

# BADGE OF THE ULTIMATE STAR JAM FIGHTER

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## CHAPTER 5: A LINE ON THE SCREEN, A THRESHOLD IN LIFE

It had been a rough day at school.

At the start of the day, Markaius tried to find out what was wrong with Russ, but Russ instead took a swing at him and it had taken six students and two teachers to keep the two apart. Markaius was so upset that he didn't even eat lunch in the lunchroom, but just sat on a bench outside, just staring at his sandwich with no appetite. That afternoon he had a test but couldn't answer a single question. All he wanted was to unwind by playing his game. He plugged it in and stood up to watch it's bootup sequence.

All he saw was a thin bright line going from one side of the screen to the other.

He frantically unplugged the game then plugged it back in again, only to see the same horrible line. The sounds of the game's attract mode played loud and clear, but all he saw was that one white line. He unplugged the game and sat down on his bed, holding his head in his hands.

This was big. It wasn't just some failing part he could replace, or poke at. This was *big*. This was part of the game that he'd never touched. This was parts of the book that had gone over his head, articles of magazines he'd avoided, a whole section of the manual he'd simply flipped by because they were too complicated for him.

There was no way he could afford to pay for the repairs, and if he asked his parents for help, they'd demand he get rid of the cabinet.

He had to do this himself.

On Saturday, after his chores were done, he headed down to the library to check out *Repairfur's Complete Arcade Guide*, *Repairfur's Complete TV Guide*, and *Introduction To Electronics*, and began to study.

"Is everything okay? It's been over two weeks since you asked me for the plug lockout," Lawry said, checking in on his son.

"I... just have an essay to study for, that's all."

"Must be quite the essay." Lawry sat down, looking at Markaius. "I mean, you haven't even spent time with Russ."

Markaius hung his head. Russ had been actively avoiding him for some time. "We've... I dunno if we're friends anymore," he said quietly.

Lawry sighed. "... I see. Well, if you need help with your... essay, just ask. Okay?"

"Okay."

Over the next week, he made notes, copied diagrams, and even used his allowance to purchase tools from the local hardware store, which only made his parents even more suspicious that something was up. But the more he read, the more uneasy he became. This wasn't like tightening a screw, or replacing a switch. Finally, he went on the *The Arcade Game Builder Forums* and typed a post.

**[1] Need To Fix Screen**

StarJamKid (Newbie Forumite)

I'm dealing with a screen that just has a thin line across it. Any advice on fixing it?

With that done, he headed out to Willow Clearing Computers to ask Mr. Gruffy for help with his "essay"—and, he hoped, find out what was eating Russ. He leaned his bike against the shop and went in.

"Ello, lad" said Mr. Gruffy. "'Ow can I 'elp yer?"

"I'm writing an essay on CRT repair," said Markaius, maintaining his little fiction. "I was wondering if you could help me."

"Be glad to!" he said.

"Is Russ here?"

"Doin' some inventory," Mr. Gruffy said. Markaius showed him what he'd done so far, and Mr. Gruffy blinked. "All this for a blinkin' essay? Looks more like yer tryin' t' actually do it! *Not* somethin' I recommend." Mr. Gruffy went over Markaius's notes and diagrams, pointing out a few errors or omissions. Suddenly, Markaius heard a quiet growl behind him, and looked back to see Russ shoving a binder back into its slot.

Markaius decided now was the time. "Hey, Russ," he said, coming over. "I gotta know. You've been treating me like I've got mange, and I want to know what's going on."

Russ kept his face turned away, refusing to answer Markaius.

Mr. Gruffy had had enough. "Russno. Yer've been actin' strange f'r weeks now. Yer say nowt's wrong, but clearly there's owt! What. Is. Wrong?"

"I'm fine," growled the young badger, staring out the window.

"Bollocks."

Russ turned around, his cheeks damp as he looked at Mr. Gruffy. "I can read th' writin' on th' wall. I know I'm goin' t' be replaced by Mark. Like I was by me sister!" His voice trembled, as he sought the words. " I'm *sorry*, Grandpa. I tried me best, but I guess I was just too 'dev.. devel...' *stupid* t'—"

"Oh, blimey!" groaned Mr. Gruffy as he hurried over to Russ and gave him a tight hug. He then stepped back and held Russ's shoulders and locked eyes with Russ. "Even if yer give up bein' me apprentice an' never learn me trade, yer. Still. Me. *Grandson!*" He held his gaze. "I. Still. Love. Yer. As far as I'm concerned, like th' Good Book says, yer th' son of me old age!" He hugged Russ again. "I *know* yer tried. Just because yer don't 'ave an 'ead f'r electronics don't mean yer don't 'ave an 'ead at all!" He smiled, tears in his own eyes. "Yer don't 'ave t' be ashamed of failin', especially when yer gave it an honest go!" The two embraced for a while. "I love you, and I always will," said Mr. Gruffy. "Remember that."

Russ just held his grandfather close, trembling and breathing raggedly.

Markaius wasn't sure how to feel; Russ was this big powerhouse that was the terror of the wrestling team, a big tough guy whom no other "tough guys" messed with—and here he was, practically disintegrating in his grandfather's arms. When Russ finally let go, Markaius took a bit to find his voice. "Russ... I'm sorry. I didn't mean to push you aside..."

"It's all right... I knew Grandpa was gettin' frustrated wi' me." He sighed. "I dunno what I'll do now, though..."

"I'll 'elp yer find a trade," promised Mr. Gruffy. He then looked at Markaius. "Good luck on yer essay," he said pointedly.

Markaius nodded, gave Russ a hug and whispered, "I'm sorry," and headed out. The Gruffys had some stuff to work out, and Markaius knew he'd just be in the way.

When Markaius got home, he decided to go to bed early. As he lay in bed, he heard his dad talking on the phone—from what he could hear, it was with Mr. Gruffy. He wondered if the two were comparing notes. Well, he'd worry about it in the morning.

The next morning, he got up and looked at his forum thread—it had a number of replies, and he also had a private message.

## [2] Need To Fix Screen

SkaVenJerSam (Trusted Dealer)

Whoo, fursnarls. You probably have a CRT screen in your cabinet. My advice would be to replace the screen entirely with an LCD or LED screen. They draw less power than CRTs, and it's not hard. You only need to keep a CRT if there's a light gun involved, and fixing that is a job for experts, I'm afraid. Even I don't mess with them. Otherwise DEFINITELY switch to one of the other two.

By the way, since your new, here's some defs:

**LCD** Liquid Crystal Display

**LED Light Emitting Diode**

**CRT Cathode Ray Tube.** These are the old and heavy dinosaurs. Fiddle with them at your own peril.

*You get what you pay for.*

**[3] Need To Fix Screen**

Lord\_Danlock (Elder Moderator)

I think the cabinet *did* have a light gun, though I don't recall using it. Honestly, StarJamKid, this is not something I recommend you do. Your posts suggest you're a total newbie, and this is NOT a job a newbie should be doing. If I were you, I'd call in an actual repair tech. Do NOT take CRTs lightly.

*Are you crazy? Is that your problem?*

**[4] Need To Fix Screen**

Sk8tman\_J (Young Forumite)

What Lord\_Danloc said. If you try to do it, let us know if you're alive once you're done.

**[5] Need To Fix Screen**

Gaias\_Gamyr (Known Forumite)

If you *really* have to dig into one, for heaven's sake, study, study, study, *then* start working. And *please* be careful I remember my Dad tried to fix a little travel CRT TV that had been unplugged for 7 *years*. It still shocked him, and he had to go to the hospital. It was awful. ;\_;

*Nothing is so joyous as that which is earned.*

**[6] Need To Fix Screen**

Moolah\_Hunter (Elder Forumite)

Don't waste your time. I had a cabinet once, but none of the big collectors wanted it, so I had a guy make a ROM and emulator, and I threw the cabinet out. Just do likewise. ROM is only 80 bucks.

Markaius grumbled at that last one and checked out his private messages.

**Private Message: PLEASE DO NOT DO THIS!!!**

Lord\_Danloc (Elder Moderator)

I'm PMing you because I don't want others to know I know you IRL. Markaius, this is WAAAAAY over your head. Ask Uncle Lawry for help, ask Mr. Gruffy for help, if I wasn't up to my eartips in work I would happily help, but just DON'T try this on your own. PLEASE.

First reason: So far you've been fixing basic controls. Replacing switches and all that. Not much to go wrong there. You mess with the electronics themselves, you could completely screw the cabinet up.

Second and most important reason: By now you'll have noticed that your screen glows even if the cabinet isn't plugged in. That's because there's a lot of charge built up in that screen, and IT WILL FRY YOU if you do something wrong. I love you, pupster, and I don't want you to get hurt or worse, killed. I am NOT exaggerating.

Just ask for help, please.

Markaius took a deep breath. He knew Kraggan was an expert in these things, so he reluctantly decided to tell the truth. He left his room and went to his parents. "Mom... Dad... I... I wasn't actually studying for an essay. The game broke down big time."

"I wondered if that was the case," said Lawry. "What's wrong?"

"The screen's broken. All I can see is a line going across it. Sound works and everything, just not the screen. And Cousin Kraggan told me to ask for help and not do this myself."

Lawry took a deep breath. "I would say Kraggan is right. You are absolutely not going to try and fix *that*. The risk is just far too high. I'm calling Mr. Gruffy." He picked up the phone and dialed. "Hello, Mr. Gruffy, Lawry Alsaten here. I need you to come look at Markaius's game; there's a problem with the screen. Actually, yes, he was going to. He's borrowed a few books from the library on how to do it and... Okay, see you soon." He hung up the phone. "Mr. Gruffy's on his way."

"Why didn't you tell us in the first place?" asked Doris.

"Because I knew you'd tell me to just chuck it because it was taking over my life and becoming a money pit!"

Doris blinked. "How did you overhear that? Were you—" she paused, then sighed, hung her head and laid her ears back. "That's right, Lawry and I were right outside your door. You couldn't help but hear us." She hugged her son. "I'm sorry."

Markaius and Lawry brought the cabinet into the garage in preparation for Mr. Gruffy's arrival and even made sure to put the plug lockout on. When Mr. Gruffy and Russ arrived with Mr. Gruffy's repair truck, Markaius shook hands with Mr. Gruffy, and gave Russ a hug.

Lawry then stepped forwards. "Russno? While they're working on that, may I talk to you?"

Russ nodded, and he and Lawry exited the garage.

While his dad talked with Russ, Markaius showed Mr. Gruffy the plug contained in its plug lockout held shut with a padlock and a note with the words "WORKING ON THIS!" attached.

"Lockout/Tagout procedure," approved Mr. Gruffy. "Very wise. Any forefur or supervisor wi' 'arf a brain would give yer a thumbs-up. Always, always, *a/ways* make sure what yer working on is unplugged and locked away so it can't be plugged back in. I've seen it way too many times when someone 'knew' th' thing was unplugged, didn't check, started workin' on it, and got zapped. Even some who didn't live t' tell th' tale. So what's wrong wi' it?"

"When I turn it on, all I get is a horizontal line across the screen. Sound and everything works fine, but I can't see anything."

"Ah. I think I know what's goin' on." Once the back was off, Mr. Gruffy looked Markaius in the eye. "Yer were studyin' 'ow t' do this. So. What's th' first thing yer need t' do before handling a CRT?"

"Discharge it?"

"Good!" He brought out a tool that looked like a long wire, with a clip at one end and a gauge with a needle attached to the other and handed it to Markaius. "Clip this t' th' metal 'ere, take this needle an' poke it under that rubber seal."

Markaius did as he was told and saw the needle jump almost to the other side of the gauge. "So now it's discharged?"

"Poke it again an' see."

Markaius did, and the needle jumped almost to the center of the gauge. "... Oh." He poked a few more times until the needle stayed still, and he looked up to see Mr. Gruffy nod in approval.

"Now, yer've discharged the screen and yer can take that connection off. The other capacitors may still be 'oldin' a charge, so 'andle wi' caution," the old badger warned. Mr. Gruffy then guided Markaius through disconnecting and removing the screen. They placed the screen on the workbench and Mr. Gruffy used an air blower to blow the dust off.

Mr. Gruffy took over from there, but let Markaius watch and, after several questions, gave a running commentary on what he was doing: checking connections, capacitors, the yoke, and so on.

The problem turned out to be some failed capacitors. Since Markaius had helped him before, the young dog now knew how to look for specifications, and brought Mr. Gruffy what he needed. "Can I try soldering it in?" he asked.

Mr. Gruffy looked at him, then set out a jig, and put two spare wires from his toolkit nearby. "Let's see yer try solderin' these two wires together before yer try it on a circuit board."

Markaius carefully added the flux—only to see most of it end up on the bench. He managed to get it onto the wires, and heated it with Mr. Gruffy's torch. Then he slowly brought the solder close, wincing at how badly his paw was trembling. The solder flowed onto the wires and swiftly became a great glob of silver.

"Good thing yer called me in," Mr. Gruffy said. "Yer are *not* steady enough for this kind o' solderin'. Yer'd 'ave made a right mess o' th' board."

Markaius watched intently as the badger carefully resoldered the capacitor back in and fixed the other connections. Then they took the screen back to the cabinet and reinstalled it. Once it was all hooked up and the cabinet was reassembled, Markaius unlocked the plug lockout and plugged the game back in. The game started up, and Markaius grinned as the the bootup info scrolled down the screen. He started a game, the familiar line "ENTER THE FRAY" sounded, and Markaius proceeded to ace the first level. "Yes!" he said in satisfaction, seeing the game worked.

Markaius started playing the second level, but Mr. Gruffy stopped him. "Markaius, yer, me, and yer parents need to 'ave a talk."

"Okay," he said nervously and unplugged the cabinet before following Mr. Gruffy inside.

Markaius, Russ, his parents, and Mr. Gruffy sat down around the dining room table and Mr. Gruffy took a deep breath. "Let's get straight t' th' point. Yer son don't know it yet, but 'e's cryin' out fer a teacher. I'd be glad t' take 'im as an apprentice."

"I think that's a great idea," said Lawry. "I watched him repair the light gun, so I'd say he's ready to learn properly."

With his father already agreeing, Markaius felt he could only say, "Yes, sir."

"Right then," said Mr. Gruffy. "Yer start tomorrow."

"In the same vein, I talked to Russ about carpentry," said Lawry. "I showed him some diagrams, some of the stuff we do, and he showed a lot of interest in it. If you're taking Markaius as your apprentice, I'd like to take young Russno as mine."

Russ looked hopefully at his grandfather, who gave him a nod of blessing. "If yer work as 'ard at this as yer did when yer were tryin' t' learn from me, yer'll do fine."

Russno smiled. "I'd like that..." he said.

Lawry nodded. "Right then. You start tomorrow."