



SWIFT ENTERPRISES PRESENTS

## Tom Swift's— The Toad

By T. Edward Fox

First, it was the *Pigeon Special*, the two-seat private airplane that put the name “Swift” and private aviation permanently together.

The *Pigeon* and its more powerful, faster, acrobatic sibling, the *Racing Pigeon* garnered high praise and a large customer base for Enterprises. It was courtesy of the original plane that Tom Swift was able to fund his first major aircraft, the *Sky Queen*.

Times and changing markets now point to the need for not only a faster aircraft—preferably a jet—but one that can be used by businessmen and air taxi services.

And, because Tom knows that he can't just be a money pit for the company, he takes on the task of coming up with the small jet that will ultimately help fund even more of his inventions and adventures.

As to the question about “how do the Swifts ever make any money what with Tom spending a bucketful of it on each adventure?” this is one of the ways. This story is dedicated to the strange and the odd that have ever taken flight. The stubby jets that are all engine with a man riding on the side; the vertical takeoff plane that had the be backed down to the ground (with not-so-good results); the first attempts at making a flying saucer right here in Earth. Even if many don't make it, it is always fun watching them try.

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A SWIFT ENTERPRISES INVENTION BONUS

**The Toad**

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## FOREWORD

Tom Swift has always taken his position at Enterprises with utmost pride and professionalism. And, that includes the need to sometimes set aside his favored projects and take of something that will help 'feed the kitty.'

Of course you just know that he will come up with something radical and revolutionary. Just how much may prove to be a problem as he gets a lot of push back from a lot of people at Enterprises and at the Swift Construction Company.

I like sitting back and watching Tom's mind work and truly love to see what he comes up with. But even I will admit I had a little trouble keeping myself totally on his side with this project. I enjoy the weird and fantastic as much as the next man. I celebrate it!

Then I got a look at Tom's initial designs for his commuter jet.

Oh, dear.

As always, I was pulling for him. That must have been what helped him make this a success. I'll take a pat on the back as my reward.

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*Victor Appleton II*

**PART 1****“I KNOW YOU’RE BUSY”**

TOM SWIFT, young inventor, son of an inventor, and great grandson of a great inventor, had just returned to his office—one he shared with his father whenever Tom wasn’t in his private lab or his office and laboratory in the underground hangar that housed his mighty *Sky Queen*.

No sooner had he slumped into his chair and reached out to turn on his computer monitor than the phone on his desk rang.

With a little groan and making a real show of it, he slowly reached out and picked the receiver up. “Tom Swift here.”

There was a slight pause, and then, “Well, Son, don’t try to sound so upbeat. Your enthusiasm comes through the phone lines like a trumpet blare.”

Tom chuckled and sat up straighter. “Hi, Dad,” he said to the caller. “I’m just a little beat right now. You and Mom might have noticed that I never made it home last night.”

“Oh, your mother certainly noticed. She always does. Are you still hung up on your Geotron project? I thought that all worked out in the end.”

Tom had returned from an adventure-filled trip to the South Pacific and into the ocean floor and bedrock below. His Geotron was what Tom called a ‘subocean’ vehicle

that could burrow into the bottom of the ocean. He was on the trail of an extraterrestrial artifact that the Swift’s space friends wanted Tom to find before competing aliens might get to it. It had been fraught with danger, but was ultimately a success.

However, it had left Tom mentally and physically exhausted. To compound matters, he had spent more than three straight weeks going over everything, trying to put his mind to rest on matters he felt hadn’t been settled.

“Sorry, Dad. I’ll be heading home in an hour or so. I’ll apologize to her when I get home.”

“Well, you’re going to have to wait until she gets back. She’s out of the house until around six. Yesterday, today, and probably tomorrow as well. Listen. The reason I called you is that I need you to get yourself ready to take on a project. A very important project. One that might hold the future of Swift Enterprises in its hands, so to speak.”

“What is it?” Tom asked with a spurt of energy and interest.

“I want you to make some money for this increasingly poor company I hope to someday turn over to you and your sister. Go home and I’ll see you in the morning. We can talk about it then. Just keep in mind that I am actually a little serious about the ‘we need the money’ stuff.”

Tom sat there trying to finish up some notes he had started the day before, but his thoughts kept turning to what his father had just said. Five minutes later he

abandoned his notes, signed out of his computer system and shut it off. Leaving the office with his laptop computer, he paused at the empty desk of the secretary who took care of both his and his father's business affairs.

*Must be off running an errand*, he told himself as he left a brief note explaining that he would return the following morning. Or, afternoon.

Tom was so tired that he stepped onto the automatic walkway that ran down the middle of the corridor and allowed it to carry him to the elevators at the opposite end of the building. Normally he walked, but his legs felt a little wobbly.

Climbing into his car he started up the engine and sat there for a few minutes until the air conditioner had begun sending a stream of cold air that he directed into his face. *That should keep me awake*.

When he reached the Swift home six minutes later he parked in the side space next to the garage so that his mother could get by and park inside when she got home.

"Well. Don't *you* look like what the proverbial cat dragged in?" his sister, Sandy, commented as he walked into the kitchen. Then, seeing how desperately tired he looked, she came over to him and put an arm around his shoulder. "You okay, Tomonomo?"

"Yeah, San. Just beat. I'm going to go take a quick shower and then hop into bed. I've been up for—" he stopped and looked at his watch and tried to do the mental math. "Well, I've been up since five yesterday morning."

He leaned his forehead against her head and sighed. As he left the room, Sandy asked, "Want me to make you a quick sandwich? We've got pickle and pimento loaf, boiled ham, sardines, or you could also have the last of the egg salad I had for lunch yesterday."

Tom shook his head, thanked his sister and headed upstairs.

Fifteen hours later, he walked back down and into the kitchen. Nobody was around so he rummaged in the refrigerator and found a plastic wrapped plate with two sandwiches and a hard-boiled egg.

The food was gone before he got half way to Enterprises. With curiosity, he noticed that Munford Trent, their secretary, was again missing from his desk. He shrugged and opened the door to the large office.

"Oh. Good morning, Son," his father greeted him. "Recovered?"

"I think so," Tom replied. Taking his chair, Tom asked, "So, what is this about a money-making project you have for me. I guess I haven't been very good about bringing in as much as I spend. I'm sorry."

"Well, things aren't dire right now, but I've had a couple of very serious discussions with Jake Aturian. He is concerned about the sales of the *Pigeon Specials* and the *Racing Pigeons*. You know that the Construction Company operates separately from Enterprises and that they build to fill the orders that we bring to them?"

Tom did. He knew that Jake Aturian, his father's best

friend and business partner and managing director of the old Swift Construction Company, was a bottom-line man. He never stockpiled what he wasn't absolutely certain he would not be using within the next few days. He ran thirteen different assembly lines at the facility making everything from small components to complete products like the commercially available airplanes and helicopters sold by Enterprises.

“Orders have been falling off and requests for something bigger, better and faster have been coming in. Last week, for instance, Bud and your sister each gave separate flight demos to potential customers who told them, in the end, that they needed a different aircraft.”

Tom could only nod. He realized that there was a limited audience for a 2-seater or even a 4-seater aircraft. He himself had been contacted by the owner of a new air taxi service in Southern California who wanted to purchase a fleet of twenty 8-seat high-speed airplanes. Tom had to tell him that Enterprises currently did not make such a craft.

The man was disappointed but told Tom that if Enterprises made one within the next year, he would still consider them.

“I think I can see what you might want, Dad. I need to come up with something new and kind of whiz-bang. Right?”

His father smiled. “That’s it exactly. I would try to do it myself—you know that aircraft design is one of my first loves—but there are three Government projects on my list plus a pair of research programs out at the Citadel and I

just agreed, rather foolishly if you ask me, to be part of a multinational aerospace consortium. The hope is to design, fund and build a new giant lifting rocket and eventually launch all the necessary supplies to build a permanent station on the Moon. Someone evidently remembered my old *CosmoSoar* and believes it is the best starting point.”

Tom agreed to take the project on. He called his sister and Bud Barclay, Tom’s best friend and one of Swift Enterprises best test and demonstration pilots.

When they both arrived at his underground office an hour later, Tom was waiting with a lunch provided by Enterprises chef, Chow Winkler. Known for many of his somewhat strange concoctions, today he provided a platter to tasty meatloaf burgers and a potato salad made from three different kinds of potato.

“Dad wants me to come up with a new design for a different type of commuter aircraft than we have been building.”

Sandy looked startled and a little sad as she asked, “Does that mean my little *Pigeon Special* is going to fly south?” It was well known that Sandy had a particularly soft spot for the little plane.

“No. We’ll still build them as long as people order them, but you both have had clients that left after saying they wanted something larger and faster. What I want to do today is to brainstorm and get down everything anyone has commented on or asked for that the current planes don’t do or provide. So, I’ll start.”

He told them about the potentially lost order from the air taxi company. Watching their faces as he related the conversation he could see that they had also heard similar comments.

Sandy told about three customers in the past month alone who asked about something speedier and with between four and six seats. Price seemed to be a bit of an 'object' as none of them had appeared in the market for any of the current crop of small business jets, most starting at near the two million dollar mark plus the cost of custom interiors.

"I've had two ask me point blank why nobody makes a half million dollar jet. I guess they really don't have any idea what all goes into one," Sandy told them.

"Two of them want something that they can qualify on easily. Like just getting a multi-engine endorsement, but all three were asking about speeds in excess of three hundred fifty knots."

Bud, too, had heard from several clients in recent times. The stories were similar to Tom and Sandy's clients. More seating. Faster. And, more importantly to all of his clients, greater range.

"I was hearing New York or Boston to Chicago or even to Texas from my people." he told them.

They spent the rest of the day making certain they had a solid idea of all the common denominators. In the end, they left with a list of thirty-seven items: sixteen absolutes, and twenty-one preferences.

Tom spend the following day making call after call to customers past and present asking them to help identify what Enterprises should make as a next generation aircraft. He was both surprised, and not, at the majority of the responses. In fact, the list he came away with after eleven calls was remarkably similar to the list he, Sandy and Bud came up with.

"Well," he announced that evening at the dinner table. "I've now got a good idea what the next Swift aircraft needs to be. All I have to do is come up with is what it actually is!"

**PART 2****HEY. THAT LOOKS LIKE A...**

BUD DROPPED by Tom's lab several times during the following three days, each time perching on his favorite stool near one corner of Tom's large workbench.

He felt that it was a tradition for him to be there with some frequency when Tom was struggling over how to get some invention off the ground.

He also felt that it was expected of him to carefully observe whatever it was Tom built and to come up with a nickname for it.

Most took the form of puns, although a few were both descriptive of the function or form as well as describing it in more layman terms. Tom's official names tended to be a bit cryptic.

The few times he rose from his stool and wandered over to look at Tom's work on the computer design station, he was disappointed to not see anything resembling an aircraft. Instead, Tom was filling screen after screen with small but detailed sub-assembly drawings.

When Bud pointed out this fact, Tom remarked, "I have to come up with all of the servos and control systems and everything else that will go inside the skin before I know how much room I have to allow for passengers."

Bud, only slightly mollified, excused himself and left.

Tom didn't see his friend for almost a full week during which he completed designing all of the internal systems and had arranged them in the most advantageous layout.

When Bud did return it was with a large shipping bag full of some sort of boxes.

"Whatcha got, flyboy?" Tom inquired, looking up from his screen and stretching.

Bud pulled the first box out. It was a scale model of a popular business jet capable of holding twenty passengers and traveling across the country or even across the Atlantic.

Next came a model of a regional passenger jet produced by a company in Canada.

The final three were all what Tom would put into the category of large business or very small commercial jets.

"So?" Bud asked, pointing at the arrangement of boxes. "Anything here that gets the old designer juices flowing?"

Tom knew that his friend was in earnest and that this wasn't some joke, so he rose and walked over to the bench. He picked up box after box, admiring the photographs of finished models on the covers first, then looking at some of the details.

"Getting the old brain box jiggling, isn't it?"

"Well—" Tom began. "I'm not certain about jiggling, but having these in front of me gives me the sense that everybody is approaching things in just about the same way as the other guy. Not much in the way of innovation.

Unless, that is, you count the little wing tip extensions some of these sport.”

Bud’s shoulders sagged a bit. “These are not having the anticipated effect on you, skipper.”

“And, you expected...”

“Well, for one, I expected you to go ‘ooh’ and ‘ahh’ and maybe even ‘my, my, my’ after you saw these. Are they really too, ummm, vanilla for you?”

Tom thought. Bud was right. These *were* too vanilla, too similar and too traditional. Designing just another one of these types of jets would make them just that. Simply creating another one of the same old thing would not do.

“More than anything, Buddy, old pal of mine, these make me more determined to come up with something that people will look at and think, ‘That certainly doesn’t look like all the others. Maybe I need a closer look.’”

Bud nodded. He hadn’t actually expected Tom to jump up and shout “Eureka!” at the sight of these. He was glad that his friend had seen something that might keep him moving forward.

As Tom moved back to his computer station, Bud packed up the boxes and headed out. He would drop these off at the YMCA later for part of their summer program.

Two weeks went by with no sign that Tom had come up with a design. Then, on a Thursday afternoon, he called his chief model maker, Arvid Hanson. “Hey, Arv? Can you drop by my lab? I’ve been hammering away at the design for the new aircraft I mentioned to you, and I believe I

have something I want to try in the wind tunnel.”

Fifteen minutes later, Arv was sitting on the edge of Tom’s desk, looking at the 3D rendering of the potential aircraft.

First, he tilted his head one way, then the other. He stepped back for a longer view and then moved up very close. No matter how he looked at it, it looked like absolutely not other aircraft he had ever seen.

Seeing the look of puzzlement on his face, Tom asked, “Is there anything I can explain about it? You look either confused or bemused, or possibly constipated.”

Arv shook his head. “Is it me, or does that part actually sort of, well, dangle?”

Tom didn’t need to look where Arv was pointing. He knew. It was the same thing his father had pointed at when he suggested major changes. The same thing Dianne Duquesne in Propulsion pointed at when Tom asked her for engine recommendations. The same thing he was constantly second-guessing himself on.

“Nope. Not your imagination.”

Arv nodded. He couldn’t think of any other gesture to make or anything to say. If Tom felt that it was okay that part of an aircraft just dangled, then so be it.

He promised to have a static model ready in three days. “I guess that puts it here Saturday. Do you want it then, or is Monday okay?”

“Fine.” Tom asked that it be built to a scale that would



give the model a three-foot wingspan.

“As long as you don’t need working flaps and other control surfaces, look for it first thing when you come in after the weekend.”

When the model maker returned to his office and workshop he set about taking Tom’s 3D wire form model and giving it a surface skin. Most of the things looked fairly straight forward, or at least as straight forward as this design allowed. The only thing he could not discern was the actual canopy area. While it did not matter in this first model, it would be a vital piece of information for any future scale and display models. He made a note to ask Tom.

Using all of his skills as an artist, he crafted the jet with all of the smooth, flowing lines of Tom’s design. The only change he made, and only after checking with Tom for an okay, was to the diagonal struts holding the wing to the main body.

“They look a little flimsy to me, skipper. Plus, I’m fairly certain that having two of them will set up some sort of airflow problems and a higher drag coefficient.”

Tom agreed to a single, wider strut, then informed Arv, “The idea is that the whole strut assembly will be one continuous piece. You know, kind of like an upside-down stirrup with the flat part inside of the wing and the curved part cradling the fuselage.”

Once he had the entire wire diagram covered with a virtual skin, Arv started up the larger of his 3-D printers. These consisted of large tanks in which a special solution

packed with micro particles could be bombarded by a series of magnets and lasers to build a solid model, one layer at a time.

He started the ‘print’ process before leaving for home that evening. When he returned on Friday morning he was happy to see that almost thirty percent of the model had been finished. By this time on Saturday, it would be complete, and he could come in for the hour it would take to remove the finished model, clean it off and put it in the curing oven.

Because there was nothing on his schedule for Friday, Arv spent the rest of the day working with Hank Sterling, Enterprises’ chief pattern maker, dividing the 3-D design into the major components and all of the moveable parts.

“Does that just sort of hang down like that?” Hank asked Arv, who nodded with a slight smile.

“I asked Tom about that before making the static model. It sort of puzzled me as well. But, once he verified it and I saw the finished design, it actually makes sense.”

Hank shrugged. He had worked at Enterprises for Tom’s father and for Tom for several years. In all that time they had never presented him with an unstable or unsafe design.

Before day’s end they had the design broken down into a number of parts that could be assembled by hand to make a semi-functioning model.

Hank transferred a number of the larger pieces to his computer station where he would send them to his large

3-D printer, while Arv began the process of sending most of the smaller bits to his second, smaller, printer.

“Unless Tom has something for us on Monday, let’s get back together and build this thing,” Hank suggested.

“I’ve got a new batch of mini servos and all the bits necessary to make this a controllable model,” Arv added.

When Tom arrived at Enterprises first thing Monday morning, Arv was waiting in the outer office, chatting with Munford Trent. He pointed to the light gray model on the sofa next to him.

“Got it for you, skipper.”

Once inside the office, he set the model on a makeshift stand and placed them on the conference table. Tom walked around the table looking at the design, now made solid. While he was looking at the model, he was also going over in his mind all of the questions this radical departure would inevitably generate.

He looked at Arv. “So. What do you think?”

“Depending on how you look at it, it’s a little strange, but now that I’ve seen it in solid form I can imagine how great it will be.”

“That’s good, and exactly the sort of response I hoped for,” the young inventor told him. “If you’ve got nothing else to do, why don’t you come over to watch the wind tunnel tests?”

“Normally, I’d love to, but Hank and I have a small project we’re working on today. Can you do it without

me?”

Before leaving the office, Tom TeleVoc’d Bud. These tiny collar pin communicators let him get in direct contact by simply saying, or even mouthing, the name of the person he wanted to speak with. Bud answered immediately and enthusiastically agreed to meet Tom in fifteen minutes.

As the great turbine blades were speeding up and the airflow was reaching four hundred knots, the speed Tom felt would be the little jet’s cruising speed, Bud walked into the control room. “Sorry I’m late. Sandy called just as I was leaving my office. Had to give her a few minutes since I owe her at least a couple dozen dates.” He looked meaningfully at Tom.

Tom pursed his lips. He couldn’t say anything since he was also dreadfully tardy in taking his constant date, Bashalli Prandit, out. Finally, he shrugged.

Bud peered into the chamber watching as a series of smoke trails were released over various surfaces. Both he and Tom realized that any errant eddies in the smoke or swirling patterns too near the jet itself would mean unacceptable drag and turbulence. There was little wavering in the smooth flow of the smoke over the jet, including the thing that caught his attention—the two above-wing-mounted jet engines.

Turing to Tom, he asked, “Is she suppose to be amphibious? I mean, with the engines up on top and the boat-like body.”

Tom shook his head. “Nope. I just wanted to come up

with something that would give the most space to the cabin without having to drop the overhead down to allow for a main wing spar, or to lose seating for the wing struts.” He explained some of his thinking as the tests went on. By the time they had successfully concluded, Bud was excited at the prospect of flying the jet.

It wasn’t until Tom went into the chamber and disconnected the model from the mounting plinth that Bud got his first look at the jet from anything other than the right side.

“Uhhh... ummm... Tom? Did you know that it looks a lot like a frog or a toad? I thought you said it isn’t suppose to be amphibious?”

“It’s just a case of form following function. One of the things I believe it was you that mentioned was a desire to have a lot more visibility for the passenger and pilots. Well, this design gives that. The entire canopy except for a foot or so at the back, and right down to the center point from top to bottom, is going to be made of clear Tomaquartz. Super strong and will give complete visibility to everyone.”

Bud whistled. “So, the engines are up on top to give better visibility to the sides.” he guessed.

“Correct. The canopy will be hinged right at the back—that’s the reason for the non-clear area back there—and will open up like a clam shell. People will just step into it from a small set of steps on both sides, then it closes and locks down. The cabin will be totally airtight and will be pressurized for comfortable slight up to about thirty-five thousand feet.”

Bud looked thoughtful for a few minutes. Finally, Tom asked him what was on his mind.

“I’m just trying to figure out if you’ll let me get away with calling it The Toad or not. What will the actual designation be?”

“Dad wants this to have a double digit designator. From a marketing point of view, I guess there are way too many X-1s out there. Since the *Pigeon Specials* are all SA numbers, this might be a SJ, for Swift Jet. I guess it will be the SJ11 or something like that. Maybe SE11.”

“But I can still call it The Toad. Right?”

“Bud. Assuming that we get this built and that the buying public likes it, you can call it the Mathilda X. Hungadunga, for all I care!”

**PART 3****COULD IT FLY ANY BETTER?**

TOM WATCHED as Hank and Arv wheeled out the working scale model of the SE11. He had been taken totally by surprise when he dropped by and reported to them that afternoon the success of all wind tunnel tests.

Sitting on Hank's workbench was the almost completed model. It was slightly larger than the static model he had tested, but was complete with all moving control surfaces and even a clear canopy. Inside, one of them had added two small bodies with his and Bud's faces glued to the heads. Behind these pilot seats were four rows of two seats and an aisle between.

"Well," he told them. You shouldn't be able to shock me like this. I should know better." He grinned at them. "The only thing, well, it isn't *wrong*, but it is not what I designed, is that you've got a total of ten seats. I'm thinking of just eight so that everyone has more space in front of them, and to keep the overall weight down. With ten I might have to go back in and lengthen the wings."

Hank looked at Arv with an, 'I told you so,' expression.

"But, that said, I love it! When will it be ready to fly? Or, is this not a flying model, yet?"

"Oh, she'll fly, skipper," Arv replied. "Between Hank's and my building capabilities and a couple of tiny jet engines Dianne Duquesne and her propulsion people have loaned us, by tomorrow afternoon we'd love to give you the remote and see what she can do."

Tom took a close look at the little jet aircraft. Seeing it in this larger size, and looking at it from straight on, he had to admit that Bud hit the nail on the head. It did look like a toad. He chuckled, eliciting questioning looks from his two friends.

He told them about Bud's nickname.

"I knew there was something vaguely animal about it," Hank said. "I told Arv here that I thought it looked like a bug-eyed monster or one of those old Austin Healy Sprites."

Tom motioned them to continue their work and he sat down to watch. An hour later he rose, stretch and excused himself. They were just finishing the connections to the two jet engines. All that remained was to mount the engines, attach the landing gear, and charge up the batteries.

The next afternoon Tom came back. Arv was nowhere to be seen and Hank had the canopy open and was making a few adjustments.

"She seems to want to pull to the left, skipper," he told Tom. "I'm just setting the servos to compensate for that. Arv went to get a new antenna for the remote. I sort of sat on it a few minutes ago."

"If that's all that goes wrong with the test, then it's insignificant," Tom said.

Twenty minutes later, new antenna attached to the remote, the three men walked outside and set the SE11 model on the tarmac.

With almost no breeze it was a perfect day to test the light model. Tom attached the external electric motor to

spin up the port jet turbine. When it reached the proper speed, he pulled it off the front of the engine and pressed a recessed button on the side cowling of the engine. He was rewarded with an increase in the turbine speed and the loud noise of the engine now running on the tank of jet fuel in the wing.

He repeated the process with the starboard engine. It, too, caught immediately and revved up. Hank and Arv each held a wing so that the small jet would not lurch forward until Tom was ready.

Standing up, he checked all of the remote functions. Everything seemed to operate properly, so he nodded at the others. They did a silent 1-2-3 and released the wings at the same time. It began moving forward. Tom wanted to try taxiing it around for the entire fifteen minutes of fuel it held before refueling it and trying a few take-offs and landings.

It maneuvered all around the clear area in front of The Barn, the huge open-ended hangar near Tom's underground hangar, and the place where many full-size test devices were constructed.

He needed to keep the engines at their lowest settings. Anything more, he quickly found, and the jet sped up enough to almost leave the ground.

By the time the rolling test time was up. Tom was elated. "My guess is that if the actual jet has the same speed and lift characteristics, we just might be able to put in those extra two seats you installed in the model. Or, at least offer them as an option."

The first ten-minute test flight was an eye-opener.

Because the balance point top to bottom was right through the center plane of the wings, the model proved so stable that Tom even allowed it to fly hands-off for thirty seconds. It tracked across the sky straight and even.

He let Arv and Hank take turns flying the model. Like him, they were amazed at the ease of handling it. They knew that most small flying models were notoriously quirky and too quick to respond to slight movements of the joysticks.

Tom took the model with him to show his father. The older inventor sniffed the air around the model as it sat on the conference table. "Kerosene? That would tell me you've been out flying this. How did it go?"

Tom told the older inventor of the incredible flights and the almost perfect stability the model exhibited.

"Should I build one?" Tom asked. "A real one, that is."

His father looked contemplative. Finally, he looked over at Tom and replied, "You should show this to Jake Aturian first. He's the one who will need to build them. Plus, he has a fine eye for what is and what isn't going to be a hit. Oh," he added as Tom picked up the model, "I would take anything Hank Sterling can give you so Jake understands the pattern sets."

Tom called the Construction Company and asked to speak with the managing director. Jake wasn't available, so Tom left him a voice message asking for a meeting the following morning if possible.

He then called Hank to see what might be available by way of any patterns or list of manufacturable components.

“Give me a couple more hours, Tom. I’m about three quarters the way through creating both the list as well as having the computer spit out the pattern sheets. I’ll bring them over myself.”

Tom was able to get a twenty-minute time slot in the very busy Jake Aturian’s schedule late the following morning. He arrived five minutes early, knowing the man was punctual, almost to the point of rudeness sometimes when he would cut off a meeting that was about to run long. Many people had heard his, “If you wanted fifteen minutes of my time, perhaps you should have practiced to ensure your spiel only takes fifteen minutes!” speech as they had been ushered to the door of his office.

One minute before his appointment, Tom watched as a woman he believed he recognized as a local television reporter left the office, calling back “Many thanks for the interview, Mr. Aturian. Glad I made sure it only took five minutes.” She had a pleasant smile on her face so Tom assumed she was not being sarcastic.

He entered the office and set the model on the desk.

After a quick greeting, Jake got up and looked the model over while Tom gave a brief detailing of the what and the why of it. Jake held out a hand and Tom placed Hank’s patterns and parts lists in it.

Sitting back down, he quickly looked through the papers. He reached out and pressed his intercom button. “Nancy? Please ask Peter Smith to reschedule for late today. I need more time with Tom. Thank you!”

He continued studying the pages and the model until past Tom’s original time slot. Finally, he set everything

down and turned to the young inventor.

“I can built it, but you’ll never find an audience for it!”

Tom was stunned. He had expected more support. After all, this was a project he was expecting and Damon Swift had supposedly filled him in on its importance.

“Uh, Jake. This is the aircraft that meets the requests of at least two-dozen clients and potential clients who have passed on the *Pigeon Special* and *Racing Pigeon*. We’ve made direct contact with them to see what we need to offer for them to open their wallets. This is that aircraft!”

Jake looked over his glasses at Tom as if sizing him up. “Who?” is all he asked.

Tom pulled out his pocket organizer and called up a list. He handed the device across the desk and sat back.

Jake scanned the list, nodding periodically as he recognized a name or company. When he set the device back on the desk, Tom was about to ask something but he held up a finger. Picking up his receiver, Jake dialed a number from heart.

When it was answered, he said, “This is Jake Aturian at Swift Construction for Russ Paul. Is he available? I can wait. Thank you.”

He placed a hand over the receiver and began humming. A Moment later he uncovered the mouthpiece. “Hello, Russ. Jake. How are things?... Really? That’s good. Listen, the reason for my call is that you evidently came out here several months ago looking for some small, fast commuter aircraft for that air taxi thing you’re trying to get started.” He listened for a full minute before continuing. “Okay. Glad to hear it. So, if I start to build a

six to eight passenger jet, something that can fly upwards of four hundred and above thirty thousand, great surround visibility and a pretty low per passenger per mile cost, how many would you want?”

Again, he listened. Several times he referred to Tom’s papers and gave brief answers.

“Okay. We’re talking something that is not similar to anything out there. Unique is too tame a term. Revolutionary, perhaps. Give me your fax number and I’ll send you a picture. Standard non-disclosure and all that. Okay? Good.” He wrote down a number and passed it to Tom, also handing him the cover drawing from the initial design model.

Tom crossed to the old-fashioned fax machine in one corner, placed the page in it and pressed the number sequence. It quietly squeaked and squawked for thirty seconds and then went silent.’

“It should be there now, Russ. Take a quick look and give me an answer to just one question. If we build one, will you seriously come out and look it over, take a test flight and give it real and fair consideration?”

Again, he covered the mouthpiece. This time he said to Tom, “If his answer is no, then I’m inclined to say no as well—Yes, Russ. I’ll admit it isn’t what anybody else is making, but I can tell you that our tests, including a scale flying model and all air tunnel tests, show this to be so stable that it flies hands off... Uh-huh?... Yes. And, I was looking at a few of the systems like the jet turbines. We’re talking Swift J9s. You know they are the most fuel-efficient and have the longest mean time between service of anything out there... Right. That upper canopy is clear

three hundred twenty degrees around. Just the very back is not... Uh-huh... I see... Sure. We plan to have the first one off the assembly line in thirty days. I’ll give you a call the week before and we can schedule you in to be the first to have a crack at it. Thanks, Russ.”

Hanging up, he winked at Tom. “Looks like I have a jet to build for you and you have one helluva sales job coming up. Good luck to us both!”

By using Hank Sterling and his team to build many of the smaller components, The Construction Company was able to concentrate on all of the ‘big pieces.’ As each piece was finished it was shipped over to the Barn for assembly. Tom and Bud took turns overseeing the construction team of five. Day by day the plane began taking shape. Within the first two weeks it had a body shell with landing gear, the wrap-around strut and cradle that would hold the body to the wing overhead, and the twin tailed rear end.

Dianne Duquesne was personally overseeing the construction of a pair of J9 turbines with a lower profile than normal. The case could be minimally shielded for this jet as everything up and away from the passengers. The upper wing could be shielded as part of its actual surface to keep out anything that a disintegrating engine might throw off.

By the end of week three the jet was substantially complete. Tom had spent the previous two weeks sequestered in his office creating new and adapting existing computer code. Everything would be fly-by-wire and every input and every sensor would be channeled through a bank of three computers, each running the

same programming and acting as a double back-up system. In an emergency the computers could be shut off and restarted in under fifteen seconds thanks to their solid state memory and storage banks.

There hadn't been enough time for him to create a single all-glass control panel. That would have to wait for a future aircraft. Instead, three small color monitors were placed in front of each of the two pilot's seats. Control would be made through a joystick and a set of virtual pedals. These would simulate the press back pilots of traditional aircraft might feel, but would simply be activators for the computers.

The day of the first taxi test came with Bud joining Tom in the cockpit. They approached the aircraft, sitting fairly low and squat, where Tom pressed a button on the side extending the pair of three step stairs from the fuselage. They climbed in and took their seats. Tom reached forward and pressed the button to activate the canopy, and it moved down, stopping four inches from totally closing. Tom had built this simple feature in so that passengers didn't get arms or fingers broken—or worse—in case they had not pulled everything in. Following a three second pause and a series of beeps, the canopy fully closed and they could hear the locks slip into place, sealing them in.

Using a large capacity Swift Solar Battery located behind the last row of seats instead of an outside power source, Tom turned on all systems including ventilation. It took only two minutes to perform all of the systems checks; many of these were handled by the computer that displayed all positive or negative findings on the screens in front of the pilots.

“Everything's green, skipper,” Bud reported.

“Let's get this thing humming,” Tom told him with a smile.

They taxied all over the Enterprises facility, up and down taxiways and unused runways, for over an hour before Tom returned to the Barn. He was elated by the success and ease with which the jet performed on the ground.

“Tomorrow we'll see how she does in the sky,” he told his copilot.

The following day they took off at 9:00 a.m. and did a series of wide turns over the Enterprises grounds. Satisfied with the way things handled, Tom decided to extend the test. “Tower, Tom. We're heading for Lake Carlopa. I'm going to fly the shore to the north tip and then fly down the middle to the bottom. From there I intend to fly due east to the Atlantic, turn one eighty and head straight back to home. Copy?”

“Copy, skipper. Give standard five-minute checks, please.”

“Roger.”

“Take the stick, flyboy,” he offered his friend. Tom knew that Bud was instinctively a better test pilot. He almost became one with the aircraft. Both knew that Tom was the pilot to go to in case of an emergency, but they also both realized that the best feedback would come from Bud.

As they approached Shopton eighty minutes later, Bud asked for permission to do a few sharp maneuvers.

“I'd like to see how she responds to snap input, if that's



okay with you.”

Tom agreed.

For another twenty minutes the little jet rocked back and forth, yawed and pitched nose up and nose down all in response to Bud’s expert input.

Tom noticed that his friend kept shaking his head after each maneuver. He opted to say nothing until they were on a course back to Enterprises.

“What gives with the head shakes, Bud?” he asked, a little worried that the flier had discovered a weakness in the handling.

Bud only grinned. “Each time I completed a maneuver I kept asking myself, could this jet handle any better? Could it fly any better? And, the answer kept coming up an absolute ‘No!’ That’s what I was shaking my head about.”

A week later, Russ Paul from the planned Southern California air taxi service arrived at Enterprises in his private Gulfstream.

He wandered over to the waiting SE11, tilting his head one way and then the other as he looked over the unconventional design. Tom and Damon Swift greeted him then watched as he walked all around the jet. At one point, he jumped up and hung from the end of the starboard wing. Although his added weight slightly tilted the craft, he smiled as he dropped back to the ground.

Jake Aturian drove up in one of the micro electric cars kept on site for employees to use. He pulled his large frame out and walked over to greet his friend. They spoke in low tones for a few minutes before coming back to the

Swifts.

“Can I hear it sitting at idle?” he asked.

Tom nodded. “Would you like a tour of the cabin and the controls first?”

The man thought and then agreed.

Tom climbed into the left seat and Mr. Paul the right one. After activating the systems he amazed the man with the rapid preflight check. He also showed the man how easily each of the three monitors could be set up or changed to show anything from minimal in flight readouts to the full set of every instrument available.

Stepping back out, Paul walked over to Damon and Jake, standing about fifty feet away.

Tom gave them the thumbs up sign and then started both engines. He knew how quiet they would be unless you stood directly behind them. They were even quieter with the wing providing sound deadening.

Mr. Paul climbed back in sitting next to Tom with Jake and Damon taking seats two rows back.

With the canopy closed and his tower check made, Tom taxied to the runway and they were airborne in minutes.

An hour later they returned. Mr. Paul, who piloted his own business jet, had taken to the controls as if he had flown the SE11 for years.

They taxied back next to his aircraft and stood on the tarmac discussing the flight and his thoughts.

“I’ll tell you the truth. It looks odd from the side and gawdawful from the front. Did anyone spot how much like

a frog it looks, or is it just me? Anyway, looks aside, it flies better than anything I've ever been in. It's quiet and comfortable. If you can build these with eight passenger seats instead of the six you've got in there, then you'll have an order for two dozen of these by this time next month!"