ROTOR TEST

Rotors are fibreglass and constructed to enable explosive breakage

	Controller Speed %	RPM	FPS
1)	64%	70	60
2)	64%	70	72
3)	64%	70	120
4)	64%	70	150
5)	64%	70	300
6)	64%	90	60
7)	64%	90	72
8)	64%	90	120
9)	64%	90	150
10)	64%	90	300

PYRO TEST

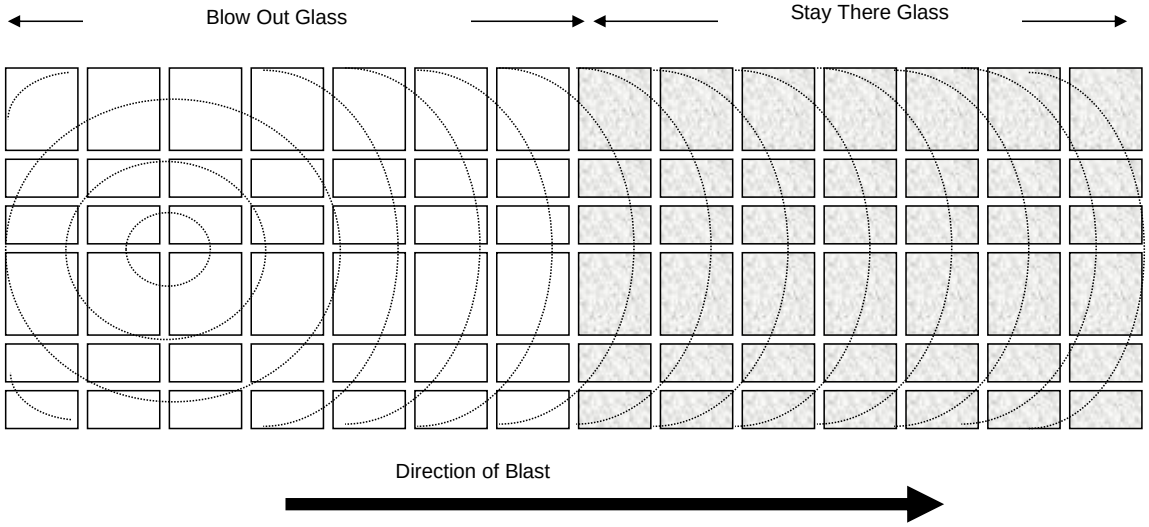
Pyrotechnic Event	Estimated Duration of Event m/s @ 24 FPS	Delay for 72 FPS	Delay from ZERO	Perceived Delay m/s @ 72 FPS
1) Dust ignitor and Flash Wool	60	0	0	0
2) Dust ignitor and Flash Wool	60	30	30	90
3) Dust ignitor and Flash Wool	60	30	60	180
4) Baby Naptha + 1/2 Maroon	100	30	90	270
5) 250 ml Naptha + # 2 Maroon	200	30	120	360
6) 250 ml Naptha + # 2 Maroon	200	30	150	450
7) 500 ml Naptha + # 2 Maroon	400	60	210	630
	X	60	270	810

PYRO TEST : CONCLUSIONS

1) Tests inconclusive due to time restraints
2) Some retardation of pyrotechnics possible due to inclement weather
3) Additional heat protection between events will allow individual events to expand to a greater degree
4) Additional pyro flame charges to expand sequence duration
5) Place some pyro outside main cabin of chopper towards tail section to expand width of fireball
6) Test additional fire ball in mortar for front projecting fireball
7) Film individual pyro elements to determine real duration of each event (allow for correct delays between events)

TEST # 1 : CONDITIONS

1) Blow Out Glass = 4mm Tempered + Mirrored
2) Stay There Glass = 4mm Tempered + Mirrored + Plastic laminate on rear
3) Explosive Content = 14 circuits of 1.5 gram/metre det cord
4) Explosive Mass = Approx 60 gram petn i.e. 40 mt x 1.5 gm/mt + 14 x Instant # 8 Dets
5) Delay between Circuits = 38 millisecond delays
6) Area of test panel = 13 % of Full Miniature area
7) Duration of wave @ 24 FPS = 494 milliseconds = 0.5 seconds approx
8) Duration of wave @ 72 FPS = 1482 milliseconds = 1.5 seconds approx
9) Duration of wave @ 150 FPS = 3087 milliseconds = 3.1 seconds approx
10) Standoff all Det Cord = 35 mm
11) Det Cord placed at intervals as per previous tests
12) All detonators inside sand bins
13) Helicopter model is tied in position against glass
14) All glass is adhered to frame on 4 sides with silicone



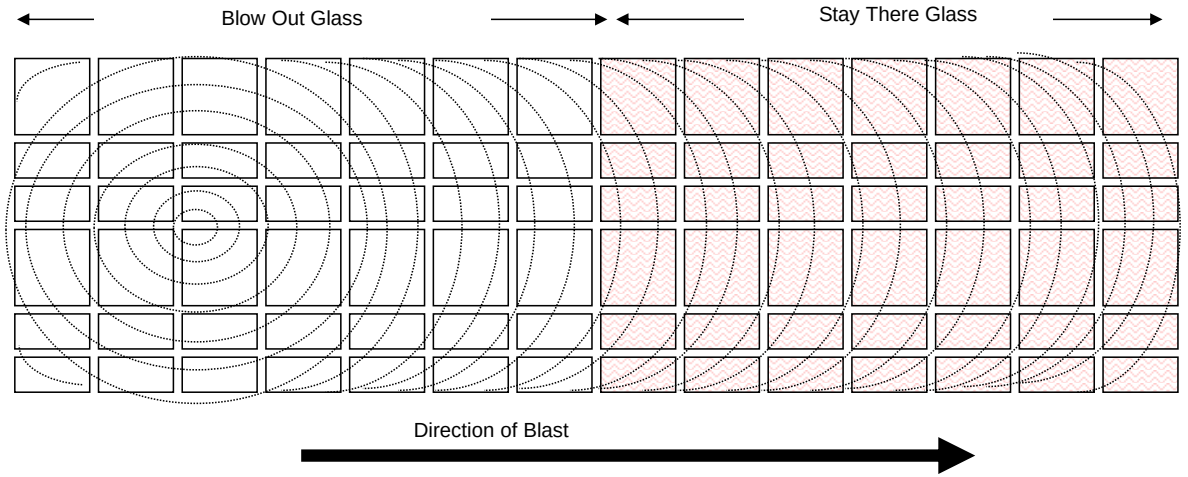
approx placement of cord rings

TEST #1 : CONCLUSIONS

1) Sound Level Peak Impulse = 128.9 dB @ 10 metres
2) Visible flash in 1st section of pressure wave
3) Model chopper moves on stand and against tie down (heavy version)
4) Unbroken glass in both Blow Away and Stay There sections, inconsistent breakage pattern
5) Unbroken glass shows scoring along det cord path
6) Standoff distance tested and proven on previous glass batches, but now needs additional tests to confirm
7) Det Cord intervals tested and proven on previous glass batches, but now needs additional tests to confirm
8) Reduce Standoff distance for Test # 2 to assist breakage (previous tests were over powered at reduced Standoff)
9) Double amount of Det cord for Test #2 (previous tests did not require anywhere near this amount of cord to break glass)

TEST # 2 : CONDITIONS

1) Blow Out Glass = 4mm Tempered + Mirrored
2) Stay There Glass = 4mm Heat Treated + Mirrored + Plastic laminate on rear
3) Explosive Content = 28 circuits of 1.5 gram/metre det cord
4) Explosive Mass = Approx 120 gram petn i.e. 80 mt x 1.5 gm/mt + 28 x Instant # 8 Dets
5) Delay between Circuits = 19 millisecond delays
6) Area of test panel = 13 % of Full Miniature area
7) Duration of wave @ 24 FPS = 513 milliseconds = 0.5 seconds approx
8) Duration of wave @ 72 FPS = 1539 milliseconds = 1.5 seconds approx
9) Duration of wave @ 150 FPS = 3206 milliseconds = 3.2 seconds approx
10) Standoff Blow Out Glass Det Cord = 25 mm
11) Standoff Stay There Glass Det Cord = 35 mm
12) Det Cord intervals @ 1/2 distances of previous tests
13) 50% detonators inside sand bins, 50% detonators in air
14) Helicopter model is free to move on stand
15) All glass is adhered to frame on 4 sides with silicone



approx placement of cord rings

GLASS TEST # 2 : CONCLUSIONS

1) Low light conditions increase flash substantially
2) Sound Level Peak Impulse = Meter Malfunction (No Result)
3) Model chopper moves on stand (heavy version)
4) Unbroken glass in both Blow Away and Stay There sections, inconsistent breakage pattern
5) Unbroken glass shows heavy scoring along det cord path
6) Standoff distance needs additional tests
7) Det Cord intervals need additional tests
8) All glass is adhered to frame on 4 sides with silicone

PYRO VERSUS CORD DELAYS

Det Ring No	Delay 35 m/s	Delay 38 m/s	Pyro Event	Pyro Event No
1	0	0	Flash	1
2	35	38	Flash	2
3	70	76	Flash	3
4	105	114	Baby Naptha	4
5	140	152		
6	175	190	250 ml Naptha	5
7	210	228		
8	245	266	250 ml Naptha	6
9	280	304		
10	315	342		
11	350	380		
12	385	418		
13	420	456	500 ml Naptha	7
14	455	494		