Here is the link to the page where I get the force mass acceleration calculations

https://www.calculatorsoup.com/calculators/physics/force.php

Here is the page where I get the calculator of acceleration issues
where you enter the known values and it calculates the values
that result from those initial known value conditions

https://www.calculatorsoup.com/calculators/physics/uniformly-accelerated-motion-calculator.php

Here is the link for calculating the rate of climb with respect to excess power available

https://www.calculatoratoz.com/en/rate-of-climb-for-given-
excess-power-calculator/Calc-6411?FormulaId=6411#UserLogPanel

Here is the link for calculating the angle of climb from airspeed and rate of climb

https://www.calculatoratoz.com/en/flight-path-angle-at-given-rate-of-climb-calculator/Calc-6330

Here are some links about the deHavilland DHC-2 plane

http://krepelka.com/fsweb/learningcenter/aircraft/flightnotesdehavillandbeaverdhc2.htm
https://fortlangleyair.com/wp-content/uploads/2019/02/DHC2-Manual.pdf
https://www.calculatorsoup.com/calculators/physics/displacement_v_a_t.php
https://www.roguefab.com/tube-calculator/
https://clearcalcs.com/freetools/free-moment-of-inertia-calculator/us
https://www.1000islandairboats.com/propellers

https://www.google.com/search?q=weight+dehavilland+beaver&rlz=
1C1CHBD_enUS872US872&oq=weight+dehavilland+beaver&gs_lcrp=
EgZjaHJvbWUyBggAEEUYOdIBCTcxNTNqMGoxNagCALACAA&sourceid=chrome&ie=UTF-8

https://www.google.com/search?q=weight+Hamilton-Standard+constant-speed
+propeller%3B+crankshaft+and+propeller+rotation+being+clockwise.+Propeller
+diameter+measures+8+ft.+6+in&rlz=1C1CHBD_enUS872US872&sxsrf=
AB5stBgujr-5MwNgK2K7khUauoqN46mJAQ%3A1689450919024&ei=
p_myZPdz1bWq2w_ivafQBg&ved=
0ahUKEwi345KPv5GAAxXVmmoFHeLeCWoQ4dUDCBA&uact=5&oq=
weight+Hamilton-Standard+constant-speed+propeller%3B+crankshaft+
and+propeller+rotation+being+clockwise.+Propeller+diameter+measures+8+ft.+
6+in&gs_lp=Egxnd3Mtd2l6LXNlcnAijAF3ZWlnaHQgSGFtaWx0b24tU3RhbmRhcm
QgY29uc3RhbnQtc3BlZWQgcHJvcGVsbGVyOyBjcmFua3NoYWZ0IGFuZCBwcm9w
ZWxsZXIgcm90YXRpb24gYmVpbmcgY2xvY2t3aXNlLiBQcm9wZWxsZXIgZGlhbWV0ZXI
gbWVhc3VyZXMgOCBmdC4gNiBpbkgAUABYAHAAeAGQAQCYAQCgAQCqAQC4AQ
PIAQD4AQHiAwQYACBB&sclient=gws-wiz-serp

https://www.globalair.com/aircraft-for-sale/specifications?specid=851
https://www.vikingair.com/sites/default/files/documents/TurboBSheet_print.pdf
https://www.vikingair.com/viking-aircraft/dhc-2t-turbo-beaver
https://www.pbadventures.com/blog/all-about-the-beaver
https://www.baesystems.com/en/heritage/de-havilland-canada-dhc-2-beaver

https://en.wikipedia.org/wiki/Pratt_%26_Whitney_R-985_Wasp_Junior

https://airandspace.si.edu/collection-objects/propeller-controllable-pitch-
two-blade-hamilton-standard-metal-ruth-nichols/nasm_A19400027000#:~:text
=3%2DD%20(Propeller)%3A%20274.3,2%20in.%2C%20129lb.)

Here is my website: https://pistonrobot.com

Here is my most recent webpage about the Heavy Lift Drone:
https://pistonrobot.com/discussions-not-related-to-pistonrobot/heavy-lift-drone-autonomy-discussions/

Here is the link on my website to download the 67mb pdf showing some of these numbers and images that I used to create these numeric flying values for this heavy lift drone design:
https://pistonrobot.com/download/7438/?tmstv=1751144110

These numbers come from my 67mb pdf on this topic, specifically see page 14 and page 19 of this pdf

The drone at take off: (drone + 1000lb payload + 600lbs fuel) take-off wt = 5700lbs

VTOL for this drone giving 5939lbs vertical lift requires 1701hp, using 13.05lbs fuel/min = 0.217lbs fuel /sec

Drone power is via two of the Rolls Royce CTS-800 turboshaft helicopter jet engines. The SFC (Specific Fuel Consumption) value for each engine is: 0.46 lbs fuel per hour per hp (lbs/hr-hp)
The drone takes off via its VTOL vertical thrust using power from both of these engines at the same time. Combined output power for VTOL is 1701 hp, needing a fuel flowrate of: 0.217 lbs fuel/sec
This is 850 hp from each engine. (850hp) x (0.46 lbs/hp-hr) = 391 lbs fuel/hr per engine.
391 lbs fuel/hr per engine is 0.1086 lbs fuel/sec per engine. For two engines total fuel flowrate to create a total hp value for the drone of 1701 hp is: (0.1086) x (2) = 0.217 lbs fuel/sec.

The original design was for the drone (via VTOL) to create vertical lift in excess of its weight, with the excess vertical thrust being used to get the drone to accelerate upward. For a take off plan where the drone simply stays some feet off the ground and then increases its airspeed to an airspeed where lift from the wings can support the full weight of the drone, the excess thrust can be used to exist as horizontal thrust, not as excess vertical thrust. This is achieved by using the tilt rotor ability that the drone has.

Transition from pure vertical VTOL thrust to some component of horizontal thrust using tilt rotor

Thrust available for horizontal thrust = total thrust - thrust needed for VTOL (VTOL thrust = 5700lbs)

5939lbs available - 5700lbs (needed for VTOL) = 239lbs extra thrust that can become horizontal thrust

Thus, via a slight amount of tilt rotor, the vertical thrust stays at 5700lbs, but horizontal thrust is now 239lbs

F=ma thus a=F/m 239lbs (horiz thrust)/5700lbs = 1.35 ft/sec$^2$ = horizontal accel

Thus 0 mph → 30 mph with accel = 1.35 ft/sec$^2$ will take 32.6 sec and horiz travel will be 717 ft

This acceleration value of 1.35 ft/sec$^2$ is only true if the drone experiences no drag from its airspeed

Drag calculations are created using this reasoning:
The DHC-2 aircraft on its specification page is listed as “best cruising speed” which is the best value for miles of ground traveled per gallon of fuel used, this speed is listed as 125mph.
The hp value to achieve this 125mph speed is listed as 300hp.

Thus 1701hp = 5939lbs thrust, then 300hp is (300/1701) x (5939) = 1047lbs drag for airspeed = 125mph

Drag is proportional to the square of the airspeed (for rough calculations).
Thus drag at 125mph (1047lbs) will become:
Drag at 60 mph using the fraction of the speed change squared multiplied times the original drag value
Thus: (since 60mph is 1/2 of 125mph) drag will be $(1/2)^2$ x (1047lbs at 125mph) = 262lbs drag at 60mph

30mph is 1/2 of 60mph, thus the (drag at 30mph) will be $(1/2)^2$ x (drag at 60mph) = 0.25x262lbs = 65.5 lbs

Will set drag at 0mph to be 0lbs

Will stipulate we can say: Drag for going from 0 mph to 30mph will be an averaged drag
The averaging will be (0lbs) + (65.5lbs) / 2 = 32.75lbs = the drag going from 0mph → 30mph = 32.75lbs

Thus drag averaging for going from 30mph → 60mph will be: (65.5lbs)+(262lbs) / 2 = 163.7lbs

Thus drag averaging for going from 60mph → 125mph will be: (262lbs)+(1047lbs) / 2 = 654.5lbs

Thus to calculate force effects to create acceleration of the drone:
Take (available force) - (average drag) to get the (force actually acting on the drone)

From 0mph → 30mph available thrust is 239lbs, drag average is 32.75lbs,
horizontal force on the drone is (239lbs)-(32.75lbs) = 206.25lbs
of note: vertical thrust is also still present, it is 5700lbs, this keeps the drone in the air
From the F=ma (force=mass x accel) equation, 206.25lbs acting on 5700lbs gives an
acceleration in the horizontal direction of 1.16 ft/sec$^2$
This accel acting to get the drone from 0mph → 30mph takes 37.9sec and horizontal travel is 834 ft

Lift is related to the square of the airspeed. Stall speed is 60mph, thus at 30mph this is 1/2 of
the stall speed. Wing based lift at 60mph is 5700lbs, so wing lift at 30mph is $(1/2)^2$x5700lbs = 1425lbs
Using tilt rotor, the overall thrust can be re-directed so that downward vertical thrust is
(5700lbs) - (1425lbs) (because the wings are giving 1425lbs of vertical upward lift at 30mph)
(5700lbs) - (1425lbs) = (4275lbs) this means the needed vertical thrust is no longer 5700lbs
Instead the needed vertical thrust is (5700lbs) - (1425lbs) = 4275lbs.
The original vertical thrust of 5939lbs can be re-directed so that
Vertical downward thrust is 4275lbs and horizontal thrust is the original 5939lbs - 4275lbs =1664lbs
This is done via tilt rotor
Thus total Thrust available for horiz accel of the drone from 30mph → 60mph is:
(1664lbs) - (drag average of 163.7lbs) = 1500.3 lbs
Resulting horiz thrust of 1500.3 lbs (using F=ma) gives an accel of 8.47 ft/sec$^2$
8.47 ft/sec$^2$ acting on the drone to take it from 30mph → 60mph, distance=343ft, time=5.19sec

So that, for the drone to go from 0mph → 60mph
Distance = (843ft) + (343ft) = 1177ft
Time = (37.9sec) + 5.19sec) = 43.09sec
Fuel used at 0.217 lbs fuel/sec = (0.217)x(43.09sec) = 9.35 lbs of fuel

Now we will take the drone from 60mph → 125mph. (we are choosing 125mph because the specifications sheet for the DHC-2 aircraft states its best cruising speed to obtain the most miles traveled per gallon of fuel used is an airspeed of 125mph

The airspeed of 60mph is the stall speed, so no further need is present for the thrust to be vertical
Thus the whole 5939lbs of thrust (again via tilt rotor) can be re-directed to become horiz thrust.

Doing this just this way starts with F=ma, but first we need to get the force available for horiz thrust
We will need to subtract the drag force from the available force
This results in (5939lbs available) - (654.4lbs averaged drag) = 5284.5 lbs to create horiz accel
Using F=ma, weight is 5700lbs, force is 5384.5 lbs, this gives drone accel = 29.8 ft/sec²
60mph → 125mph at accel is 29.8 ft/sec², distance is 422ft, time is 3.19 sec

However, the aircraft structural folks might not want a 5939lb horiz force applied to the wings

So, we will limit the horiz force on the wings to 3000lbs,
meaning the power output from the two engines will need to be lowered

3000lb horiz thrust is the available thrust, but we must subtract drag to get the force that
is present for accel of the drone. This is (3000lb available) - (654.4lbs averaged drag) = 2345.5 lbs
so, using F=ma, where is force is 2345.5 lbs, wt is 5700lbs, gives an accel of 13.2 ft/sec²

With a horiz accel of 13.2 ft/sec² acting on the drone, going from 60mph → 125mph
distance = 975ft, time = 7.2 sec

Thus for a 5700lb drone starting at 0mph
Going from 0mph → 125mph
Dist = (834ft) + (343ft) + 975ft) = 2152 ft
Time = (37.9sec) + (5.19sec) + 7.2sec) = 50.29 sec
50.29 sec at 0.217 lbs fuel/sec gives (50.29) x (0.217) = 10.91 lbs fuel used

Excess power for climbing rate and climbing angle of flight calculations

of note 1701hp gives 5939lbs thrust. we only want a max of 3000lb horiz thrust acting on the wings
Thus hp for this 3000lb thrust is (3000lbs/5939lbs) x (1701hp) = ratio 0.505
(0.505 ratio) x (1701hp) gives a hp for 3000lbs thrust of 859hp. So all we use is 859hp

Excess power climbing rate uses the value of hp needed for stable flight at a particular speed
and the excess hp that is available.
Hp for stable level flight at 125mph is 300 hp
Excess hp is (859hp available) - (300hp needed for stable level flight) = 559hp as excess
The formula then states these conditions calculate to a climbing rate of 3236 ft/min

Using the angle of climb calculator, a climbing rate of 3236 ft/min at an airspeed of 125mph
gives an angle of ascent of 17.1 degrees
In Sketchup Pro, to rise by 5000ft (change in altitude of +5000ft) at a climbing angle of +17.1 degrees
The total horizontal travel is 19,503 feet which is 3.69 miles

Climbing 5000ft at 3236 ft/min takes (5000ft/min)/(3236ft/min) = 1.55min = 93 sec

1701hp is 0.217 lbs fuel/sec. 859hp is (859/1701) x 0.217 = 0.1095 lbs fuel/sec for 859hp

So for the climbing from ground level to 5000ft above ground level at an airspeed of 125mph
This takes 93 sec, fuel rate is 0.1095 lbs fuel/sec

(93sec) x (0.1095 lbs fuel/sec) = 10.18 lbs fuel

Overall numbers include:
5700lb drone carrying a 1000lb payload and starting off with a 600lb load of fuel in addition to the payload

Going from 0mph → 125mph takes 50.29 sec, using a horiz travel distance of 2152 feet
This takes 50.29 sec using 0.217 lbs fuel/sec, using up 10.91lbs of fuel

Going from ground level in stable level flight at 125mph, then going up at a climbing angle of 17.1 degrees
and climbing at a +vertical velocity rate of 3236 ft/min
This takes 93 seconds and uses 10.18lbs fuel

Thus, 0mph, ground level, and changing to 5000ft above ground level, airspeed of 125mph,
in stable level flight at this new altitude. During this ascent traveling a horizontal distance
of 3.69 miles away from the point of initial departure.

This overall process takes ((50.29 sec) + (93 sec) = 143.29 sec = 2.38 minutes
This overall process uses (10.91lbs of fuel) + (10.18 lbs of fuel) for a total fuel use of: 21.09 lbs

Slowing the drone down from 125mph → 0mph

Drag at 125mph = -1047lbs   Drag at 60mph = -262lbs
ave drag 125mph→60mph = (-1047+(-262))/2= -654.5 lbs

The sequence is:

1) 5000ft altitude 125mph → 5000ft alt 60mph  distance = 3490ft    time = 25.7 seconds

2) 5000ft alt 60mph → 5000ft alt 45 mph   dist= 1410 ft     time= 18.38 sec

3) 45mph 5000ft alt vert vel(vv) = 0 fpm → 45mph 5000ft alt vv = (-2000 ft/m)

dist = 38ft time = 2.34 sec

4) 45mph 5000ft alt -2000 ft/min vv → 45mph 1400ft alt -2000fpm vv  1.8min = 108 sec

dist (vertical dist traveled downward) = 3600 ft

5) 45 mph 1400ft alt -2000fpm vv → 45mph 1000ft alt 0 fpm vv  over a vertical distance of 400ft

force needed an additional 214lbs of upward thrust  accel= 1.36ft/sec$^2$  time = 24.2 sec

6) 45mph 1000ft alt → 0mph 1000ft alt  distance = 670 ft   time = 20.3 sec

Calculations:

For Line 1)
Decel from 125mph to 60mph is via drag from the mph
Drag for 125mph is 1407lbs, Drag for 60mph is 262lbs
Ave drag 125mph → 60mph is (1407lbs + 262lbs)/2 = -654.5 lbs ave drag
ave drag of -654.4lbs on 5700lbs wt gives accel of -3.69 ft/sec$^2$
distance traveled 3490 ft  time = 25.7 sec

For Line 2)
Decel from 125mph to 45 mph is via drag from the mph
Drag for 60mph is 262lbs, Drag for 45mph = $(45/60)^2$ x drag at 60 = 0.5625 x 262lbs = 163.75 lbs
Ave drag for 60mph → 45mph = (262lbs + 163.75lbs)/2 = 212.8 lbs ave drag
Ave drag of -212.8lbs on wt of 5700lbs gives accel of -1.20 ft/sec$^2$
dist is 1410ft   time = 18.38 sec
Lift at 45mph from the wings is $(45/60)^2$ x (lift at 60mph of 5700lbs) = 3206lbs
Weight of the drone that propellers need to support with vertical thrust is:
(5700lbs total drone wt) - (3206lbs lift from wings) = 2494 lbs

For Line 3)
If the wt of the drone not supported by wing lift from speed = 45mph
This wt is 2494lbs. If this acts to accel the drone vertically downward
The accel is -14.1 ft/sec$^2$ If this accel is applied for 2.34 seconds
Then over a vertical distance of 38.6 ft the vertical velocity (vv) downward
for the drone will become -2000ft/min

For Line 4)
If the vertical velocity of -2000ft/min is allowed to act on the drone
With the drone starting at 5000ft altitude and moving downward to
an altitude of 1400ft (a negative vertical travel of 3600ft)
at -2000ft/min, this 3600ft of vertical travel will take 1.8 min, or 108 sec
The vertical lift for the drone from the wings from the airspeed of 45mph
is 3206lbs and the remaining wt of the drone needed to be held by
vertical thrust from the propellers is 2494lbs. Even though the drone
has a negative vert vel of 2000ft/min, it still needs this 2494 lbs of vertical
thrust to keep it from having a continuing acceleration of its vert velocity

For Line 5)
This is the force calculation for showing how the -2000ft/min of vertical velocity
of the drone is brought from -2000ft/min to a value of 0 ft/min over a distance of 400 ft
of vertical travel. The accel needed is +1.36ft/sec$^2$ force needed is an additional
214 lbs of upward force in addition to the already supplied upward force of 2494lbs
The result will be the drone's vert vel goes from -2000ft/min → 0 ft/min in 24.2 sec
over a vertical distance of 400ft, so the drone altitude will go from 1400ft → 1000ft

For line 6)
Several factors are here. The drone is slowed down, so it loses lift from the wings.
Vertical lift from the propellers is added so that the drone does not lose altitude.
The drone is also brought (using force as needed from various of the propellers) from
a drone flying attitude of level to a drone flying attitude of 8 degrees of up angle of
the drone nose (drone attitude angle of attack changed from 0 degrees to +8 degrees).
At 45mph, vertical thrust needed to be added to the drone is 2494lbs
The thrust available is at an 8 degree angle to vertical because of the angle of attack
of the drone. The 8 deg thrust of 2518.5lbs will give a vertical thrust of 2494lbs.
The horizontal component of this 2518.5lbs of thrust will be 350.5lbs pushing against the
drone to lower its airspeed. At an airspeed of 0mph, there is no lift from the wings, thus
all the vertical lift will come from the propellers, this vertical lift arising from the propeller
lift that is arising at an 8 degree angle from vertical. The 8 degree propeller lift will need
to be 5756lbs, this will yield a vertical component of this 8 deg shifted thrust to be 5700lbs.
The horizontal component of this 5756lbs will be 801lbs.
Thus the average of the horizontal components of the thrust
will be (801lbs+350.5lbs)/2 = 575.75lbs this 575.75lbs of horiz thrust applied to a wt of 5700lbs
gives an accel, with this accel acting to slow down the airspeed of the drone.
This accel is -3.25 ft/sec$^2$ This accel will take the drone from 45mph (66ft/sec) to 0 mph
in a distance of 670ft in a time of 20.3 seconds

I will defer to the pilots. They may not want to bring the drone to 1000ft altitude and airspeed = 0
They may prefer to get it to 1000ft altitude, airspeed 60mph, and bring it down at 60mph to
altitude = 0 just at the end of the runway, so that if they had loss of power, they could do an
emergency zero power gliding landing onto the runway.