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Safety: A Procedural Approach

Part I.

I'll begin by defining two important terms: Safety is the condition of being safe, which consists of freedom from danger, risk, or injury. A procedure is a series of orderly, specific and clearly defined steps taken to accomplish a given objective. Therefore, this is about a series of clearly defined steps, which will lead to a condition of safety. Virtually every single day of our lives, we are told to "Be careful", "Think safety", "Watch out!" "Have a safe trip", and many similar terms. We hear these so often, that we give them the same response as when someone says, "How are you", and we answer, "I'm fine", even if we are not. If you said, "Be careful" to me, and I in return asked you "What specific things do I need to do in order to be careful", would you be able to give me an answer that would keep me safe regardless of the hazards that I encountered? My life could be depending on your ability to answer that question. Safety is not something that exists in and of it. It is not chance. It is not luck. It is the result of two specific criteria being met at the same time. The first is safe actions or behaviors; the second is safe conditions or environment.

Accidents can happen only when unsafe acts and unsafe conditions are present together. Unsafe acts done in the presence of unsafe conditions guarantees an accident. Unsafe acts done in the presence of safe conditions will virtually guarantee an accident. If one does not occur, it can only be called luck. However, safe actions or safe behaviors can create safe conditions, so that even though the actions are taken in a very unsafe environment, accidents can be virtually eliminated and, if they do occur, the severity of the resulting injuries will be greatly reduced. For example, driving a vehicle over 10 mph is fast enough to cause serious injury in a crash. A crash at speeds over 30 mph can easily cause a fatality. Every year, some 40,000 people die in crashes, most of which occur at speeds less than 70 mph. But in races such as NASCAR and Indy, with speeds of 180 mph or more, the drivers rarely are killed, and even routinely walk away from devastating crashes that completely demolish their cars. What is the difference? Safe acts were combined to create safe conditions in an unsafe environment. The cars are all built with safety in mind: complete roll cages, special seats with 5-point seat belts, automatic fire extinguishers, burst-proof fuel tanks. The drivers wear fire resistant suits and helmets and are trained to deal with the crashes. Fire trucks and ambulances are on hand for instant response. Safe acts can create safe conditions even in an unsafe environment. It is that simple. In a procedure, the success or effectiveness of each step depends on the previous steps, and omitting any step will compromise the entire process. However, steps may be modified to adapt the procedure to changes in conditions or circumstances. The number of steps is not important in itself, for it is dependent on any number of variables. The procedure to create safe conditions has 5 steps.

1. Identify the hazards and risks2. Develop a plan to eliminate, control or minimize these hazards3. Implement the plan4.

Evaluate the success of the plan5. Modify the plan as needed, based on the evaluation. For example, while out on the trail, you need to change a flat tire on the left rear (driver's side) of your 4x4. First you identify the hazards, and note that you are on a hill, with (1) the vehicle facing downhill, but also (2) sloping to the passenger side, so it could roll forward or slide sideways. Also, the ground is soft, so (3) the jack could sink or tilt. If you tried to drive to level ground, the vehicle would probably (4) slide sideways off the trail, so you have to change it right there. (5) You are alone, (6) 10 miles from the paved road, (7) it is 30 minutes before dark, and (8) the temperature is 40 degrees. (9) You have no radio or phone, and (10) no one knows where you are. Because you are alone with no communication, even a minor injury could be serious and one that left you unable to walk could be fatal. If you were to be trapped under the vehicle, hypothermia would be certain. Some of these 10 hazards, such as the slope and soft ground, can be directly eliminated or controlled. Others, such as being alone and 10 miles from the nearest possible assistance, can only be managed, or planned for. In this instance, maybe you shouldn't have gone out alone, but now it is too late to change that; all you can do is to act safely so that you do not get hurt, regardless of what happens while changing the tire. Next, you develop a plan to control or eliminate these hazards. You decide you will (A) chock the right front tire (diagonally across from the side you jack up) with a large rock so it does not roll forward, and you also will try to (B) chock both in front and behind the right rear tire, but also slightly beside it by angling the rocks, to prevent side-slip. You have a (C) board for your hydraulic jack (You do carry a board for your jack, don't you?) which takes care of the soft ground problem. You also note that you must (D) remove the spare tire from the rack, and (E) loosen the lug nuts, before you (F) jack up the vehicle, so it doesn't rock or move. In the event that the vehicle either rolls forward or slips to the

passenger's side while jacking, you plan to (G) put the jack under the axle from behind the vehicle with the handle facing to the rear, that is, from the uphill, rather than from the side. That way your rig won't fall on you, even if it does fall off the jack. Finally, you (H) put the vehicle in 4-Lo and set the parking brake. This plan has 8 steps, labeled A-H. Omitting even one of these steps will compromise the safety of the entire process. Furthermore, these steps have to be taken in a certain order; for instance, the lug nuts must be loosened and the wheels must be chocked before you jack the vehicle up, although if conditions change during the process, steps may be modified or added to adapt to these new conditions. Now it is time for you to implement the plan. You set the brake and chock the wheels first thing, to control the most immediate hazards first. Then you unload your equipment. Because daylight is running out, you are tempted to hurry, but instead force yourself to work calmly and methodically. You break the lug nuts loose, and then begin to jack up the vehicle, but as you do so, it shifts forward a bit, and the jack tilts. You instinctively jump out from under the vehicle. STOP EVERYTHING RIGHT THERE AND EVALUATE YOUR PLAN! A new hazard has just appeared. You need to identify it for what it is--the tilted jack could cause vehicle to fall, but the jack tilted only because the vehicle moved. That movement is the real issue. The tilted jack is only the result of that. After pushing really hard on your rig several times, you decide that the tires are now firmly planted against the chocks and probably won't move any further, so you don't need to modify your plan; you just lower the jack, reposition it, and resume jacking. All goes well, and soon the tire is up, the lug nuts come right off, and you are ready to put the spare on. However, when you go to do so, you find that the axle isn't high enough; the tire you took off was flat, but this one is aired up. You kneel down to jack it up a bit higher but suddenly freeze. You are now staring at a new, and thus previously unforeseen, hazard. When you jacked

it up before, the tire and wheel were on the axle, but now there is just the brake drum. If it falls off the jack you will have two problems: first, it will fall farther because there is no wheel, increasing the chances of pinning you under it, and you won't have any way to put the jack back under the axle because it will be too low! Now you do need to modify your plan. No problem. You slide the flat (not your spare, you don't want it pinned under the rig, do you?) under the axle to catch it if it falls, jack it up a few more inches, and slip the spare on. A few minutes later the nuts are on, you lower the jack, give the nuts the final torqueing, and after loading up and removing the chocks you're ready to roll. As you pound out the 10 miles back to the road, you evaluate the plan. Everything went pretty smoothly, but you realize that business of being half-way under the vehicle when you were jacking it up wasn't good, so you modify the plan and decide that a Hi-lift jack is in order next payday.

Part II.

Review: Safety is the condition that results from safe actions or safe behaviors combined with safe conditions. It cannot happen by it it exists only where it is intentionally created. Accidents may just "happen", but safety does not. Safety must be planned. The procedure to create safe actions and conditions has 5 steps:

1. Identify the hazards and risks2. Develop a plan to eliminate, control or minimize these hazards3. Implement the plan4. Evaluate the success of the plan5. Modify the plan as needed, based on the evaluation. None of us has ever planned to have an accident. (The only people who plan to have accidents are those with real psychological problems.) When we have had accidents, it was because we did not have a specific plan how not to have

one. Think about that. Have you ever had a plan to prevent an accident, and yet still had one? No. Usually, we just go around with some vague thought in our minds about the necessity of "being careful", but without any clear idea of what we really need to do to be careful. Now we know. The 5 steps to safety tell us, and these 5 steps are applicable to any and every situation we will ever encounter in life. Now, let's look at these 5 steps on more detail. 1. Identifying the hazards and risksThis is what PYT's Safety Code and Safety Hazard Identification Tracking list are for. (Now you know what it means to be on the shit list!) It is not enough to simply declare, "We are committed to 'wheeling safely." In order to accurately identify all the risks, a checklist is necessary. It is not enough to look at a 4x4 and say, "I don't see anything dangerous." Rather, each component and system must be individually inspected to examine for whatever problems are most commonly associated with it. For instance, if inspecting a winch, it would be necessary to check if the cable matches or exceeds the winch's rating and unspool the entire cable to check it for kinks, knots, frays or broken strands. The wiring also needs to be checked for worn insulation, and tight corrosion-free connections at the battery, motor and relays. Any pulleys, tree-savers or anchors likewise need to be inspected. The knowledge necessary for hazard identification is gained only by experience. There is simply no other way. However, you do not have to be an expert to start. It begins by simply maintaining at attitude of constant awareness of your surroundings, continually watching for possible hazards. When people are injured, it is often not so much a case of their having been unaware of the hazard; rather it was a case of them refusing to admit that it could hurt them” It won't happen to me". It might happen to the next guy, but never to me. Thus, our own attitude is probably the single most important factor in safety. "I don't need my seat belt, I'm not going that far." How far is too far? Do you know when you are going to need it? Will

there be time to stop and put it on before the accident? We only take risks when be believe that we won't get hurt. Or have you ever taken one, fully believing that you would get hurt? I'm willing to bet that every single time you took a risk and got hurt, it was because you had said to yourself, "It won't happen to me", "I can handle it", "Sure, it might be dangerous, but. . . .” Pride, ignorance and unbelief kill. Period. Ignorance of hazards can be easily corrected by education, but pride and unbelief are hard things to cure. Ignorance of the risks makes it impossible to identify the hazards; pride and unbelief makes it impossible to develop a plan to control the hazards. (If it can't happen to me, I certainly don't need a safety plan, do I?)

Hazard types:

Static versus Dynamic Hazards, Imminent versus Potential Hazards, Unsafe conditions come in two categories, static and dynamic. These can be further classified as either an imminent (actual and immediate) or simply a potential (possible) hazard. These are not always hard and fast distinctions; sometimes the lines can be blurry, but it is a useful way of identifying which hazards pose the greatest risk, so they can be dealt with first. An imminent hazard poses the greatest risk. It is one, which is actually happening at that moment. A brick sitting on the edge of some scaffolding on top of a 10-story building is a potential hazard to anyone below it. When the bricklayer kicks it off by mistake, it becomes an imminent hazard. Notice that it was an unsafe act, leaving the brick by the edge, that created the potentially unsafe condition, and it was another unsafe act, tripping on it by not looking where he was walking, that changed the brick from a being a possible or potential to an actual or imminent hazard. Unsafe conditions contribute to unsafe acts.

Unsafe acts cause unsafe conditions. If the people on the ground below have a safety plan, they will have already identified the hazard of falling objects, be wearing hard hats and have installed a safety net overhead, and then, when the brick does fall, evaluate their plan by checking to see if the net was strong enough to stop the brick. If they do not have a safety plan, and the brick kills someone, everyone will mourn because of the terrible "accident" that took an "innocent" person's life. The fact is, they were not innocent; they were guilty of being careless. A static hazard is one, which is constant, consistent or stationary. A dynamic one is changing, moving, and unpredictable. An electric power line is static. An electrical storm is dynamic. An electrical storm two counties away is a potential hazard. One 1 mile away and moving towards you is imminent. A campfire in a fire ring is static. A forest fire is dynamic. A forest fire in Arkansas is not even a potential hazard if you live in Wisconsin, but for folks in Arkansas, it is a very real danger. The objective is always to keep static hazards from becoming dynamic, and potential ones from becoming imminent. A dynamic hazard cannot be controlled; it can only be avoided. If the fire is in Arkansas, stay in Wisconsin. Unfortunately for the people in Arkansas though, they cannot avoid it, unless they have previously developed a forest fire safety plan consisting of Identification, Development, Implementation, Evaluation and Modification. A 4x4 with bald tires, bad brakes and a leaky carb would be static if it remained parked with an empty fuel tank and chocks at all four wheels. When someone puts gas in it and starts driving it down the road, is becomes dynamic, and is a potential hazard to every single person on the road. As soon as the exhaust manifold gets hot enough to ignite the gas leaking from the carb it instantly becomes an imminent or immediate hazard. In this instance, the safety plan could be as simple as getting a trailer to haul the rig, to as complex as a complete frame-off rebuild. 2. Developing a plan to eliminate, control or

minimize hazardsOnce the habit of identifying the hazards is formed, everything else begins to fall into place by itself. As a rule, we naturally want to be safe, and will take steps to be safe but only if we know there is a danger present. We cannot protect ourselves from hazards, which we are unaware of, so our constant thought must always be, "What are the hazards to me at this particular moment?"The first objective in the plan must always be to eliminate the hazards, so that it no longer exists, and also take steps to prevent it from ever reoccurring in the future. If it cannot be eliminated, then it must be controlled to keep it in the static/potential category and out of the dynamic/imminent category. If it cannot be controlled from becoming a dynamic/imminent hazard, then steps must be taken to minimize the severity of the accidents when they do occur. There is no if about this. When hazards are not eliminated or controlled, accidents will result, and they should really be called deliberate acts of negligence, rather than accidents. Lets get honest here. If the hazard cannot be eliminated or controlled, the only other safe option is to completely avoid it altogether. Minimizing a hazard is an option, but not a safe option. Safer than doing nothing maybe, but still not SAFE. One critical aspect of the safety plan is a commitment from leadership to safety. In a company, this commitment must start with upper-level management and must proceed down to the lowest levels of the organization. If upper management is not 100% committed to safety, the rank and file will never comply. If the rank and file is 100% for safety, but management is not, then they will lack the authority and resources to implement a safety plan. In PYT, this means that the Board members and sponsors have a special responsibility for safety, and must take the lead by setting the example for all to follow. A safety code must be in place. It must clearly define what acts/behaviors and conditions are or are not acceptable. (Is drinking on trail rides permitted? If drivers can't drink, can

passengers? Is drinking at camp after the ride permitted? Are lift blocks allowed? Front and rear, or rear only? Can they be stacked for extra lift? Can they be welded in place to prevent shifting? What about front traction lifts?) The rules for safety must be in writing, they must be clearly communicated to every single person in the organization, and there must be punishments for failure to comply with them. They need to be reviewed regularly, and ideally, each person should sign them, and copies kept on file. (Now folks, I hate rules and punishment as much as the next person. However, I do not have the right to act in a manner that puts someone else at risk of harm.)

Part III.

Review: Safety is the condition that results from safe actions or safe behaviors combined with safe conditions. It cannot happen by it it exists only where it is intentionally created. Accidents may just "happen," but safety does not. Safety must be planned. The procedure to create safe actions and conditions has 5 steps:

1. Identify the hazards and risks2. Develop a plan to eliminate, control or minimize these hazards3. Implement the plan4. Evaluate the success of the plan5. Modify the plan as needed, based on the evaluation. 3. Implementing the safety planPutting the plan into action is a joint effort. On one side, there will be the person who is ultimately responsible for its implementation; in PYT, it is the Safety Officer, currently Jay Billmeyer. On the other side are the remainder of the club members who are responsible for accepting the plan and making its success their own personal objective. It is a group effort, or it is nothing. Thus the saying, "Safety is everyone's responsibility" means that you are responsible for your safety and the safety of those around you.

You must watch for unsafe acts and conditions, you must take steps to correct them when you find them. If you can't, then go to the Safety Officer for help. Putting the plan into effect begins with communicating it to each person in the organization in such a way that everyone understands what is expected of them, why these things are necessary, and what they can do to make it successful. It cannot be crammed down people's throats. With safety, the single most effective way to gain acceptance is by educating people to understand the hazards for themselves. When they recognize the hazards for what they are, acceptance of a plan to protect them is almost guaranteed. As the plan is phased in, it should address the greatest risks first and then move on to matters of lesser importance. This decision is based on how each risk rates when evaluated by the static/dynamic and potential/imminent criteria. Once again, the success or the effectiveness of the implementation will be directly related to the importance attached to it by the entire PYT leadership, and the leadership must back up the Safety Officer at all times. EVEN IF THEY DISAGREE WITH HIM, THEM MUST STILL SUPPORT HIM PUBLICLY. Furthermore, this is a long-term commitment. Essentially, it is like a marriage. It must be an every-single-day, every-single-trail ride, every-single-month, and every-single-year type of commitment. An eager start, that slowly fades away, is probably worse than doing nothing in the first place, because it can create a false sense of security. 4. Evaluate the success of the safety plan The frequency for evaluations should be established before hand; a minimum of 4 times a year is recommended, during the first board meeting after each trail ride is ideal. Then the findings can be communicated to the members in the next Pounder. During the hazard identification process, all the hazards must be documented in writing, and their elimination can likewise be documented. During the course of the year, these lists can be referred back to as a source of encouragement for all,

by seeing, for example, that in August of 2000 we identified 121 hazards on our club's vehicles, and in 2 months we eliminated 97 of them. Six months later we did a re-inspection, and found only 32 hazards. During a trail ride in September, we observed 13 unsafe acts, but during a ride in October, we saw only 1. There can also be Safety Awards presented yearly to the members who consistently show not only the greatest attention to safety on their vehicles, but also those who consistently act in the safest manner while on the trail, on the street, or anywhere else, for that matter. 5. Modify the plan as needed; based on the evaluation By the time this phase is reached, 3 to 6 months may have passed. If the concepts laid down have been faithfully studied and practiced by all members, a great deal of experience and knowledge will be gained in this time. Many hazards will have been eliminated, never to reoccur again. New techniques, new and safer procedures, will have been developed, and these will be incorporated into the revised plan. Some old problems will still exist, and these will continue to be studied and discussed in the continuing quest for improvement. In closing, I would say that in no way is safety ever to take the fun, enjoyment, or excitement out of four-wheeling. I wheel alone 99 percent of the time; I often work 30 to 40 miles away from the nearest assistance of any kind. I often drive for dozens of miles without seeing a soul, on roads, which no one else will come down for weeks. If I get hurt under these conditions, I may never come back out of the woods alive. In spite of all this, I still enjoy wheelin' tremendously and you all can to. If there is one sure way to ruin the enjoyment of wheeling, it is seeing a totaled vehicle, whose driver is in the hospital, and knowing that you have failed to go the extra mile in looking out for their safety, and that maybe, just maybe, if you had spoken up, they might be out wheeling today instead of lying in intensive care.