



APOLLO 16



Delco Electronics

GENERAL MOTORS CORPORATION MILWAUKEE, WISCONSIN 53201

	EARTH	MOON
SATELLITE ORBIT	100 x 100 n mi	60 x 60 n mi
SATELLITE ORBIT DURATION	1 hr 28 min	2 hr
SATELLITE ORBIT RATE	4.1 deg/min	3.0 deg/min
V_C (SURFACE)	7,905.4 m/sec	1,679.5 m/sec
I.E. $V_C = \sqrt{\frac{\mu}{R}}$	25,936.0 ft/sec	5,110.2 ft/sec
	15,396.7 n mi/hr	3,262.6 n mi/hr
ESCAPE VELOCITY (SURFACE)	11,027 m/sec	2,380 m/sec
	36,178 ft/sec	7,750 ft/sec
	21,421 n mi/hr	4,572 n mi/hr
VOLUME	1	0.0202
RADIUS	1	0.272
MASS	1	0.0123
DENSITY	1	0.606
SURFACE GRAVITY	1	0.16
ONE DEGREE ON SURFACE	60 n mi	16.4 n mi
μ	$0.3986032 \times 10^{15} \text{ m}^3/\text{sec}^2$	$0.4902776 \times 10^{13} \text{ m}^3/\text{sec}^2$
RADIUS	6,378,165 m	1,738,090 m
	20,925,738 ft	5,702,395 ft
	3,444 n mi	938.5 n mi
ORBIT CHARACTERISTICS	EARTH ABOUT SUN	MOON ABOUT EARTH
SEMI MAJOR AXIS	$1.496 \times 10^{11} \text{ m}$	384,400,000 m
	$4.908 \times 10^{11} \text{ ft}$	1,261,139,500 ft
	$8.073 \times 10^7 \text{ n mi}$	207,430 n mi
ECCENTRICITY	0.0167	0.055
MEAN VELOCITY	29,770 m/sec	1,022 m/sec
	97,702 ft/sec	3,353 ft/sec
	57,888 n mi/hr	1,980 n mi/hr
PERIOD	365.24 days	27.32 days
INCLINATION	23.44 deg	5.15 deg

MOON SURFACE TEMPERATURE -72°F to +214°F (sun side), -238°F (dark side)

$$\mu_{\text{SUN}} = 0.132715445 \times 10^{21} \text{ m}^3/\text{sec}^2$$

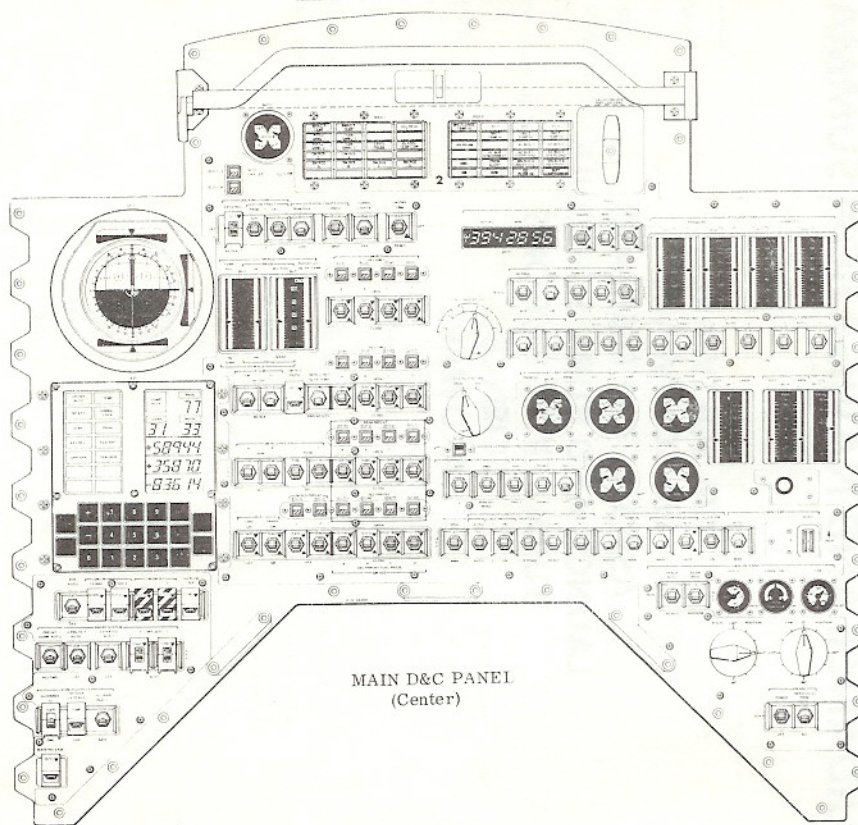
$$\begin{aligned} 1 \text{ meter} &= 3.2808 \text{ ft} \\ &= 5.3961 \times 10^{-4} \text{ n mi} \\ &= 6.2137 \times 10^{-4} \text{ s mi} \\ 1 \text{ arc-second} &= 4.8481 \times 10^{-6} \text{ rad} \\ &= 2.7778 \times 10^{-4} \text{ deg} \end{aligned}$$

$$\begin{aligned} 1 \text{ meru} &= 7.252115 \times 10^{-8} \text{ rad/sec} \\ &= 4.178 \times 10^{-6} \text{ deg/sec} \\ &= 2.507 \times 10^{-4} \text{ arc-min/sec} \\ &= 0.01504 \text{ arc-sec/sec} \\ 1 \text{ cm/sec}^2 &= 3.281 \times 10^{-2} \text{ ft/sec}^2 \\ &= 1.0197 \times 10^{-3} \text{ g} \end{aligned}$$

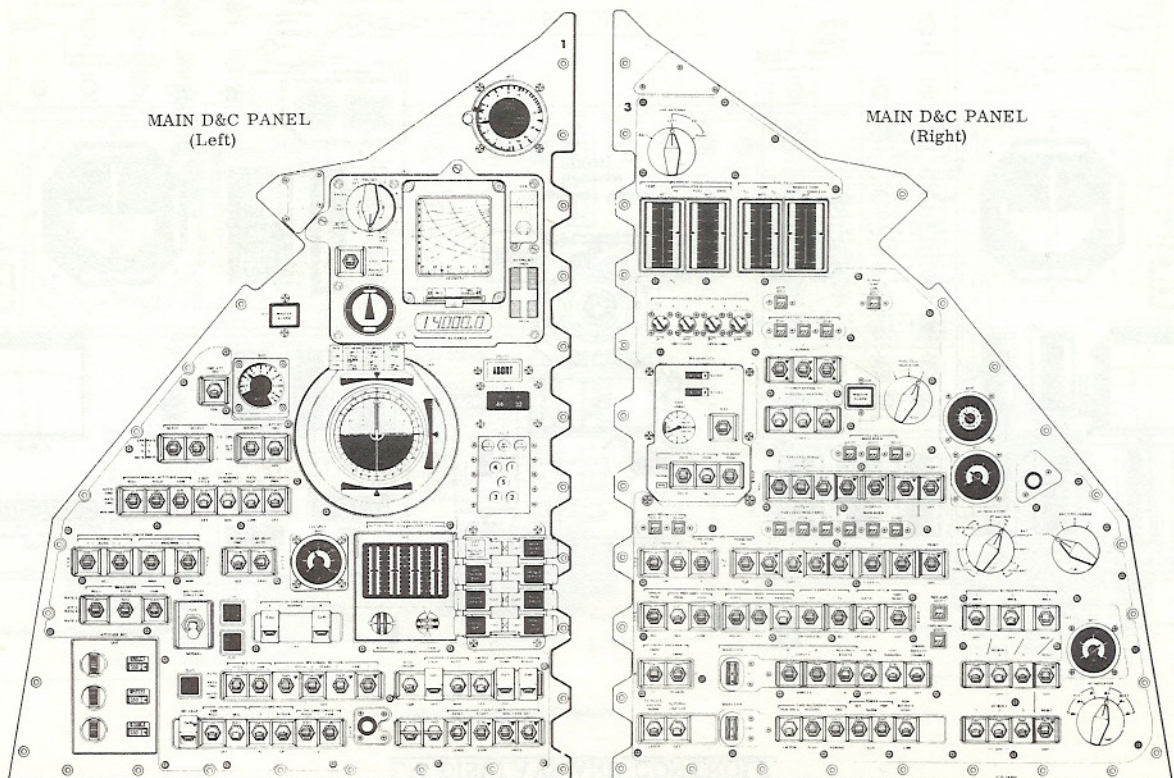
GUIDANCE AND NAVIGATION SUMMARY

CM SOFTWARE
LM SOFTWARE
ASPO 45 CRT DISPLAYS
LAUNCH AND BURN SCHEDULE
BURN PERTURBATIONS
SCIENCE
HARDWARE

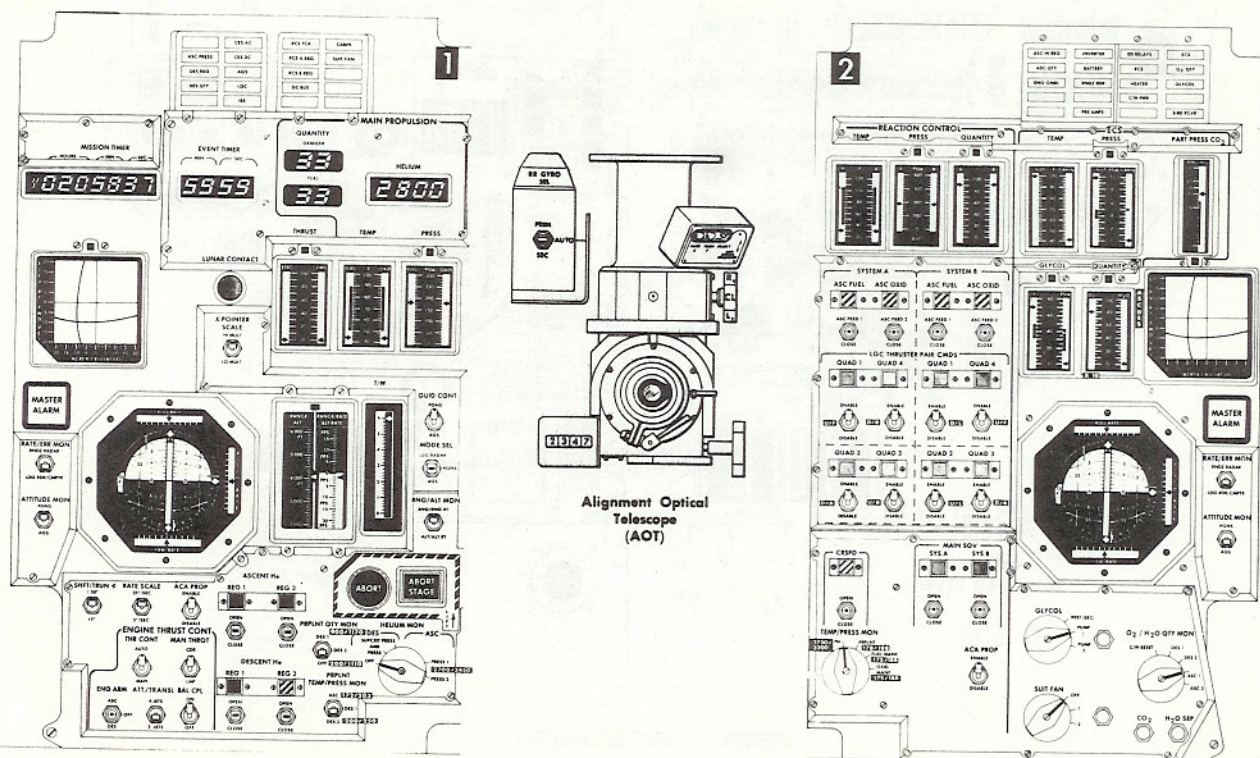
CM DISPLAYS AND CONTROLS



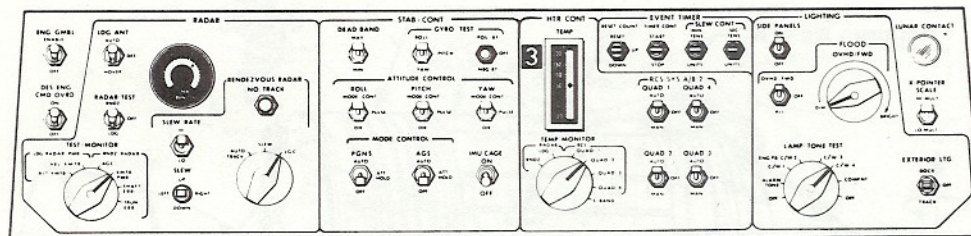
CM DISPLAYS AND CONTROLS



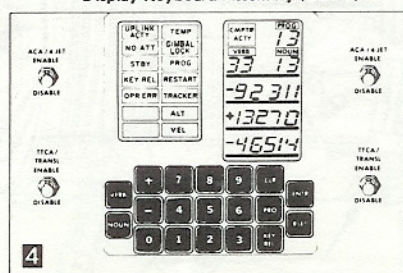
LM DISPLAYS AND CONTROLS



LM CONTROLS AND DISPLAYS



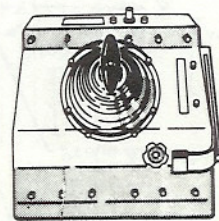
Display Keyboard Assembly (DSKY)



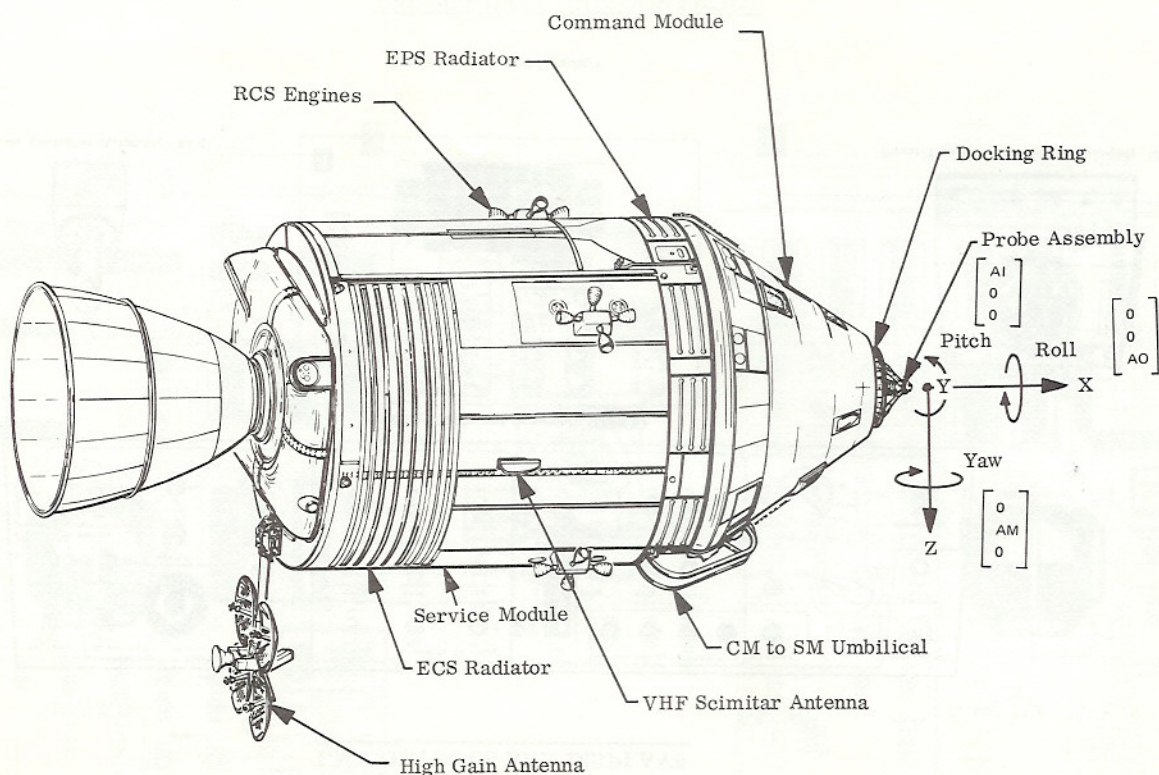
Attitude Controller Assembly (ACA)



Thrust/Translation Controller Assembly (TTCA)



CM/SM CONFIGURATION



LM CONFIGURATION

