SH-60B Automatic Flight Control System

Current version available at www.bryanweatherup.com

REV. 4 (2006-04-01)

Control Mixing

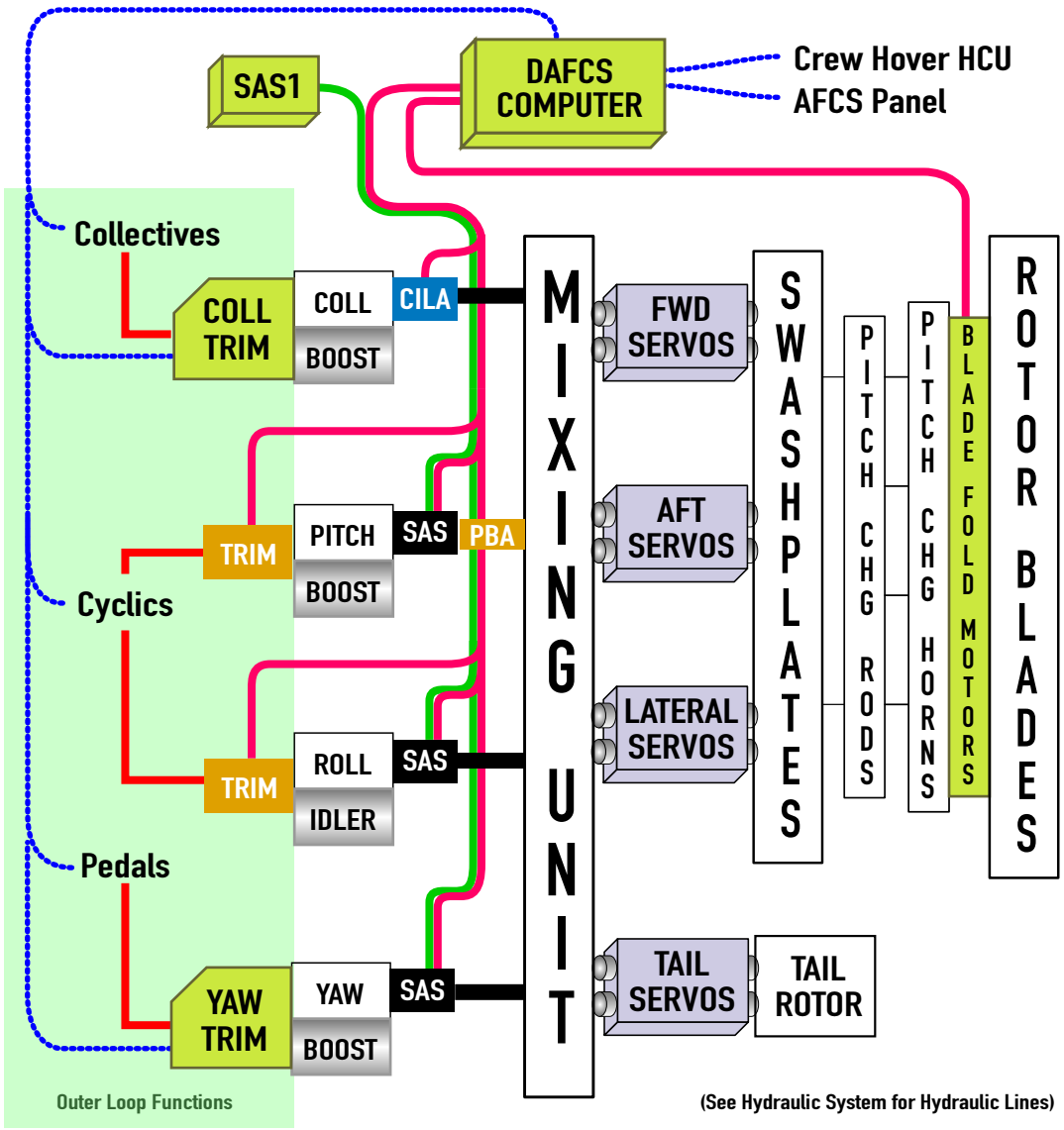
MECHANICAL COMPENSATION	NAME	COMPONENT / CAUSE
Nose Right, Coll UP	Coll to YAW	T/R thrust counters main rotor TQ
Drift Right, Coll UP	Coll to LATERAL	Disc tilted L fro T/R prop effect
Nose UP, Coll UP	Coll to Longitudinal	Disc tileted Fwd for stab downwash
Nose DN, Left Pedal	Yaw to Longitudinal	Disc tilted Aft for T/R Lift

ELECTRICAL COMPENSATION

Yaw Left as airspeed increases = Coll/Airspeed to YAW

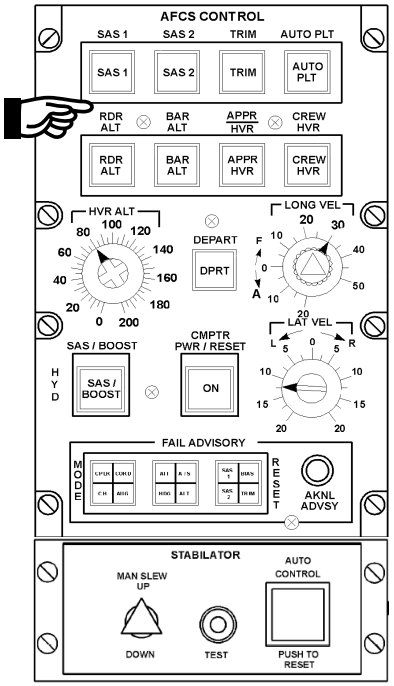
Stabilator Inputs

C-Collective Position (Trim Servo)
L-Lateral Acceleration (Accelerometers)
A-Airspeed (Pitot-Static System Airspeed)
P-Pitch Rate (Pitch Rate Gyro)



(See Hydraulic System for Hydraulic Lines)

1. Pitch, Roll, Yaw stability aug (SAS1 & SAS2)
   Each 5% authority. Inner Loop
2. Stabilator control
   2 DC amplified jack screws (1 AC required)
   +10°up, 41°down. moves 6°/sec
   Test: start 34-42°, up 5-12°.
   Full up to 5-10° within 4-8 seconds.
   Stab Fail down: restricted -35° or +30°
3. Cyclic, collective and pedal trim (TRIM)
   10% per sec. Pedals only <50 KIAS
   Cyclic trim required >50 KIAS. OUTER Loop
4. Pitch and roll attitude hold (AUTOPILOT)
   Pitch <50 KIAS @ 5°/sec.
   Wing leveling >50 KIAS
5. Airspeed hold (AUTOPILOT)
   >50 KIAS. >30° AOB. 6 kias/sec
   Short term Long. Accel (3 sec filter)
6. Heading hold (AUTOPILOT)
   HEADING TRIM: <50 KIAS: 3°/sec
   >50 KIAS: 1sec=1°, >1sec=1°/sec turn
   Re-engaged <2°roll / <2°yaw rate
7. Barometric altitude hold
   (SAS2 & AUTOPILOT)
8. Radar altitude hold (SAS2 & AUTOPILOT)
   0-5000'. HVR ALT: 1000/500 fpm
   116% Torque limit (Depart button 2x)
9. Pitch&roll hover aug, gust alleviation
   (SAS2) - INNER LOOP
10. Turn coordination (AUTOPILOT)
    >50 KIAS, <1°roll & lateral cyclic force >3%
    of cyclic displacement OR
    Cyclic Trim release depressed OR
    Roll attitude >2.5° AOB
11. Manueuvering stability (AUTOPILOT)
    Increased Pitch force @ high AOB
    Trims 1% fwd stick ea. 1.5° from 30-75° AOB
    At 75° AOB, force = 30% displacement.
12. Automatic approach to hover (SAS2, AUTOPLT)
    On Profile: 120fpm, 1knot/s.
    Profile >50ft hi: 360fpm.
    Stops 1knot, 1' alt.
    Descends to 40' if set <40'.



13. Hover coupler (SAS2, TRIM, AUTOPILOT)
    Trim beep: ±10 kts. Manual engage: <5 kts
    RAD ALT engages <2'. 7 sec filter.
    Cyclic/Pedal force induces errors to system
14. Automatic depart (SAS2, TRIM, AUTOPILOT)
    To 500' AGL, 100 KIAS @ 480fpm, 2kts/sec
    >60 kts maintains roll, <60 elim lateral drift
15. Crew hover (SAS2, TRIM, AUTOPILOT)
    Crewman ±5 kts POT setting & Trims
16. Longitudinal stick gradient augment.
    (pitch bias actuator)
    Cyclic displacement prop. to IAS
    ±15% authority @ 3% / second
    BIAS Fail: 1.5" fore & aft may be lost.
17. Blade-fold assist
18. Automatic prefight check (SAS1)
    Required: WOW, Rotor Brake ON,
    Engine Tq=0, CMPTR PWR >2 min.
    10 second test.
19. Diagnostics (mode fail display)