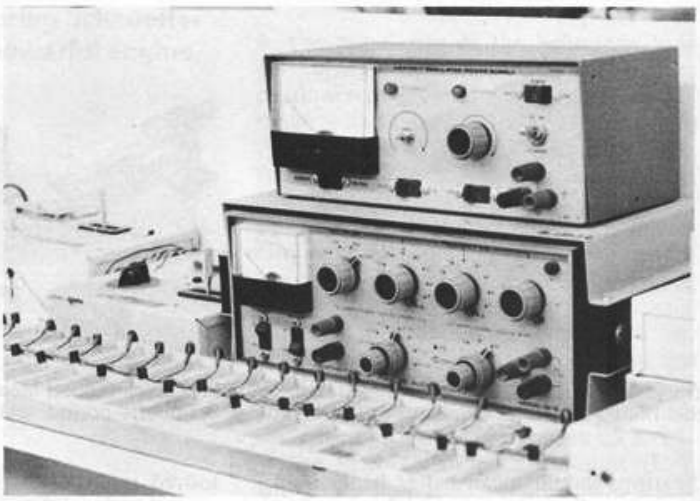

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attempt to cut down fast wear and high maintenance problems. New conductive plastic appeared to be the answer, but continuity problems started to develop between both the low-tensioned wiper-to-pot contact and the pot element-to-soldering-pin connections. Servos would either momentarily stop working or drive to one end.

The Giezendanner wiper is a single contact assembly, utilizing a tiny composition dot—similar to a pencil point—that rides in a tensioned carrier. The contact rides in the center of the conductive band around the pot and works with the old reliable ceramic composition pots. Actual flight testing using the new wiper assembly has been going on for over a year, with reports of very high reliability and over two hundred flights between replacements. A nice added feature is that wiper replacement simply involves changing just the composition dot—a 30-40¢ part, and a five-minute job.

Now, admittedly, many people don't know anything about electronics, don't want to, and couldn't care less about what is in a radio as long as it works, and works reliably. There are no radio warranties that replace crashed airplanes, and consequently, veteran R/C fliers learn over the long haul that specifications and radio features are somewhat secondary to actual in-the-field performance and reliability. The true test is one of time.

Perhaps the most demanding radio test bed is a Formula I pylon racer. High nitro-burning .40's generate extremely high vibration levels—both intensity and frequency—and the airborne radio's biggest enemy *is* vibration. Additionally, acceleration loads in a pylon turn often approach 40 g's, putting tremendous stress and strain on every component of both plane and radio. An appreciation of 40 g's can be visioned by imagining an average adult male weighing over 6,000 pounds.

Results from major competitions do provide an objective performance indicator of various equipment, especially when trends become evident. Past Formula I contest statistics show that Pro Line radios were used by the first-place finishers at a majority of the national level races for the past several years. The NMPRA National F-I Champion, our most prestigious domestic racing title, has been a Pro Line flier for all but one of the years since the contest and honor were conceived back in 1973.

While we make no claim that Pro Line radios are the best, and although no attempt will be made to compare them feature-by-feature with any other brand, statistically, at least, the racing performance of this product impressed me enough to indicate the need for a closer look. Positive reader reaction to past "PPP" behind-the-scenes reports on racing product manufacturers makes this a popular column feature.

Basically, Pro Line started as a one-man company. Expansion over the years has

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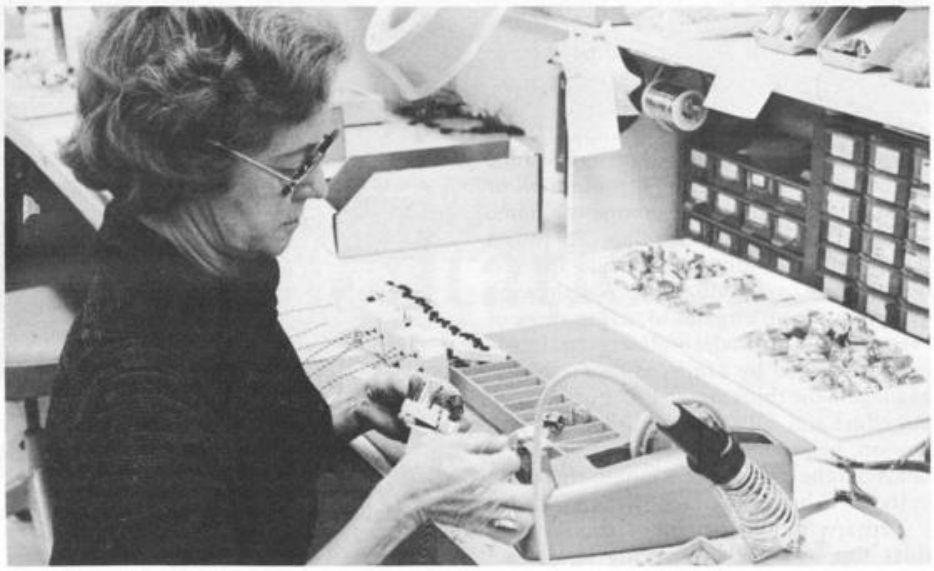
Assembly of receiver RF board, all hand-soldered; reference drawing used as checklist.



Installation of servo motors, just prior to testing for linearity and centering.

Final wiring of Custom Competition transmitter. Note the number of discrete components.

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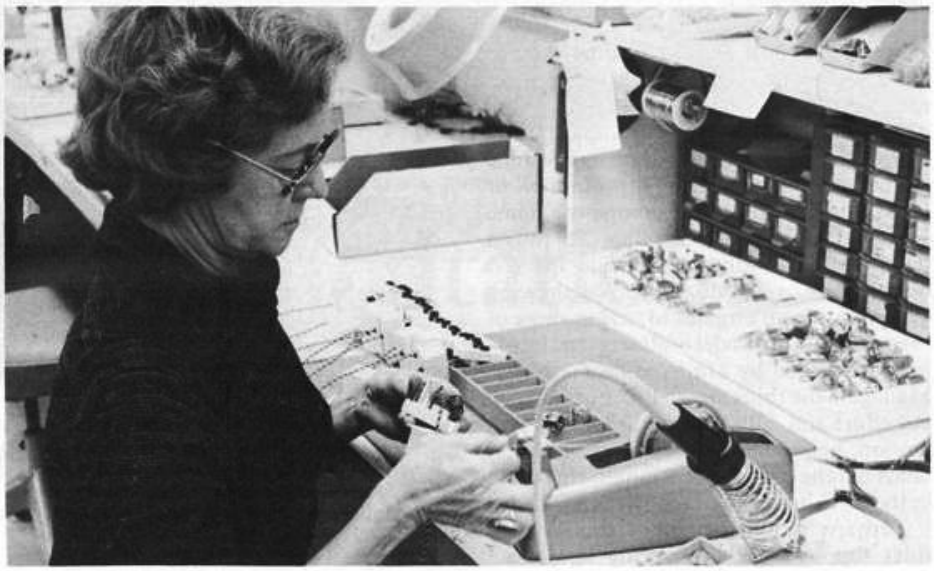

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