

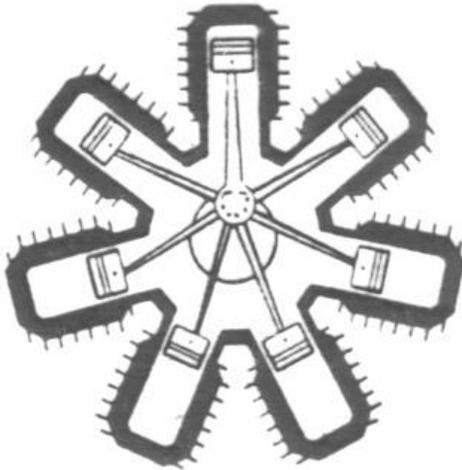
# Triebwerke

# der Kolbenmotor

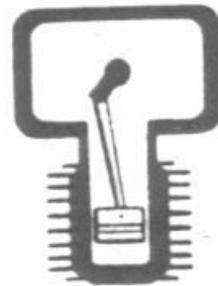
- Hauptbestandteile
- Arbeitsgänge
- Zündung
- Schmierung
- Vergaser
- Turbolader
- Verstellpropeller
- Bedienung im Flug

# Bauformen

Stern - Motor



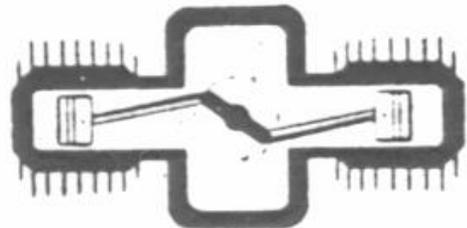
Reihenmotor  
hängend



V-Motor  
( hängend )



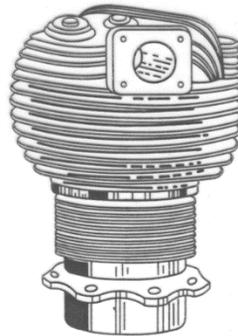
Boxer - Motor



# Kolbenmotor · Moteur à piston

Hauptbestandteile

Pièces principales



Zylinder  
Cylindre

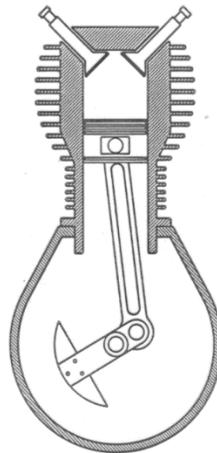
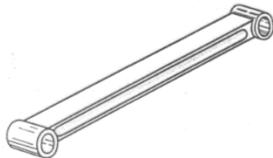
Auslassventil  
Soupape d'échappement



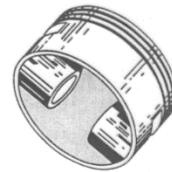
Einlassventil  
Soupape d'admission



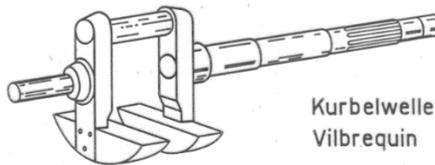
Pleuelstange  
Bielle



Kurbelgehäuse  
Carter



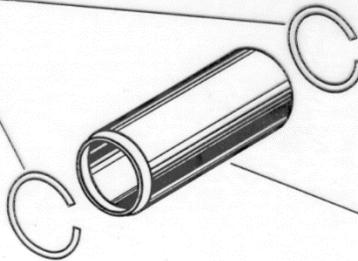
Kolben  
Piston



Kurbelwelle  
Vilbrequin

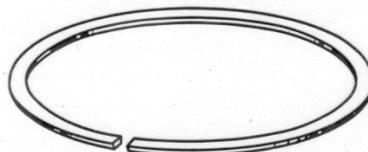
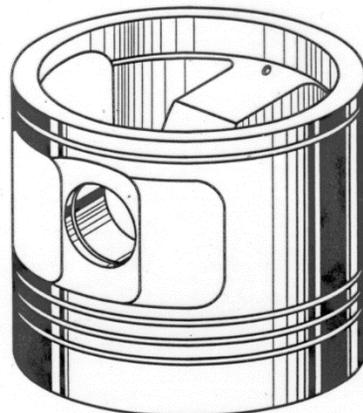
## Kolben · Piston

Sicherungsringe  
Anneaux de sûreté



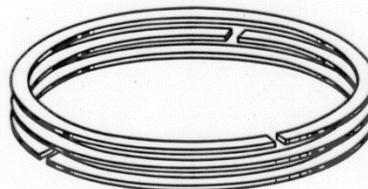
Kolbenbolzen  
Axe du piston

Kolben  
Piston



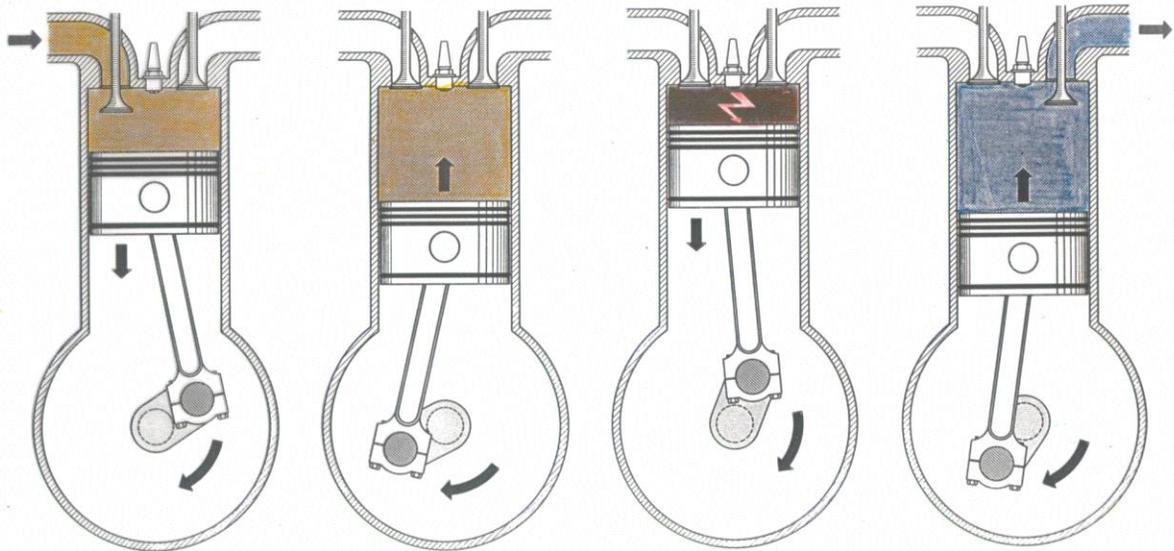
Öabstreifring  
Segment racleur

Kompressionsringe  
Segments de compression



## Viertakt - Motor · Moteur à quatre temps

(Arbeitsprinzip Principe)



I Ansaugen  
Aspiration

II Verdichten  
Compression

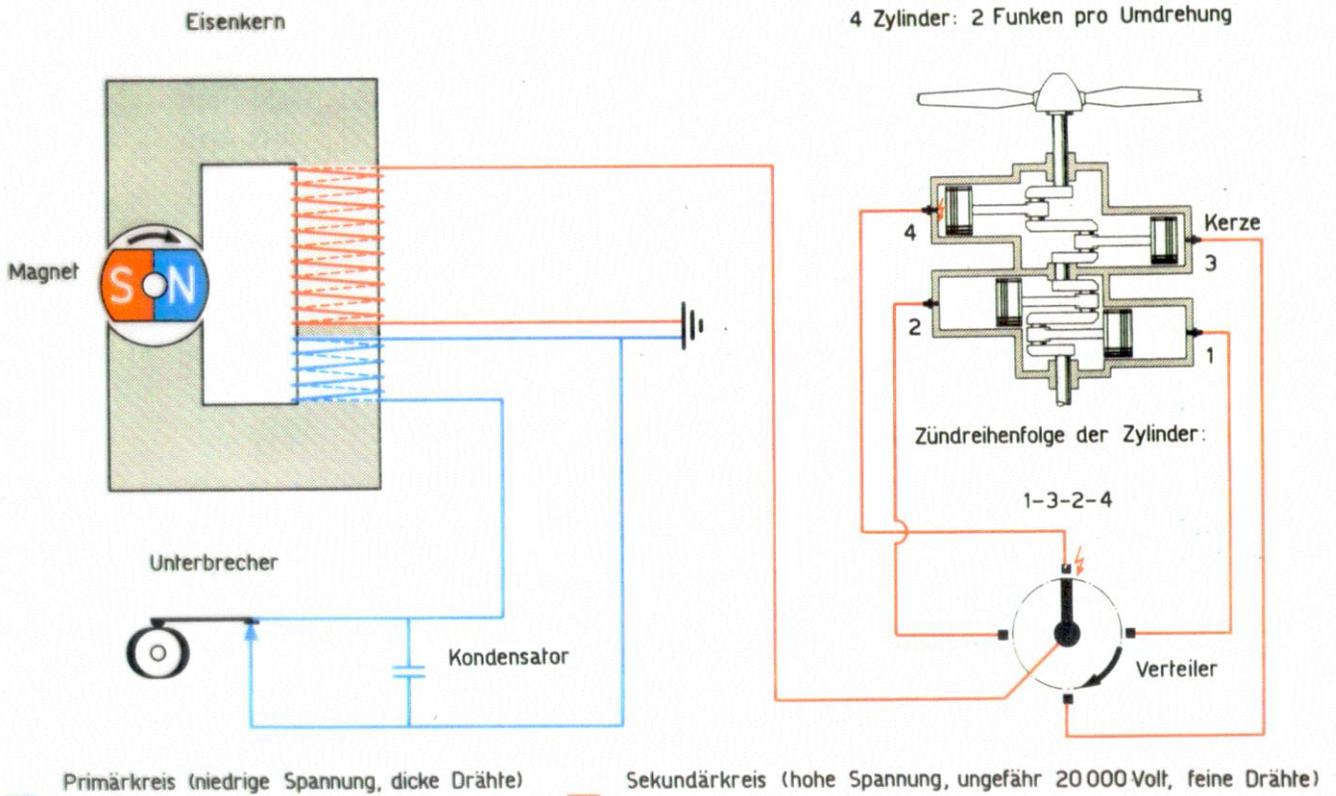
III Arbeit  
Travail

IV Auspuff  
Echappement

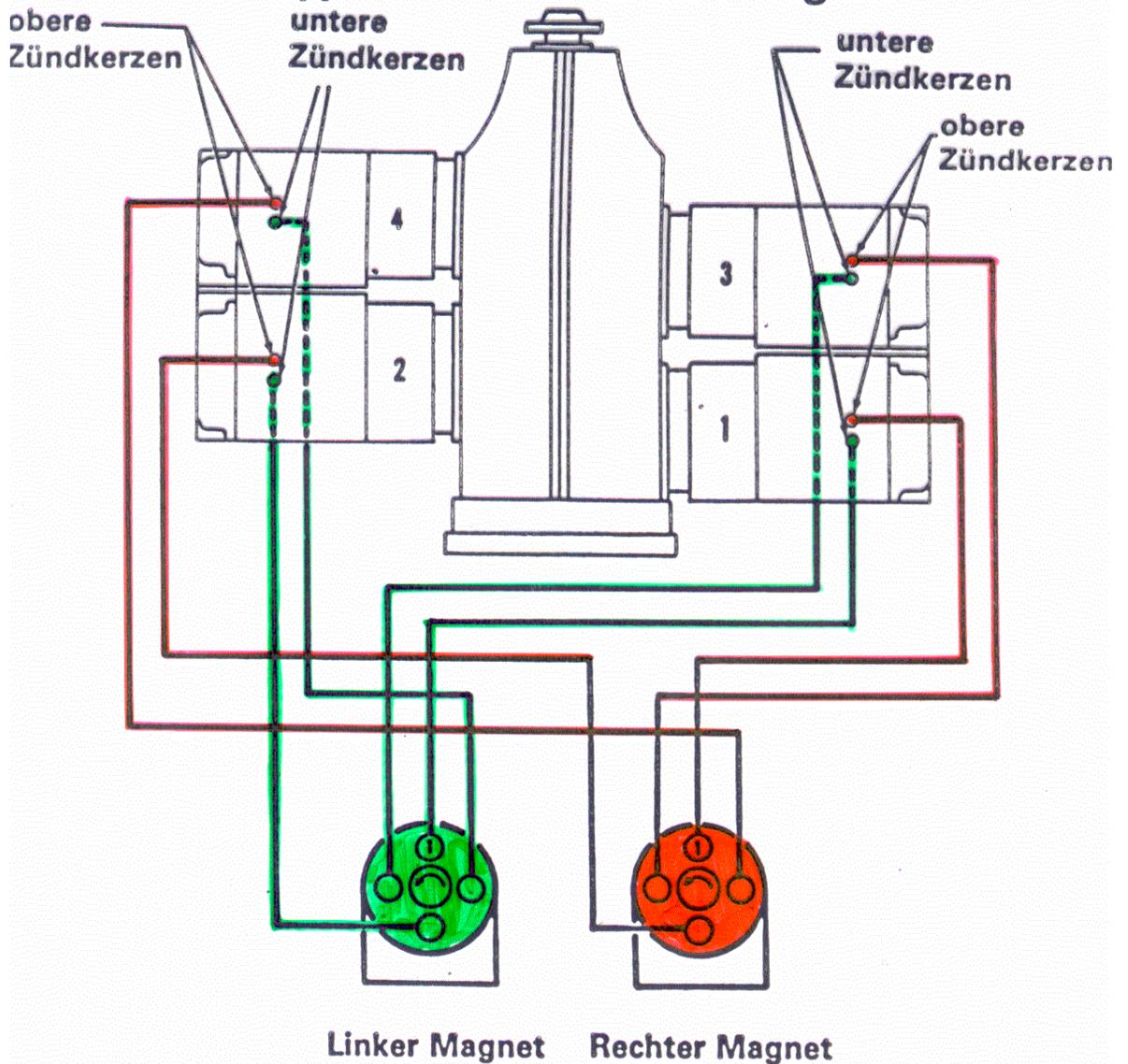
Bundesamt für Zivilluftfahrt  
Office fédéral de l'aviation civile

M A

## Zünd - Schema



## Typische Motorzündanlage



Linker Magnet    Rechter Magnet

Zündfolge: 1-3-2-4

# Schmiersystem

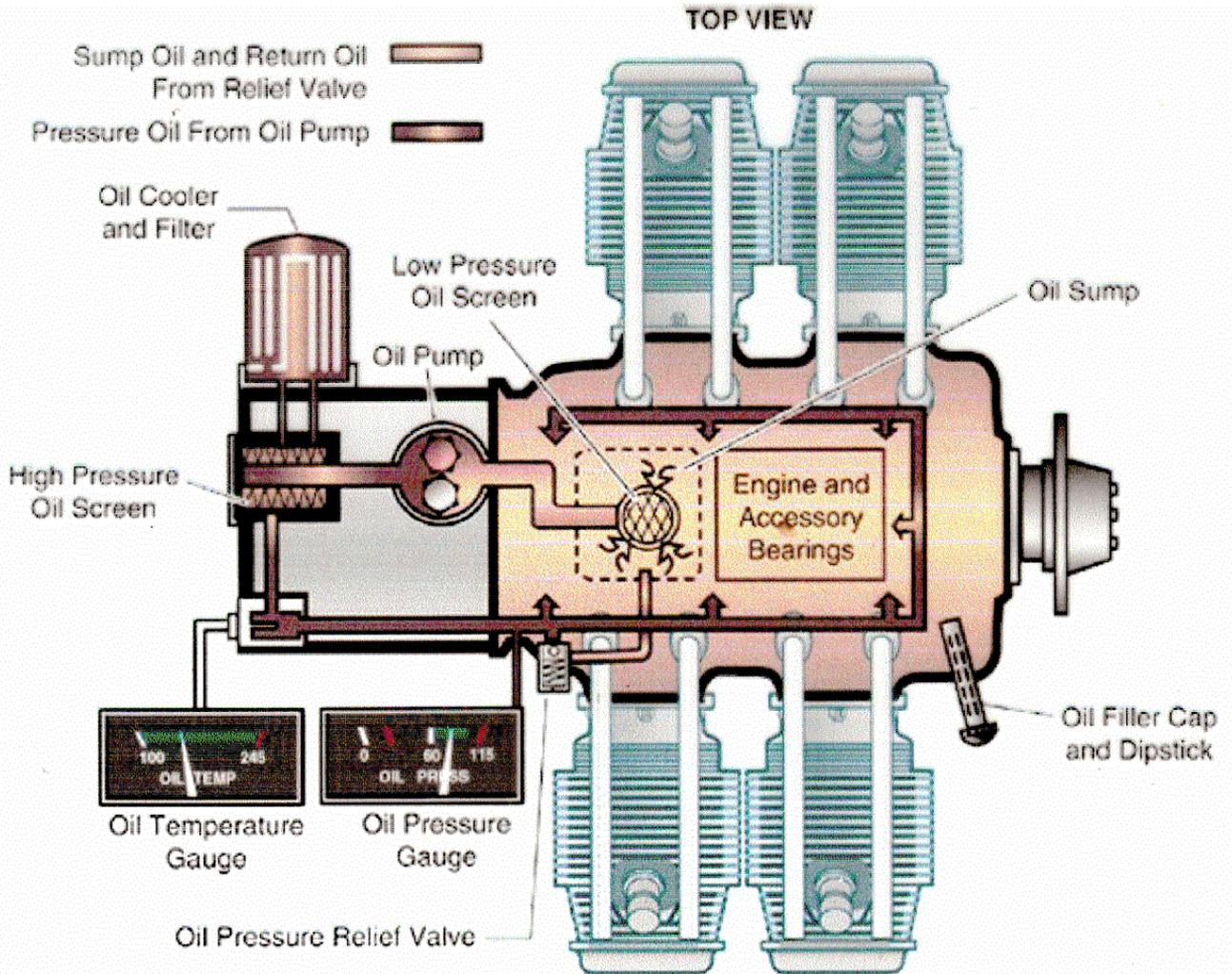
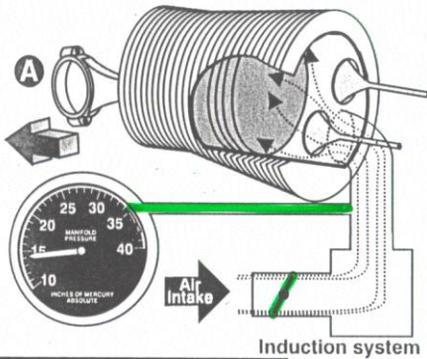


FIG 2-43

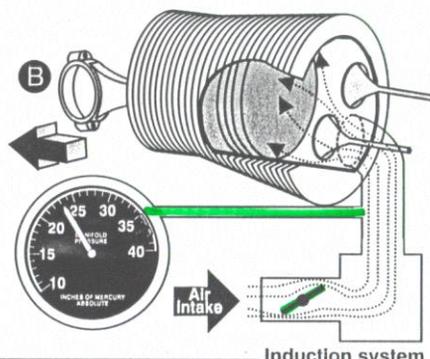
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Guided Flight Discovery Private Pilot Manual

# Ladedruck Manifold Pressure

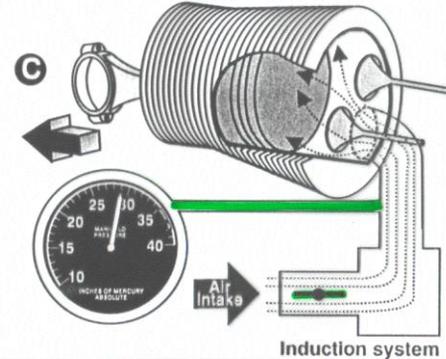
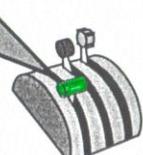
Manifold pressure is measured downstream from the throttle valve and provides an approximate measure of engine power.



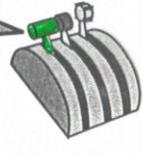
When the throttle is fully closed, airflow into the cylinders is restricted. Very little airflow gets past the throttle valve despite the piston's enormous suction (low manifold pressure).



At partial power, a little more air flows into the cylinders. Therefore, the air pressure rises in the intake manifold resulting in a rise of manifold pressure.



At full throttle in a non-turbocharged engine, air can't be forced into the engine at greater than that of atmospheric pressure (which is near 30 inches of mercury).



# Vergaservereisung

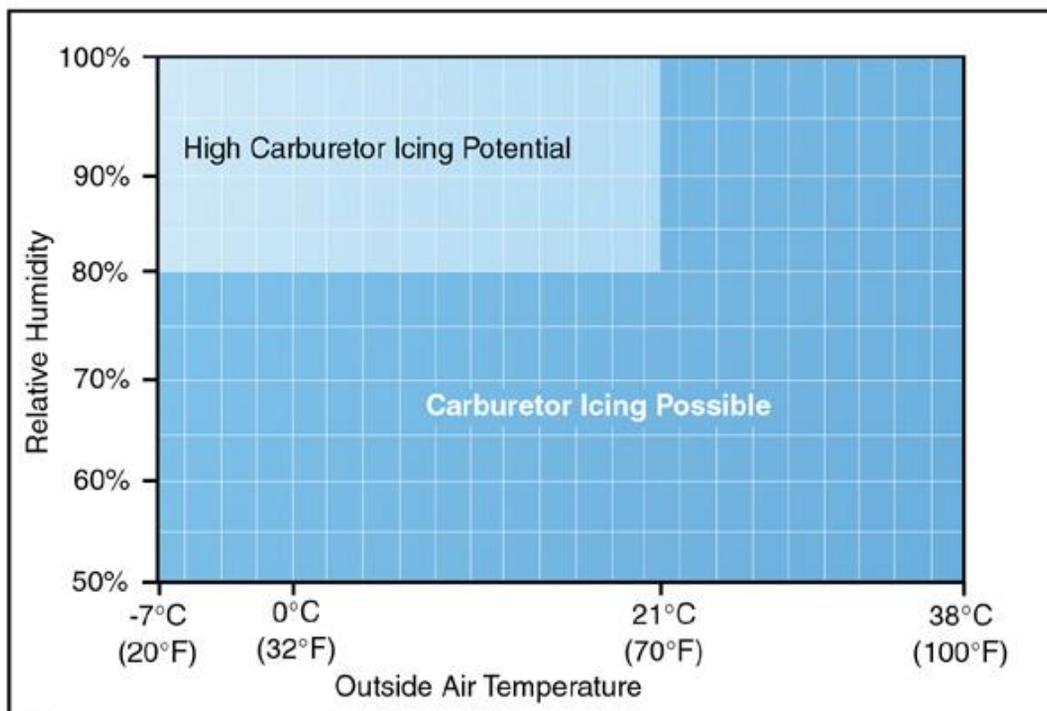
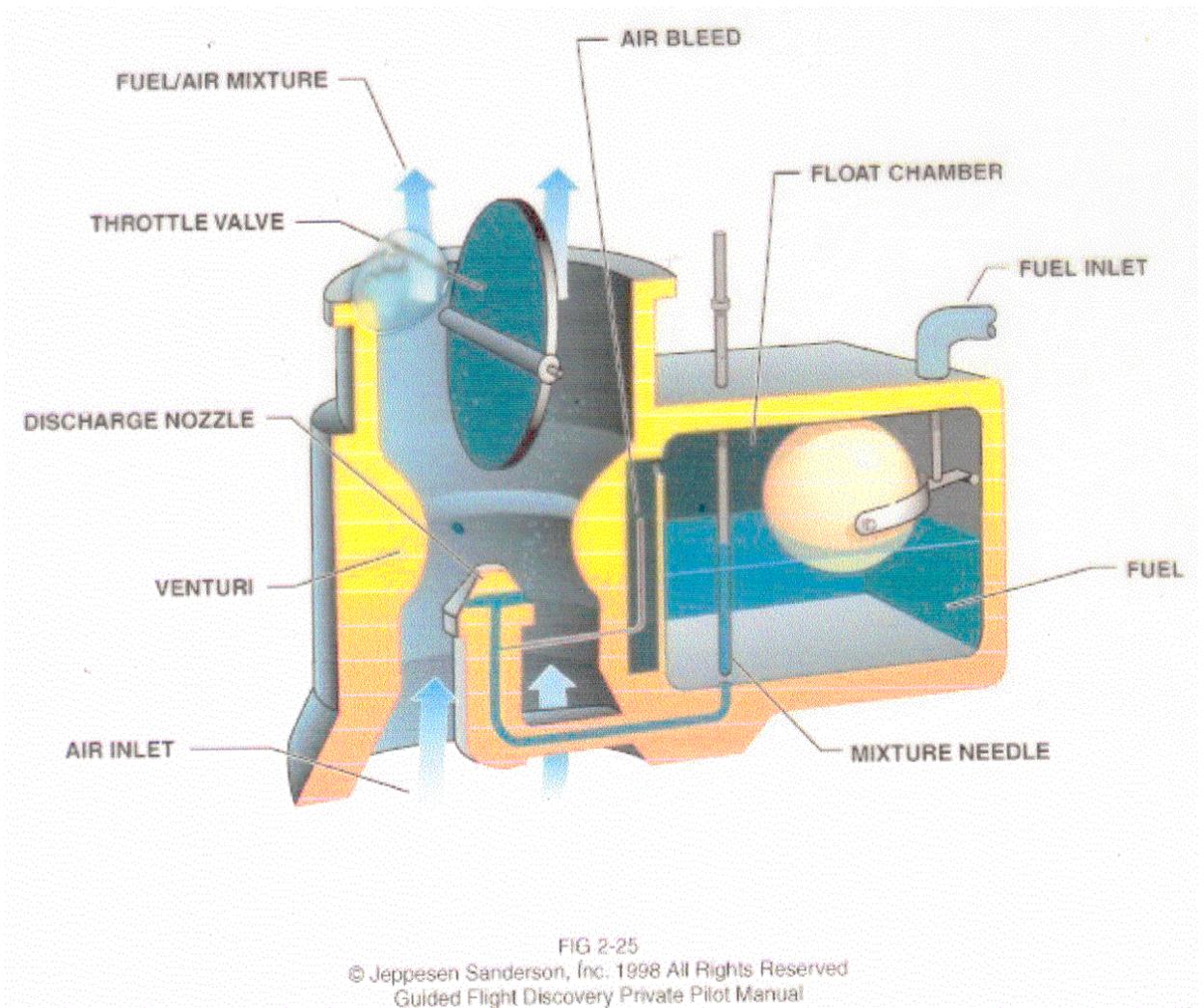


FIG 02-27

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# Vergaser



# Vergaservereisung

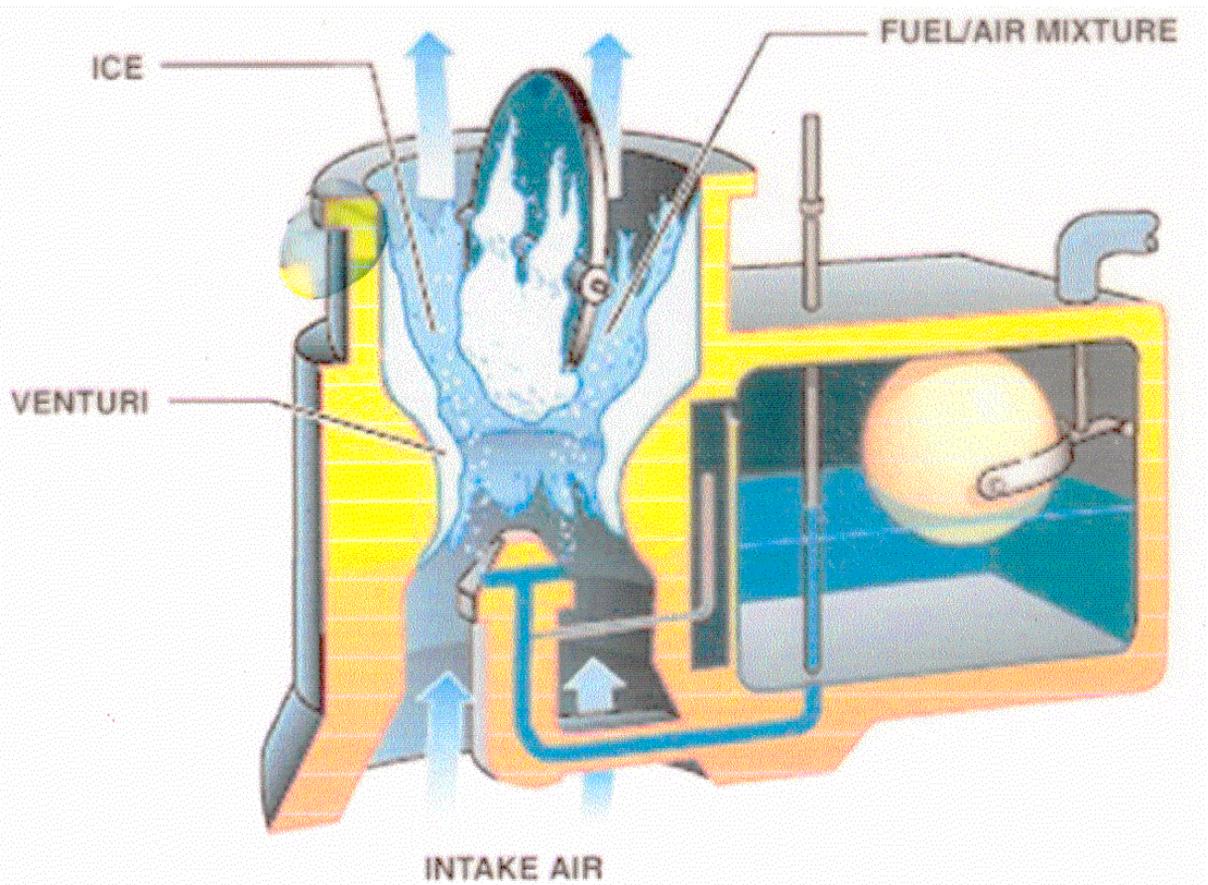
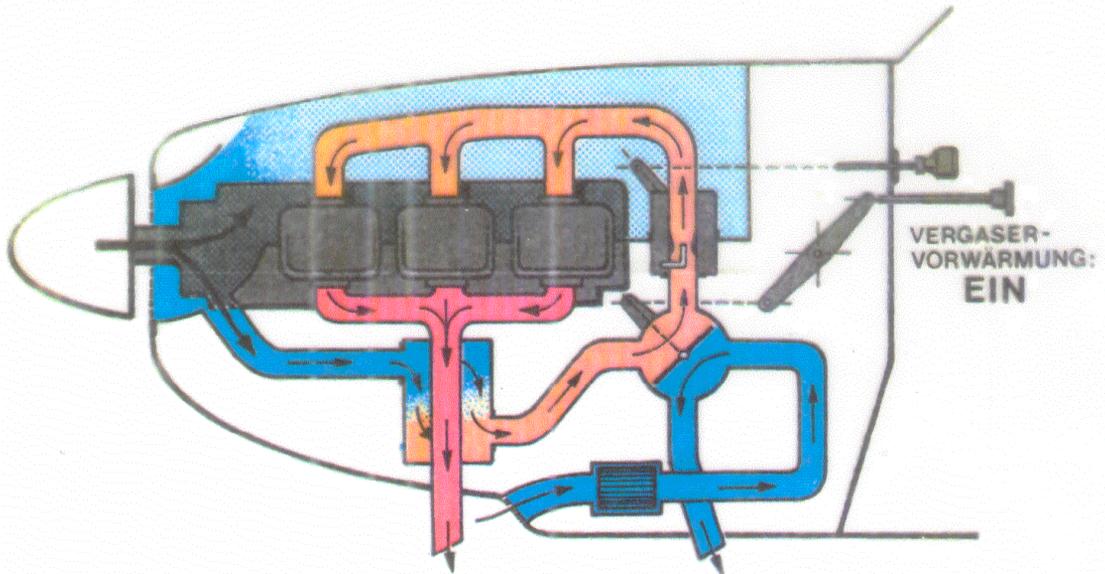


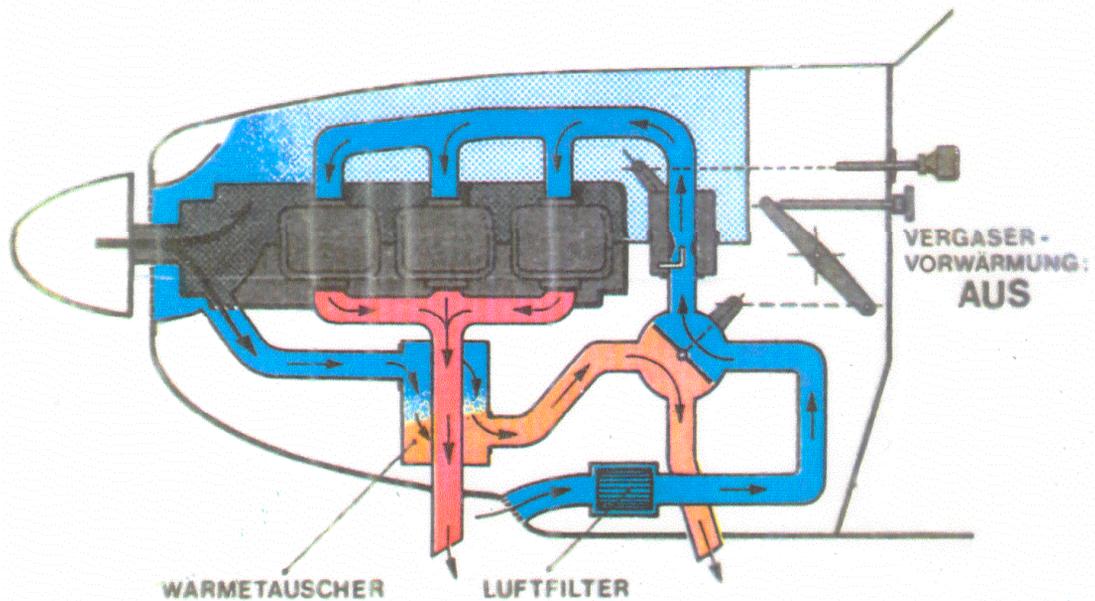
FIG 2-26

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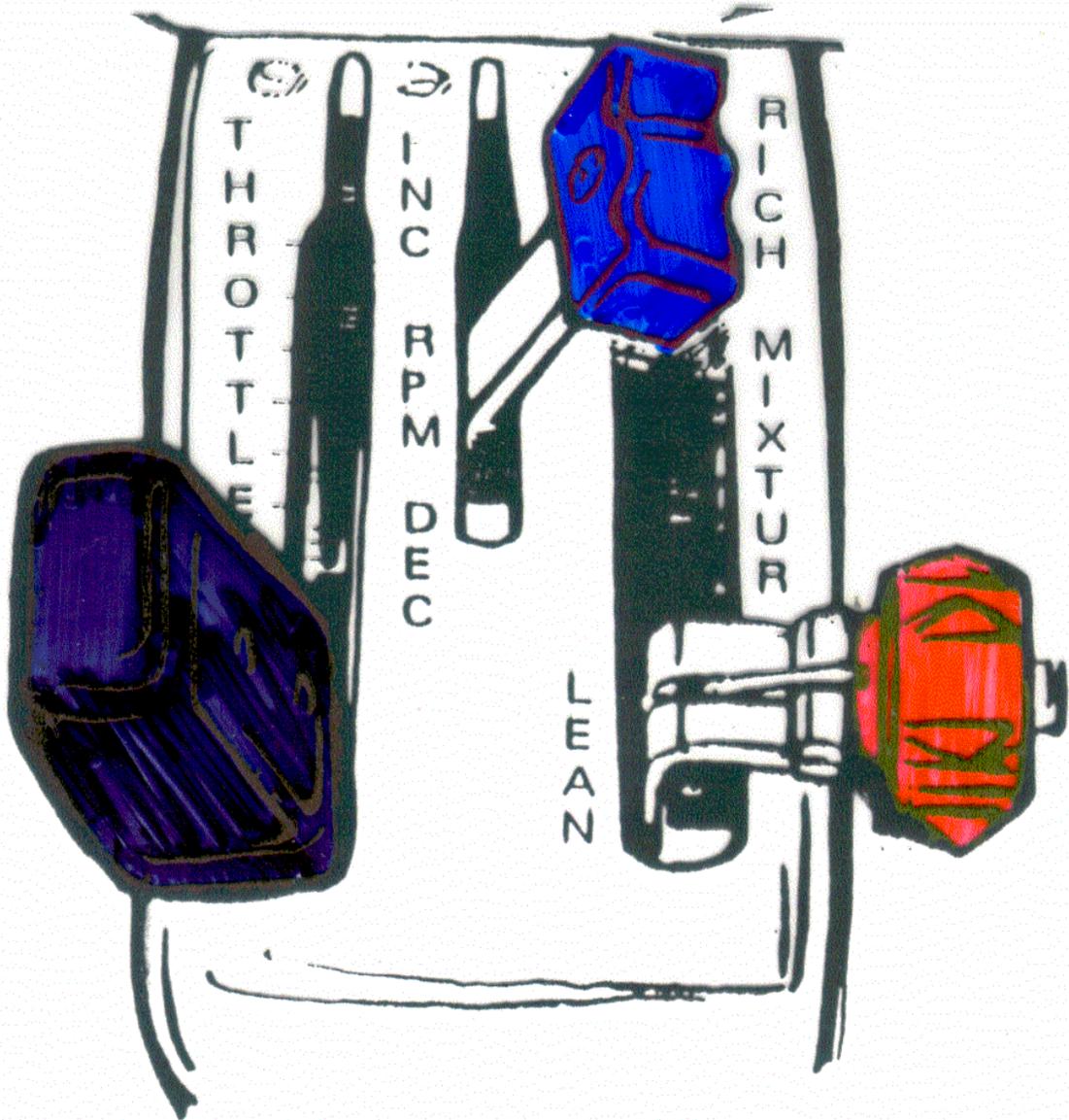
# Vergaservorwärmung



-  KALTE LUFT
-  VORGEWÄRMTE LUFT
-  AUSPUFFGASE

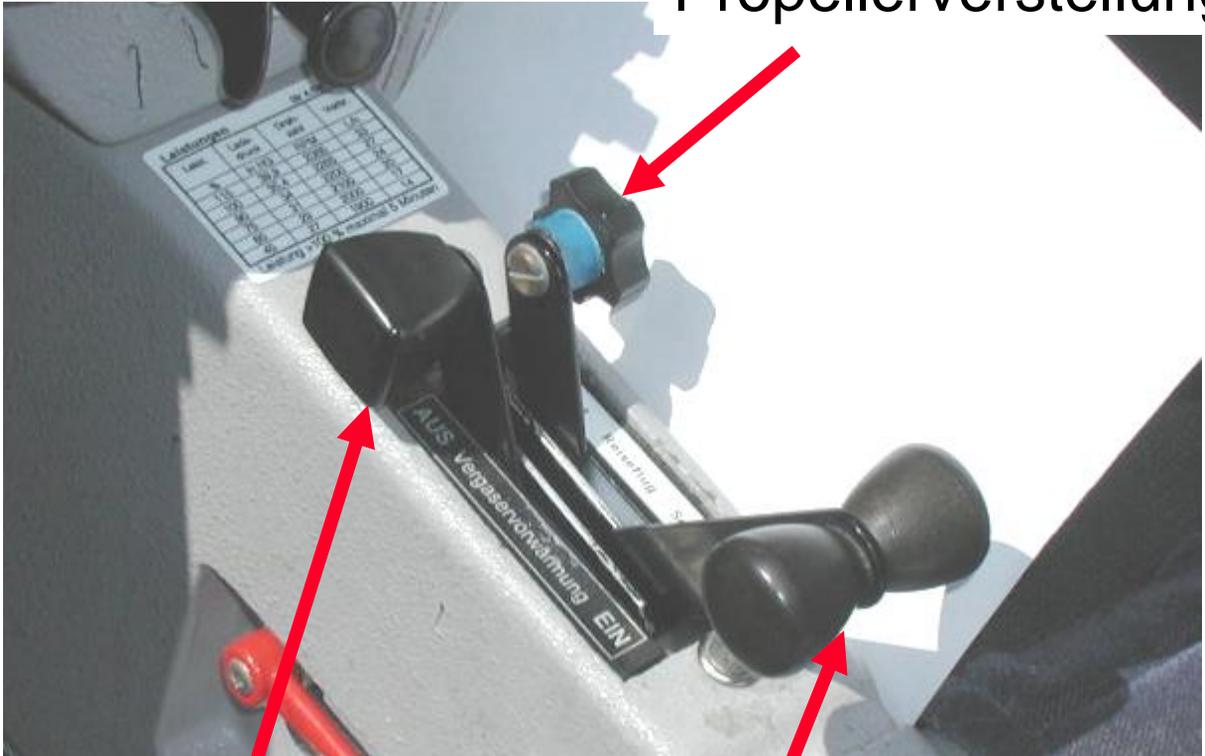


# Bedienelemente

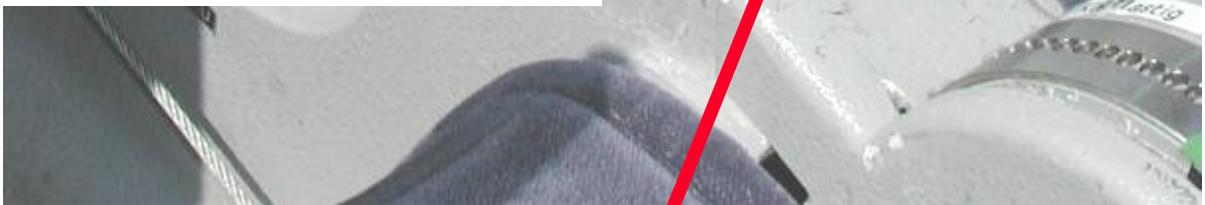


# Bedienelemente in der Dimona HK36TC

Propellerverstellung



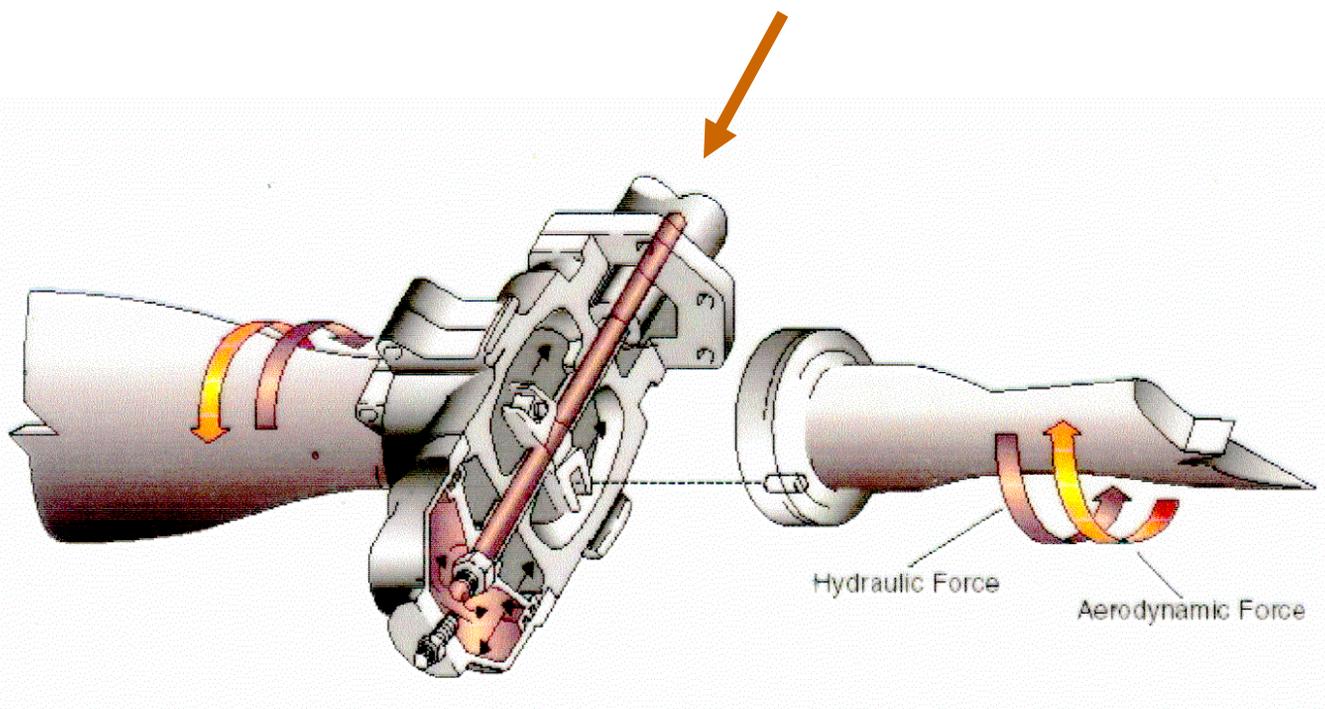
Vergaservorwärmung



Leistungshebel  
Manifold pressure (MP)

# Verstellpropeller für einmotorige Flugzeuge

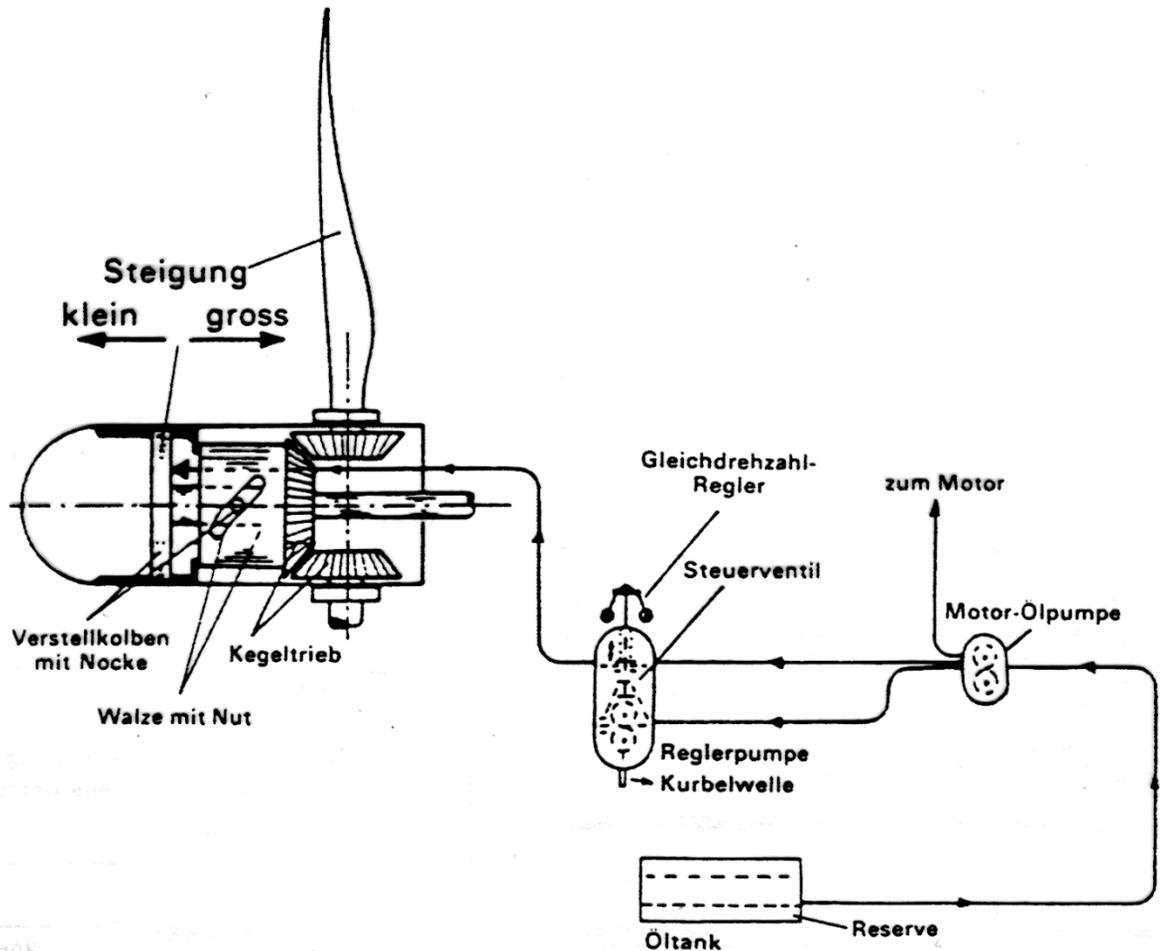
steigender Öldruck erhöht die Steigung



## Dimona HK36TC:

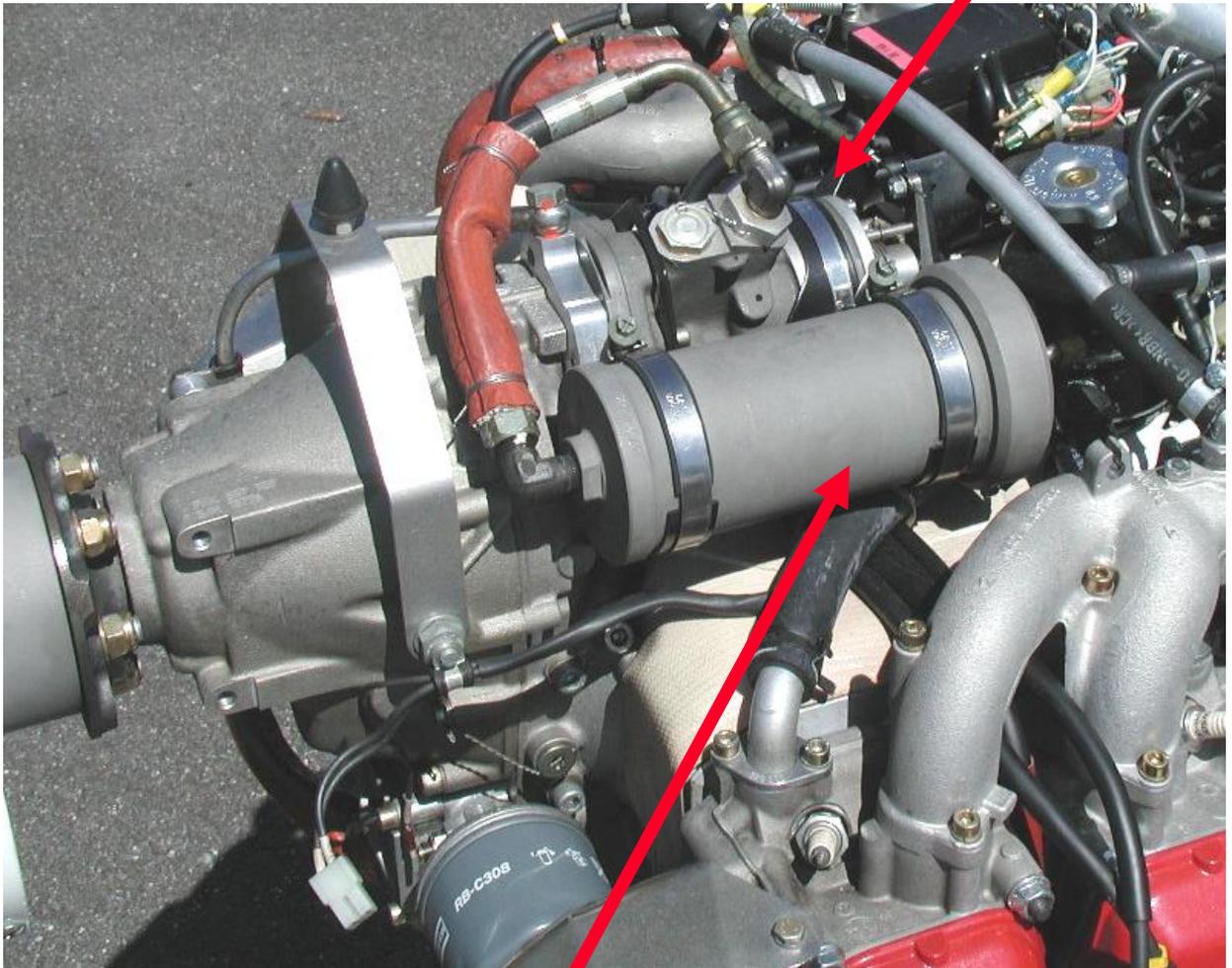
- steigender Öldruck verkleinert die Steigung
- Federkraft wirkt Richtung grosse Steigung/Segelstellung

# Verstellpropeller Gesamtsystem



# Verstellpropeller Komponenten

Regler



Unfeathering accumulator

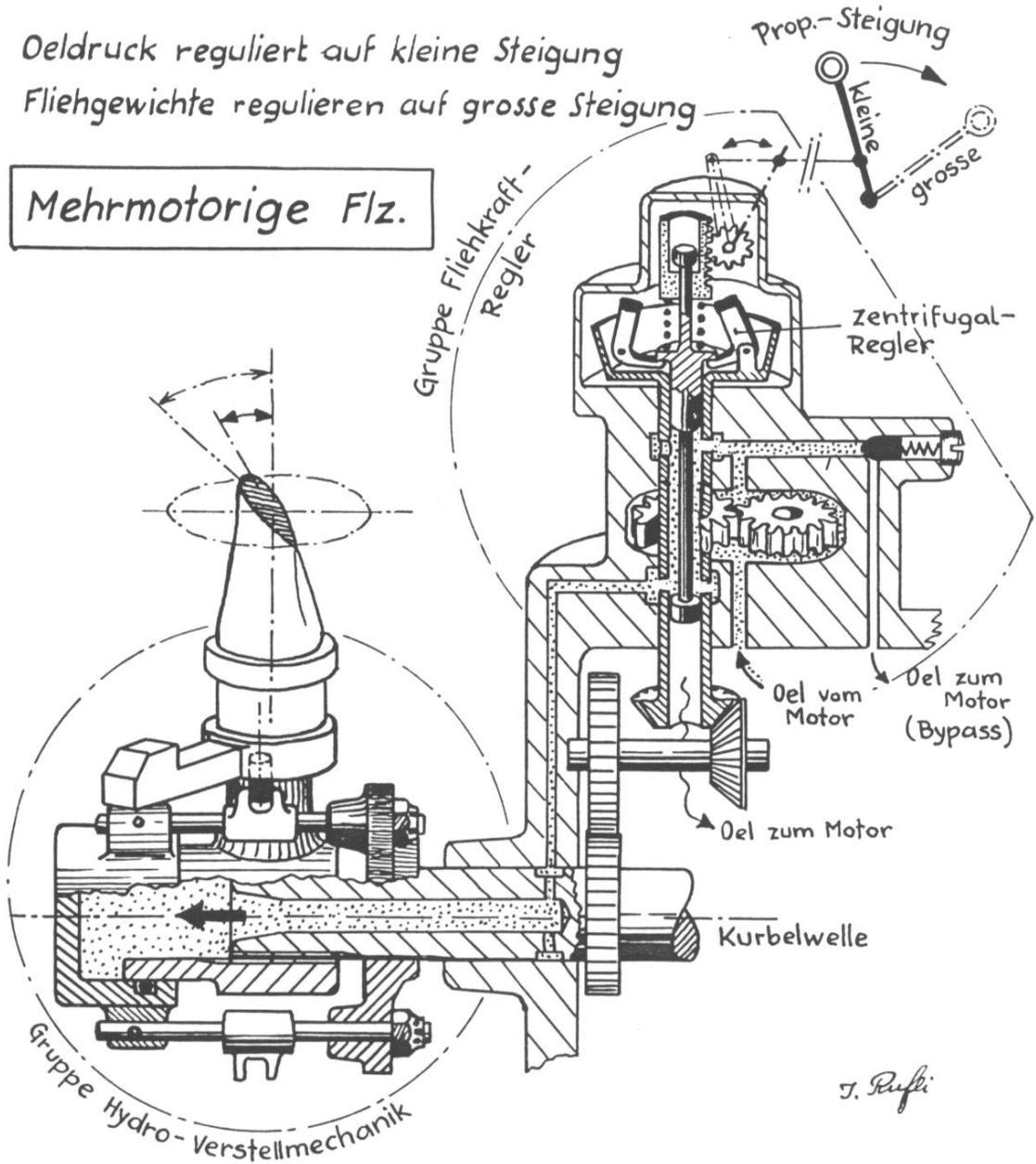
# Besonderheiten der Propellerverstellung bei der HK36

- Nach dem Anlassen gemäss Checkliste **3 x** die Propellerverstellung betätigen
- Um den Propeller in Segelstellung zu bringen genau nach Checkliste verfahren: beim vollen Zurückziehen muss der Propeller noch drehen.

# Verstellpropeller Regelsystem

*Oeldruck reguliert auf kleine Steigung  
Fliehgewichte regulieren auf grosse Steigung*

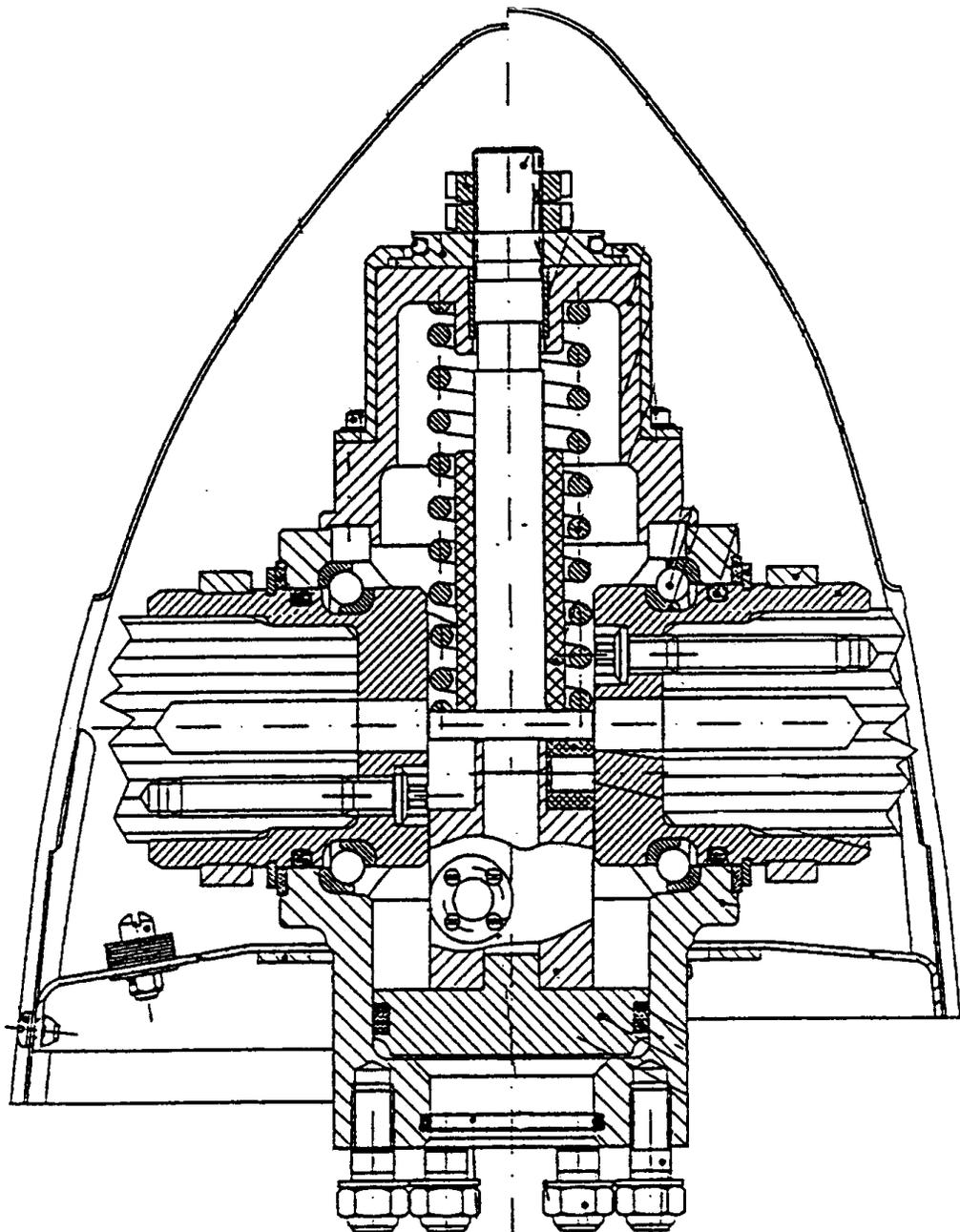
Mehrmotorige Flz.



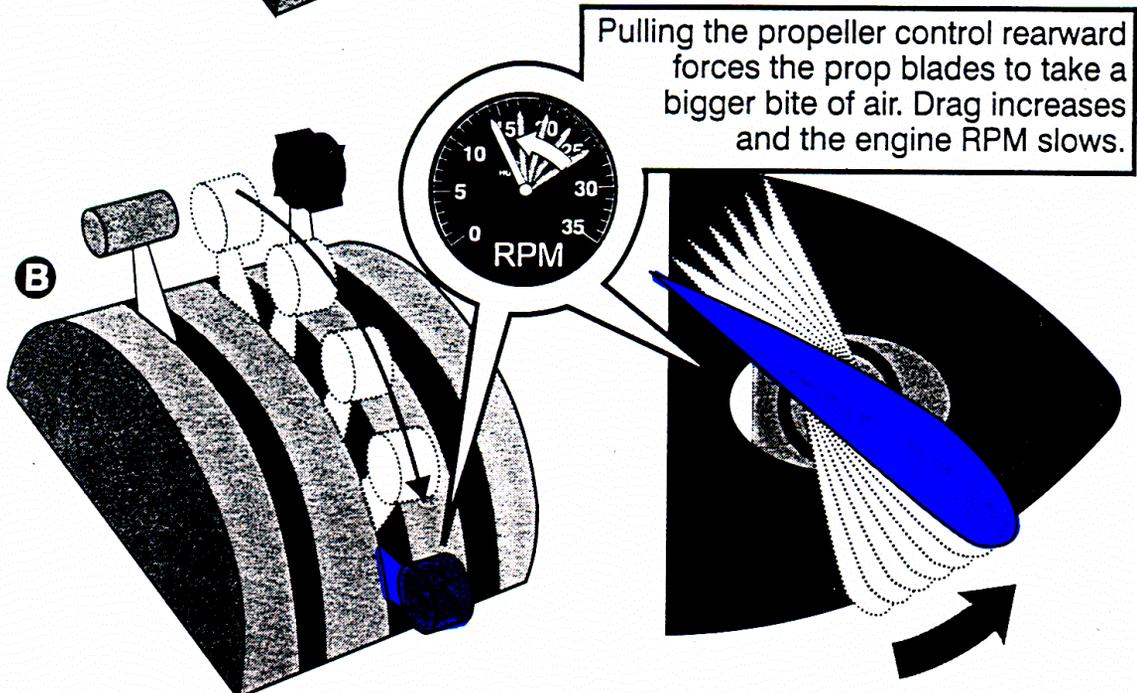
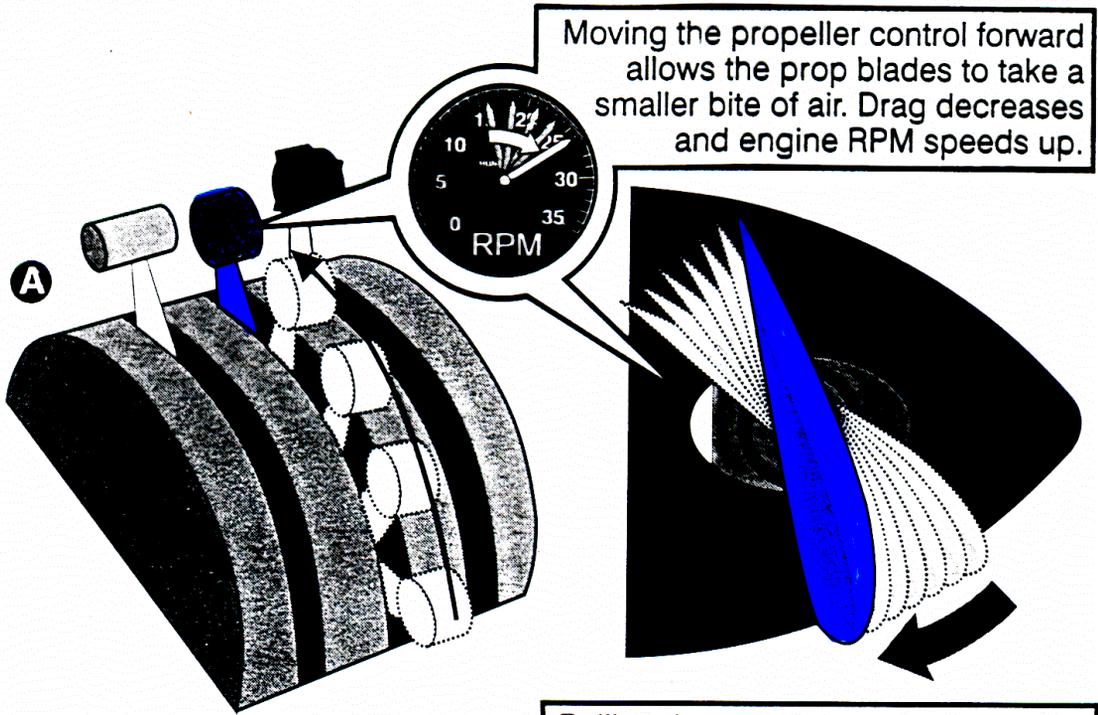
*J. Ruffi*

# Verstellpropeller Schnitt

Typ: MTV - 21 A - C - F

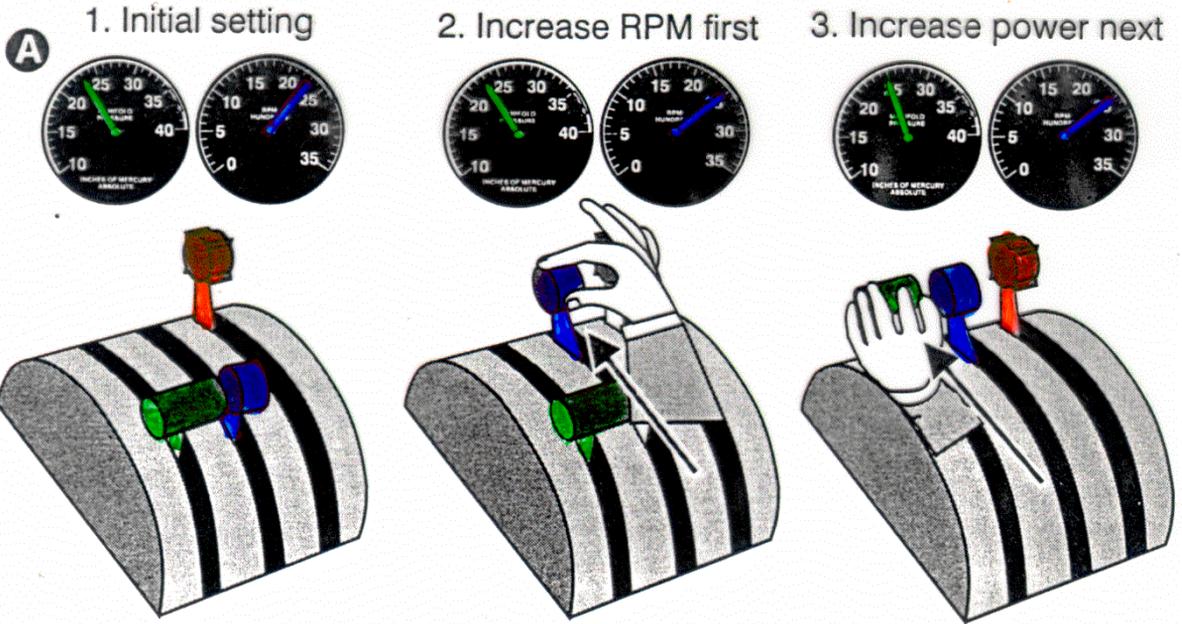


# Verstellpropeller Bedienung

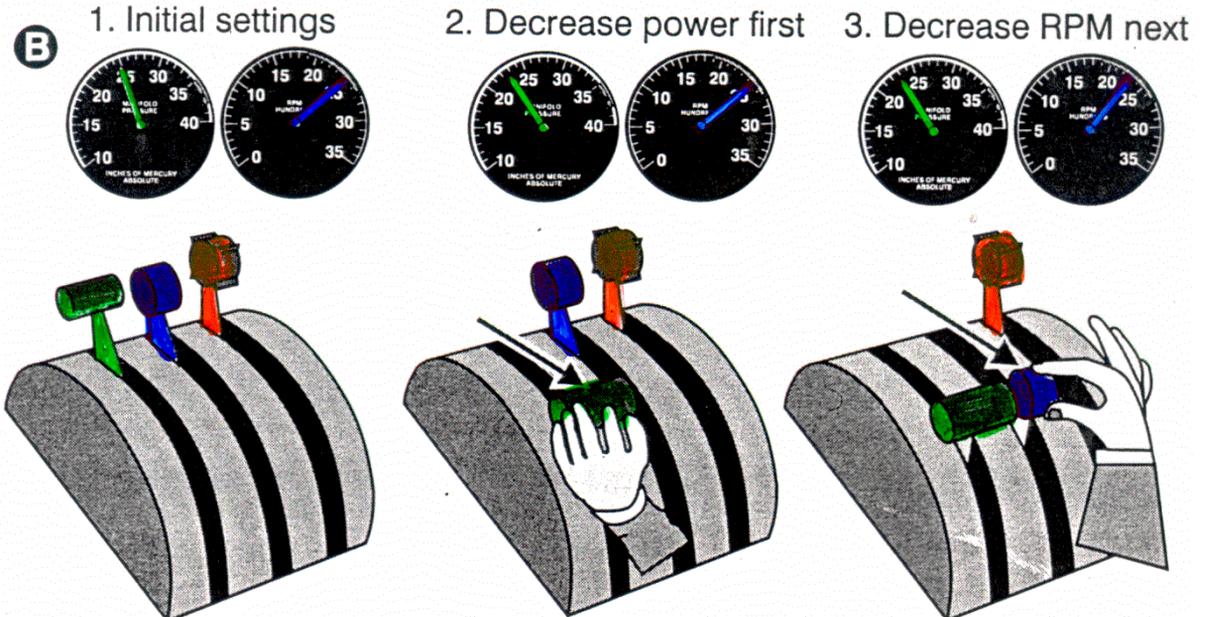


# Verstellpropeller Richtig Leistung setzen

INCREASING POWER IN AN AIRPLANE WITH A CONSTANT SPEED PROP



DECREASING POWER IN AN AIRPLANE WITH A CONSTANT SPEED PROP



# Kontrollfragen 1

- Welchen Ladedruck zeigt das MP-Instrument bei stehendem Motor?

## Kontrollfragen 2

- Motor ohne Turbolader:  
Verändert sich die  
Ladedruckanzeige im  
Steigflug von 800m auf  
2000m und, wenn ja,  
wohin?

## Kontrollfragen 2

- Hypothetische Situation:  
Ich bin im Reiseflug (60%) und will schnellstmöglich von Sargans, 7000 ft, nach Schänis, 2000ft. Welche Leistung muss ich einstellen und wie stehen die entsprechenden Hebel?