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TABLE 6. ACTION SORTIES, BY PURPOSE OF MISSION
By Plane Type, Carrier-Based and Land-Based, by Years.

BASE, PLANE TYPE, YEAR	ACTION SORTIES, BY PURPOSE OF MISSION						TOTAL
	OFFENSIVE		SEARCH OR REC- CONNAIS- SANCE	DEFENSIVE PATROLS		OTHER OR UN- KNOWN	
	Strike or Sweep	Air Ground Support		Carrier Force, Base, or other Local	Target, or other Forces		
CARRIER VF:							
1942	396	109	6	427	0	0	938
1943	1,547	257	5	406	125	0	2,340
1944	32,241*		969	4,633*		97	37,940
1945	26,371	6,512	2,388	2,528	6,758	217	44,774
CARRIER VSB-VTB:							
1942	1,274	287	128	31	0	15	1,735
1943	2,396	342	22	21	0	6	2,787
1944	29,499*		764	842*		83	31,188
1945	15,126	9,590	390	90	27	169	25,392
LAND-BASED VF:							
1941-42	411	0	7	652	13	6	1,089
1943	3,050	56	67	815	290	17	4,295
1944	32,848*		931	147*		122	34,048
1945	14,408	4,480	94	67	2,066	56	21,171
LAND-BASED VSB-VTB:							
1942	1,185	52	164	0	0	4	1,405
1943	10,215	384	125	0	7	240	10,971
1944	25,016*		719	0	0	47	25,782
1945	11,459	9,372	530	30	10	30	21,431
PATROL BOMBERS							
1941-42	27	0	69	0	0	13	109
1943	334	0	484	4	28	33	883
1944	4,513*		2,423			125	7,085
1945	5,850	64	2,818	5	24*	74	8,714

*1944 data are not separable between these types of offensive or defensive missions.

(Cont. from preceding page)

this year the enemy was unable to bring any appreciable offensive effort to bear against the bases (largely in the Solomons, Marshalls, Marianas and Palau) garrisoned by Naval aircraft. The 1945 increase reflects the use of Marine VF at Okinawa.

Another interesting variation is the high rate of action by carrier bombers on defensive patrols in 1944. These were largely anti-submarine patrols by VTB over landing force areas; after completion of patrols the planes bombed nearby shore targets. In 1945 this practice generally ceased, or the duties were taken over by fighters.

(d) General: The predominance of offensive missions among sorties involving action with the enemy, for all types of planes other than VPB, is clearly shown. Even in the case of carrier VF, nearly 80% of their missions which eventuated in action were offensive. For single-engine bombers, and land-based fighters, offensive missions resulted in all but 5% to 10% of their action against the enemy. In the case of patrol bombers, over one-third of their action was on search missions; if the primarily offensive Marine PBJs were deducted, well over half of their action would be on search missions.

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TABLE 7. ACTION SORTIES, BY DETAILED PURPOSE
AND OBJECTIVE OF MISSION, 1944 ONLY
By Type of Aircraft, Carrier-Based and Land-Based

PURPOSE OF MISSION	ACTION SORTIES, BY BASE AND TYPE OF AIRCRAFT								
	CARRIER-BASED			LAND-BASED					
	VF	VSB	VTB	VF	VSB	VTB	PBJ PV	PB4Y	Flying Boats
BOMBING OR ROCKET ATTACK:									
Land Objective	21,061	9,851	10,544	27,955	20,253	4,025	3,912	92	322
Ship Objective	3,594	2,567	2,234	627	440	193	81	30	19
Land and/or Ship	3,916	2,266	1,947	359	100	0	13	1	42
SWEEP, OR STRAFING ATTACK:									
Land Objective	3,073	20	30	2,259	1	4	1	0	0
Ship Objective	77	26	8	1,116	0	0	0	0	0
Land and/or Ship	520	4	2	532	0	0	0	0	0
RECONNAISSANCE WITH BOMBS	630	325	346	651	530	179	726	825	681
RECONNAISSANCE WITHOUT BOMBS	339	45	48	280	2	8	35	150	6
DEFENSIVE STANDING PATROLS [#]	3,969	43	793	139	0	0	16	3	5
INTERCEPTION OF ATTACK	664	0	6	8	0	0	0	0	0
MINELAYING [*]	31	0	53	0	0	27	14	32	28
MISCELLANEOUS	61	8	15	80	0	0	3	4	22
UNKNOWN	5	0	7	42	9	11	12	2	8
TOTALS	37,940	15,155	16,033	34,048	21,335	4,447	4,813	1,139	1,133

[#] Includes CAP, ASP, and patrols over target.

^{*} Some additional minelaying attacks may have been classified as bombing attacks on ship objectives.

NOTE: This detailed breakdown of purpose of mission is not available for years other than 1944. It should be noted that the targets ultimately attacked may have differed from the original objectives listed in the table.

Table 7 provides a more detailed analysis, for 1944 only, of the missions flown by Naval aircraft which resulted in action. Of interest are the following items;

(a) The high proportions of carrier bombers sent out against shipping targets, and of carrier fighters against land targets.

(b) The relatively small number of fighters sent up especially to reinforce the standing patrols in warding off enemy attacks. Naval air defense was largely by standing patrols already in the air.

(c) The relatively small volume of anti-shipping attacks by land-based VF, VSB and VTB (generally based out of reach of major enemy shipping). A partial exception is noted for VF, which flew many strafing missions against small craft in the Solomons area.

(d) The contrast between the employments of the various types of patrol bombers. The Marine PBJs were used predominantly as formation bombers and night hecklers, rather than as single search planes, while the PVs were used extensively for small strikes by 2 to 6 planes against minor land targets in the Solomons area, at Nauru, in the Southwest Pacific, and in the Kuriles. Both types were used for search, but principally in negative sectors. PB4Ys, on the other hand, were used mainly for sector search. The flying boats were used for a variety of purposes, and the 1944 data reflect such diverse missions as night anti-shipping searches by PBY Black Cats, PBY missions against barges and coastal targets in the Solomons in cooperation with PT boats, sector searches by PBMs and PB2Ys, night heckler missions over enemy bases by PBYs, and bombing strikes on Wake by PB2Ys.

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2. CARRIER OPERATIONS, GENERAL DATA

TABLE 8. SUMMARY OF CARRIER AIR OPERATIONS AND RESULTS FOR ENTIRE WAR,
By Type of Carrier, by Plane Model, and by Service (Navy-Marine)

TYPE CARRIER PLANE MODEL, SERVICE	TOTAL ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT DESTROYED IN COMBAT		TONS OF BOMBS ON TARGETS
		ON ACTION SORTIES			ON OTHER FLIGHTS	ON SHIP			
		To Enemy A/A	Opera- tional A/C				Bombers	Fighters	
CV Total	94,917	1,028	370	719	1,148	610	1,328	3,317	31,755
F6F	41,715	366	185	212	509	233	933	2,641	3,466
F4U (Navy)	6,488	93	18	48	182	76	100	260	954
F4U (Marine)	2,650	40	16	21	42	37	53	159	277
F4F	968	11	44	22	42	20	185	109	2
SB2C, SBW	18,808	268	18	218	184	88	13	30	10,994
SBD	5,852	40	43	43	61	33	30	75	2,467
TBF, TBM	18,254	199	21	147	127	109	13	38	13,461
TBD	182	11	25	8	1	14	1	5	134
CVL, Total	21,478	200	62	131	364	179	410	882	6,323
F6F	15,099	128	58	91	279	122	406	876	1,492
TBF, TBM	6,379	72	4	40	85	57	4	6	4,831
CVE, Total	30,699	200	20	151	476	185	259	288	7,581
FM	12,925	62	13	75	283	71	194	228	148
F6F (Navy)	5,426	44	2	18	41	48	48	51	1,009
F6F (Marine)	146	2	0	0	8	0	0	0	25
F4U (Marine)	443	4	0	0	5	1	6	0	81
F4F	136	6	3	9	7	2	5	3	4
SBD	196	0	0	5	4	2	1	0	57
TBF, TBM (Navy)	10,931	77	2	44	127	61	5	6	5,953
TBF, TBM (Marine)	496	5	0	0	1	0	0	0	304
GRAND TOTAL	147,094	1,428	452	1,001	1,988	974	1,997	4,487	45,659

NOTE: Unless otherwise noted, all planes are Navy.

NOTES TO TABLE 8

The table indicates that some 65% of all action sorties were flown from CVs, 15% from CVLs, and 20% from CVEs. CVLs accounted for 20% of all enemy aircraft destroyed in combat, CVEs for less than 9%, while CVs were credited with over 70%.

Attention is invited to the low CVE plane losses to enemy aircraft in comparison with the numbers destroyed in combat; 20 losses as against 547 destroyed. The CVE F6F record of 99 enemy planes destroyed against 2 air combat losses, and the FM record of 422;13, far exceed the fast carrier records, and only 2 CVE bombers are credited as lost in air combat.

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TABLE 9. LOSSES, LOSS RATES, AND OPERATIONAL DATA,
CARRIER-BASED NAVAL AND MARINE AIRCRAFT, PACIFIC ONLY, 1944-1945 ONLY
By Carrier Type, Plane Model, and Service (Navy-Marine)

TYPE CARRIER, PLANE MODEL, SERVICE	AIR- CRAFT ON HAND *	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES				OWN LOSS RATES				FLIGH Per Plane Per Month
				OPERATIONAL		ON SHIP	TOTAL, Inclu- ding Enemy Action	OPERATIONAL		SHIP Per 100 Planes Per Month	TOTAL Per 100 Planes Per Month	
				Ac- tion Sor- ties	On Other Fl'ts			Per 100 Action Sor- ties	Per 100 Other Fl'ts			
CV TOTAL	15430	209,150	88,335	619	1013	540	3366	0.70	0.84	3.5	21.8	13.6
F6F	7369	108,667	40,178	200	481	229	1436	0.50	0.70	3.1	19.5	14.7
F4U, Navy	1384	22,266	6,489	48	182	76	417	0.74	1.15	5.5	30.1	16.1
F4U, Marine	539	7,554	2,650	21	42	37	156	0.79	0.86	6.9	28.9	14.0
SB2C, SBW	2764	30,506	18,561	216	182	88	768	1.16	1.52	3.2	27.8	11.0
SBD	633	7,786	3,331	8	17	3	46	0.24	0.38	0.5	7.3	12.3
TBF, TBM	2741	32,371	17,126	126	109	107	543	0.74	0.71	3.9	19.8	11.8
CVL TOTAL	3892	69,274	20,679	125	325	175	862	0.60	0.67	4.5	22.1	17.8
F6F	2846	52,175	14,617	86	247	120	622	0.59	0.66	4.2	21.9	18.3
TBF, TBM	1046	17,099	6,062	39	78	55	240	0.64	0.71	5.3	22.9	16.3
CVE TOTAL	5914	109,075	29,744	138	450	179	963	0.46	0.57	3.0	16.3	18.4
FM	2898	51,312	12,907	75	280	69	499	0.58	0.73	2.4	17.2	17.7
F6F, Navy	670	14,727	4,748	18	39	47	137	0.38	0.39	7.0	20.4	22.0
F6F, Marine	24	513	146	0	8	0	10	0	2.18	@	@	@
F4U, Marine	118	2,236	443	0	5	1	10	0	0.28	0.8	8.5	18.9
SBD	54	903	137	4	3	2	9	2.92	0.39	@	@	@
TBF, TBM, Navy	2078	37,770	10,867	41	114	60	292	0.38	0.42	2.9	14.1	18.2
TBM, Marine	72	1,614	496	0	1	0	6	0	0.09	@	@	@
GRAND TOTAL	25236	387,499	138,758	882	1788	894	5191	0.64	0.72	3.5	20.6	15.4

* In terms of plane months; sum of aircraft reported on hand each month by squadrons in action.
Where no suitable figure was reported for aircraft on hand, authorized complement was used. A
monthly average strength in action can be obtained by dividing by 20.
@ Ratio not calculated; less than 100 planes on hand.

NOTE: All planes are Navy unless otherwise specified.

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NOTES TO TABLE 9

This table is of primary interest as a source of overall carrier aircraft loss rates in combat operations for the last 20 months of the war - the months of full-scale, regular carrier operations. Included are all flights, action sorties and losses for each carrier, for the whole of each month that the carrier reported any air action against the enemy.

Many interesting comparisons between loss rates are invited by the table:

- (a) Operational loss rates, both on action sorties and on other flights, are highest on CVs, lowest on CVEs. This is true for all types of planes combined and also for the F6F and TBF separately; the F6F and TBF were used on all three types of carrier. When these two types alone are considered, the margin of the CVL over the CV is very slight and the superiority of the CVE more pronounced.
- (b) Operational loss rates are almost invariably lower for sorties involving action against the enemy than for other flights. This may reflect only the erroneous attribution to enemy action of mission planes actually lost for operational causes; this factor is more likely to apply to fast carriers than to CVEs.
- (c) The SBD was the safest plane, operationally, followed in order by the F6F and TBF. F6F operational loss rates were far lower than those for the FM and F4U. The SB2C ranked a poor last operationally.
- (d) No particular pattern is discernible in loss rates for non-airborne aircraft aboard ship, other than that CVLs had the highest losses, and CVEs the lowest. These are influenced heavily by the accidents of kamikaze attack (which affected the CVEs least) and typhoons.
- (e) In total losses to all causes, including enemy action, CVEs again fared best, partly because of their lower rate of losses to enemy action, and their lower proportion of action sorties to total flights. The relatively low operational loss rates of the F6F and TBF help them to maintain their superiority over the F4U and SB2C in total losses. SBD and FM total losses remain the lowest, however.

From the table it will be seen that the average carrier aircraft in combat operations made about 15 flights per month, about 5 or 6 of which resulted in action against the enemy. For CVEs and CVLs these figures would read 18 and 5, for CVs 14 and 6. These averages, however, include months of very light operations; figures for peak months are given in Tables 12 and 13. In general, fighters made more flights and had less action sorties per month than the overall average, while bombers had more action in a smaller number of flights. The highest average of action sorties per plane per month, however, was reported for CVE F6Fs (7.1) which also had the highest average flights per month, showing the heavy reliance placed upon the SANGAMON class carriers during amphibious operations; SB2Cs were next with 6.7.

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TABLE 10. SUMMARY OF CARRIER AIR OPERATIONS AND RESULTS, MONTHLY

A. LARGE CARRIERS (ESSEX Class and other CVs)

MONTH	CVs IN AC- TION	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT DESTROYED IN COMBAT		TONS OF BOMBS ON TARGETS
				ON ACTION SORTIES			ON OTHER FL'TS	ON SHIP	Bombers	Fighters	
				To Enemy A/A	A/C	Operational					
1941-December	#	*	#	0	1	0	0	0	#	#	#
1942-February	3	*	243	3	6	9	6	2	23	10	77
March	3	*	142	2	0	0	4	0	1	0	51
April	1	*	6	0	0	0	5	0	0	0	1
May	2	*	332	1	21	11	3	37	24	42	139
June	3	*	374	20	41	16	25	11	33	36	100
August	3	*	681	6	23	6	14	1	65	23	181
October	2	*	287	1	20	19	5	15	48	42	60
November	2	*	494	9	2	2	5	0	3	25	74
1943-January	2	*	78	0	0	0	3	0	11	0	23
February	1	*	20	0	1	0	1	0	4	0	0
July	1	*	7	0	0	0	1	0	0	0	0
August	2	*	270	3	0	1	6	0	0	0	109
September	1	*	128	1	0	2	4	0	0	0	55
October	4	*	763	7	0	12	9	0	3	26	298
November	6	*	2,286	12	16	21	27	2	83	82	767
December	5	*	471	5	3	1	17	2	6	35	183
1944-January	6	10,314	1,952	9	2	7	23	1	9	25	627
February	6	5,938	3,115	16	6	13	20	3	18	125	1,008
March	5	5,642	1,415	18	2	9	19	0	6	47	543
April	6	6,044	3,747	21	4	21	15	3	21	31	1,377
May	4	2,220	815	8	0	1	11	0	2	1	323
June	7	9,474	5,492	75	31	98	23	11	165	353	1,730
July	8	11,923	8,320	48	10	34	30	7	9	75	3,068
August	6	4,322	1,036	21	3	3	15	2	5	11	355
September	8	12,269	8,779	51	10	29	21	15	27	211	3,332
October	9	12,290	7,276	113	57	72	64	56	196	555	2,590
November	10	8,446	3,830	73	9	29	40	27	29	189	1,349
December	7	7,416	1,551	23	0	18	38	8	13	46	263
1945-January	8	12,768	5,784	82	8	46	61	54	44	75	1,581
February	11	12,046	3,865	35	35	34	88	48	45	332	915
March	10	15,004	7,280	84	31	61	89	89	73	206	2,010
April	10	19,630	7,795	71	11	42	77	89	290	455	2,816
May	9	14,263	4,623	38	5	22	26	110	41	190	1,817
June	8	7,783	1,335	10	4	15	22	9	0	17	452
July	10	17,852	6,885	129	4	47	248	7	10	29	2,281
August	11	13,506	3,440	33	4	18	83	1	21	23	1,200
1941-42 Total		*	2,559	42	114	63	67	66	197	178	683
1943 Total		*	4,023	28	20	37	68	4	107	143	1,435
1944 Total		96,298	47,328	476	134	334	319	133	500	1,669	16,565
1945 Total		112,852	41,007	482	102	285	694	407	524	1,327	13,072
GRAND TOTAL		209,150	94,917	1028	370	719	1148	610	1,328	3,317	31,755

No action reported; loss reported may be from unreported action, or may be an erroneous report.

* No data available.

TABLE 10. Continued

B. SMALL CARRIERS (CVLs, INDEPENDENCE Class)

MONTH	CVLs IN AC- TION	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT		TONS OF BOMBS ON TARGETS
				ON ACTION SORTIES			ON OTHER FL'TS	ON SHIP	DESTROYED IN COMBAT		
				To Enemy A/A	Opera- tional A/C				Bombers	Fighters	
1943-August	1	*	20	0	0	0	0	0	0	0	7
September	2	*	68	4	0	0	9	0	5	0	28
October	3	*	170	6	1	2	5	0	6	8	37
November	5	*	484	3	10	4	19	4	8	17	160
December	2	*	57	1	0	0	6	0	4	1	15
1944-January	6	4,588	723	3	3	4	15	1	1	17	187
February	6	3,074	1,136	2	0	5	10	2	13	6	234
March	6	2,248	345	4	1	2	7	1	15	42	64
April	7	3,937	1,276	11	1	3	15	0	11	30	284
May	3	1,276	87	0	0	1	5	0	0	0	20
June	8	5,938	2,054	22	13	15	21	2	63	165	468
July	7	4,519	1,559	8	4	8	13	3	1	28	537
August	3	843	135	1	0	0	5	0	0	0	34
September	8	5,273	1,729	13	3	10	11	2	19	115	382
October	8	5,209	1,177	16	10	9	38	67	121	116	219
November	6	2,641	567	9	2	7	10	2	20	34	168
December	6	2,133	309	5	0	9	16	35	2	5	67
1945-January	5	2,680	921	16	0	7	21	14	7	26	261
February	5	2,577	487	5	5	7	21	2	4	50	110
March	6	4,132	2,015	25	1	18	19	17	29	35	599
April	6	5,120	2,277	13	5	6	17	2	67	125	796
May	6	3,707	1,349	8	0	5	13	8	10	29	500
June	4	1,608	339	1	0	1	7	14	0	0	163
July	6	4,481	1,447	20	3	7	47	2	2	18	656
August	7	3,290	747	4	0	1	14	1	2	15	327
1943 Total		*	799	14	11	6	39	4	23	26	247
1944 Total		41,679	11,097	94	37	73	166	15	266	558	2,664
1945 Total		27,595	9,582	92	14	52	159	60	121	298	3,412
GRAND TOTAL		69,274	21,478	200	62	131	364	179	410	882	6,323

* No data available.

NOTES TO TABLE 10

High points in the 3 pages of this table are:

- The peak CV flight performance of April 1945, when 10 CVs averaged 1963 flights per ship for the month.
- The peak CV combat performance of September 1944, when 8 CVs, during 11 or 12 strike days per ship, flew an average of 1,534 flights and 1,097 action sorties per ship, and placed an average of 416 tons of bombs on target per CV, with a loss of only 16 planes per ship, a record not equalled subsequently, but approached in July 1944.
- The peak CV records for planes destroyed in combat per month: 518 by 8 CVs in June 1944, 751 by 9 CVs in October 1944, and 745 by 10 in April 1945.
- The peak CVL performance record of April 1945, when 6 CVLs averaged 853 flights, 380 action sorties, 753 rockets and 133 tons of bombs per CVL for the month, with 7 plane losses per CVL.

(Cont. on next page)

TABLE 10. Continued

C. ESCORT CARRIERS (All Classes)

MONTH	CVES IN AC- TION	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT DESTROYED IN COMBAT		TONS OF BOMBS ON TARGETS
				ON ACTION SORTIES			ON OTHER FL'TS	ON SHIP	Bombers	Fighters	
				To Enemy A/A	Opera- A/C	tional					
1942-November	3	*	114	5	0	5	11	2	6	3	24
1943-March	#	*	#	0	1	0	0	0	#	#	#
May	1	*	86	0	0	7	2	0	0	0	4
August	#	*	#	2	2	0	1	0	#	#	#
November	5	*	215	0	0	1	10	2	1	0	35
December	1	*	4	0	0	0	0	0	0	0	0
1944-January	5	2,143	118	0	0	3	9	7	0	0	56
February	8	4,099	521	1	0	2	14	0	0	0	222
March	2	713	27	0	0	0	1	0	0	1	1
April	8	3,925	247	0	0	2	14	3	1	0	117
June	11	5,520	1,220	18	4	14	35	9	26	25	237
July	11	7,700	2,670	8	0	6	30	0	0	0	661
August	4	1,640	545	14	0	0	2	1	5	3	84
September	16	7,937	2,658	8	0	8	23	3	0	1	493
October	18	7,412	2,495	38	7	46	48	37	92	109	530
December	6	1,456	202	0	2	0	8	1	10	35	3
1945-January	18	10,299	1,932	10	2	13	94	22	23	68	466
February	11	6,273	1,607	13	0	3	24	30	1	0	221
March	15	9,176	2,837	12	0	11	41	2	4	2	553
April	20	16,498	5,980	39	2	14	44	19	74	38	1,421
May	20	12,227	3,081	16	0	9	42	36	8	0	1,208
June	17	10,402	3,961	14	0	7	16	11	1	3	1,213
July	4	1,756	136	1	0	0	4	0	3	0	32
August	3	930	43	1	0	0	3	0	4	0	0
1942-43 Total		*	419	7	3	13	24	4	7	3	63
1944 Total		42,545	10,703	87	13	81	184	61	134	174	2,404
1945 Total		67,561	19,577	106	4	57	268	120	118	111	5,114
GRAND TOTAL		110,106	30,699	200	20	151	476	185	259	288	7,581

* No data available.

No action reported; losses reported may be from unreported action or may be erroneous reports.
(Cont. from preceding page)

(e) Also during April, the 192 enemy planes destroyed in combat by aircraft of the 6 CVLs in action. Other peak CVL performances were in June 1944, when 8 CVLs destroyed 228 planes, and in October 1944, when 8 CVLs destroyed 237 of the enemy.

(f) CVE peak performance in April 1945, when 20 CVEs averaged 825 flights, 299 action sorties, 71 tons of bombs and 1,335 rockets per ship for the month, and shot down 112 enemy planes with only 2 air combat losses.

(g) The CVE air combat record of October 1944, when 201 enemy planes were shot down against 7 losses to enemy aircraft.

NOTES TO TABLES 11, 12 AND 13

These three tables provide analyses of some aspects of carrier operations for successive months or periods, during the major part of the Pacific war (early actions and Atlantic operations excluded). Percentages and averages have been calculated, to show trends in performance with respect to;

- (a) Relative volume of flights, action sorties, and ordnance on target, credited to each type of carrier and type of aircraft.
- (b) Average bomb and rocket load delivered to target by each type of aircraft and each type of carrier.
- (c) Flights and action sorties flown per plane of complement, for each type of aircraft and each type of carrier.

The data will be useful to show, among other items;

- (1) The composition and employment of the combat carrier forces during various periods.
- (2) The physical capabilities of the force and its components during various types of operations, and for periods of various lengths.
- (3) The extent to which the offensive potentialities of the force or any of its components were less than fully utilized during various periods.
- (4) The relative parts played by various components of the force in providing the air effort necessary for the operation.

Most of the information in these tables is of technical rather than general interest, and no detailed analysis will be made, but the following will be of general interest;

- (a) The increased utilization of carrier VF for bombing and rocket attacks, particularly CVL and CVE fighters, which during some periods averaged as much as a quarter ton of bombs per F6F attack sortie, and 3 or 4 rockets per attack sortie.
- (b) The average loading of over 5 rockets (plus over 1000 pounds of bombs) per attack sortie carried by CVE TBMs in the Iwo Jima and Okinawa operations.
- (c) The general tendency for CVL and CVE ordnance loadings per sortie to equal or exceed those of CV planes of the same types, particularly in 1945 operations, despite the smaller size of the carrier.
- (d) The general reliance on CVL and CVE planes for the bulk of the patrols not involving action, and on CVs for the major weight of offensive activity. This practice was partially reversed during the Okinawa operations, when the offensive capabilities of the CVLs were for the first time fully utilized on a scale comparable with the CVs, the CVEs took over a major share of the offensive, and the CVs increased their relative volume of patrol activity.
- (e) The parallel tendency of requiring CVLs (and the CVEs in months of major amphibious operations) to fly a higher number of flights per plane per month than the CVs, and a lower number of action sorties per plane. Even in the Okinawa operations this tendency was not eradicated (see Table 12 for April 1945, when CVLs and CVEs not only made 26 flights per plane against the CVs' 20, but flew far more action sorties as well).
- (f) The record performances in flights per plane per month,

F6F: 37.1 from CVEs, 30.3 from CVLs, and 24.2 from CVs, in April 1945.

TBM: 28.7 from CVEs in July 1944, 20.0 from CVs in October 1944,
21.3 from CVLs in July 1944.

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TABLE 11. ANALYSIS OF CARRIER AIR OPERATIONS DATA, FOR
SUCCESSIVE PERIODS IN 1944 - 45 (PACIFIC ONLY)
By Type Carrier and by Model Aircraft

TYPE OF CARRIER, PLANE MODEL	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	SORTIES ATTACK- ING TARGETS	TONS OF BOMBS ON TARGETS	ROCKETS EXPEND- ED ON TARGETS	PERCENT OF PERIOD TOTAL				AVERAGES	
						Fl'ts	Ac- tion Sor- ties	Tons of Bombs	Rock- ets	Tons per Attack Sortie	Rockets per Attack Sortie
January - May 1944											
<u>PERIOD TOTAL</u>	<u>56,161</u>	<u>15,524</u>	<u>15,372</u>	<u>5,063</u>	<u>1,153</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>0.33</u>	<u>0.07</u>
<u>CV</u> F6F	14,180	4,790	4,936	202	0	25.2	30.8	4.0	0.0	0.04	0.00
SBD	6,566	2,541	2,610	1,119	0	11.7	16.3	22.1	0.0	0.43	0.00
SB2C	3,025	1,327	1,462	714	0	5.4	8.5	14.1	0.0	0.49	0.00
TBF, TBM	6,226	2,384	2,402	1,843	769	11.1	15.4	36.4	66.7	0.77	0.32
F4U	161	2	0	0	0	0.3	0.0	0.0	0.0	0.00	0.00
<u>CVL</u> F6F	10,315	2,606	2,107	78	0	18.4	16.8	1.5	0.0	0.04	0.00
TBF, TBM	4,808	961	926	711	0	8.5	6.2	14.0	0.0	0.77	0.00
<u>CVE</u> F6F	2,291	72	77	0	0	4.1	0.5	0.0	0.0	0.00	0.00
FM	3,152	164	188	8	0	5.6	1.1	0.2	0.0	0.04	0.00
SBD	903	137	140	39	0	1.6	0.9	0.8	0.0	0.28	0.00
TBF, TBM	4,534	540	524	349	384	8.1	3.5	6.9	33.3	0.67	0.73
June - August 1944											
<u>PERIOD TOTAL</u>	<u>50,848</u>	<u>22,495</u>	<u>22,294</u>	<u>7,093</u>	<u>5,428</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>0.32</u>	<u>0.24</u>
<u>CV</u> F6F	12,614	6,834	6,797	446	1,487	24.8	30.4	6.3	27.4	0.07	0.22
SBD	1,220	790	789	371	0	2.4	3.5	5.2	0.0	0.47	0.00
SB2C	6,610	4,145	4,204	2,276	0	13.0	18.4	32.1	0.0	0.54	0.00
TBF, TBM	5,099	3,072	3,047	2,060	1,870	10.0	13.7	29.0	0.0	0.68	0.61
F4U	176	7	0	0	0	0.4	0.0	0.0	0.0	0.00	0.00
<u>CVL</u> F6F	6,874	2,220	2,178	233	0	13.5	9.9	3.3	0.0	0.11	0.00
TBF, TBM	3,424	1,128	1,118	794	0	6.7	5.0	11.2	34.5	0.71	0.00
<u>CVE</u> F6F	4,220	1,874	1,886	323	0	8.3	8.3	4.6	0.0	0.17	0.00
FM	4,480	1,265	1,141	0	56	8.8	5.6	0.0	1.0	0.00	0.05
TBF, TBM	6,131	1,160	1,134	590	2,015	12.1	5.2	8.3	37.1	0.52	1.78
September - October 1944											
<u>PERIOD TOTAL</u>	<u>50,390</u>	<u>24,114</u>	<u>24,728</u>	<u>7,546</u>	<u>13,770</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>0.31</u>	<u>0.56</u>
<u>CV</u> F6F	13,446	7,777	7,944	499	5,513	26.7	32.3	6.6	40.0	0.06	0.69
SB2C	6,834	5,099	5,556	3,151	0	13.6	21.1	41.8	0.0	0.57	0.00
TBM	4,279	3,179	3,246	2,272	1,024	8.5	13.2	30.1	7.4	0.70	0.32
<u>CVL</u> F6F	7,737	2,219	1,984	88	2,019	15.4	9.2	1.2	14.7	0.04	1.02
TBM	2,745	687	692	513	0	5.4	2.8	6.8	0.0	0.74	0.00
<u>CVE</u> F6F	1,933	2,808	2,867	30	0	3.8	11.6	0.4	0.0	0.01	0.00
FM	7,666	522	644	51	4	15.2	2.2	0.7	0.0	0.08	0.01
TBM	5,750	1,823	1,795	942	5,210	11.4	7.6	12.4	37.9	0.52	2.90

NOTE: Sorties attacking targets, and averages based thereon, are not comparable between 1944 and 1945, since attacks on multiple targets were counted as multiple attacks in 1944 and single attacks in 1945.

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TABLE 11. Continued

TYPE OF CARRIER, PLANE MODEL	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	SORTIES ATTACK- ING TARGETS	TONS OF BOMBS ON TARGETS	ROCKETS EXPEND- ED ON TARGETS	PERCENT OF PERIOD TOTAL				* AVERAGES	
						Fl'ts	Ac- tion Sor- ties	Tons of Bombs	Rock- ets	Tons per Attack Sortie	Rockets per Attack Sortie
November 1944 - January 1945											
<u>PERIOD TOTAL</u>	47,839	15,096	13,912	4,158	17,981	100.0	100.0	100.0	100.0	0.30	1.29
<u>CV</u> F6F	21,187	7,264	6,959	685	10,463	44.3	48.1	16.5	58.2	0.10	1.50
F4U	600	131	101	12	0	1.3	0.9	0.3	0.0	0.11	0.00
SB2C	3,410	1,819	1,709	1,087	43	7.1	12.0	26.1	0.2	0.64	0.03
TBM	3,433	1,951	1,839	1,409	387	7.2	12.9	33.9	2.2	0.77	0.21
<u>CVL</u> F6F	6,264	1,271	1,175	117	2,290	13.1	8.4	2.8	12.7	0.10	1.95
TBM	1,190	526	507	379	0	2.4	3.5	9.1	0.0	0.75	0.00
<u>CVE</u> FM	8,301	1,356	896	4	2,475	17.4	9.0	0.1	13.8	0.00	2.76
TBM	3,454	778	726	465	2,323	7.2	5.2	11.2	12.9	0.64	3.20
February - June 1945											
<u>PERIOD TOTAL</u>	140,446	48,831	43,383	14,794	121,302	100.0	100.0	100.0	100.0	0.34	2.80
<u>CV</u> F6F	34,350	9,665	7,431	1,004	14,418	24.5	17.1	6.8	11.9	0.14	1.94
F4U, FG	18,820	6,033	4,824	728	14,011	13.4	11.1	4.9	11.6	0.15	2.90
SB2C	6,837	4,455	4,321	2,800	3,954	4.9	10.0	18.9	3.3	0.65	0.92
TBM	8,719	4,745	4,562	3,478	3,116	6.2	10.5	23.5	2.6	0.76	0.68
<u>CVL</u> F6F	13,945	4,516	3,670	676	10,140	9.9	8.5	4.6	8.4	0.18	2.76
TBM	3,199	1,951	1,899	1,492	1,756	2.3	4.4	10.1	1.4	0.79	0.92
<u>CVE</u> F6F	7,495	2,797	2,697	609	10,348	5.3	6.2	4.1	8.5	0.23	3.84
F4U, FG	1,190	350	339	76	1,389	0.8	0.8	0.5	1.1	0.22	4.10
FM	27,373	7,291	6,818	85	25,707	19.5	15.7	0.6	21.2	0.01	3.77
TBM	18,518	7,028	6,822	3,846	36,463	13.2	15.7	26.0	30.0	0.56	5.34
July - August 1945											
<u>PERIOD TOTAL</u>	41,815	12,698	11,494	4,496	22,226	100.0	100.0	100.0	100.0	0.39	1.93
<u>CV</u> F6F	12,890	3,848	3,311	630	9,131	30.8	30.3	14.0	41.1	0.19	2.76
F4U, FG	10,063	2,966	2,666	491	8,096	24.1	23.4	10.9	36.4	0.18	3.04
SB2C	3,790	1,716	1,644	855	581	9.1	13.5	19.0	2.6	0.52	0.35
TBM	4,615	1,795	1,730	1,505	46	11.0	14.1	33.5	0.2	0.87	0.03
<u>CVL</u> F6F	6,038	1,385	1,217	288	3,841	14.4	10.9	6.4	17.3	0.24	3.16
TBM	1,733	809	790	695	113	4.2	6.4	15.5	0.5	0.88	0.14
<u>CVE</u> F6F	303	29	24	3	54	0.7	0.2	0.1	0.3	0.13	2.25
F4U, FG	1,046	93	63	5	173	2.5	0.7	0.1	0.8	0.08	2.75
FM	340	23	15	0	95	0.8	0.2	0	0.4	0.00	6.33
TBM	997	34	34	24	96	2.4	0.3	0.5	0.4	0.71	2.82

See note on previous page.

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~~CONFIDENTIAL~~TABLE 12. CARRIER AIR OPERATIONS DATA AND OPERATING RATIOS,
By Type of Carrier, Monthly from August 1943 to August 1945, Pacific Only.

MONTH	CAR- RIERS IN ACTION	COM- PLE- MENT	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	TONS OF BOMBS ON TARGETS	OPERATING RATIOS				PERCENT OF MONTH TOTAL		
						ACTION FLIGHTS PER PLANE	ACTION SORTIES PER PLANE	ACTION SORTIES PER FLIGHT	TONS PER ACTION SORTIE	FL'TS	SOR- TIES	TONS OF BOMBS
1943												
August	2 CV	180	*	270	109	*	1.5	*	0.40	*	93	94
	1 CVL	33	*	20	7	*	0.6	*	0.35	*	7	6
September	1 CV	90	*	128	55	*	1.4	*	0.43	*	65	66
	2 CVL	66	*	68	28	*	1.0	*	0.41	*	35	34
October	3 CV	270	*	712	282	*	2.6	*	0.40	*	81	88
	3 CVL	99	*	170	37	*	1.7	*	0.22	*	19	12
November	6 CV	510	*	2,286	767	*	4.5	*	0.34	*	77	80
	5 CVL	165	*	484	160	*	2.9	*	0.33	*	16	16
	5 CVE	128	*	215	35	*	1.7	*	0.16	*	7	4
December	5 CV	430	*	471	183	*	1.1	*	0.39	*	89	92
	2 CVL	66	*	57	15	*	0.9	*	0.26	*	11	8
1944												
January	6 CV	513	10,314	1,952	627	20.1	3.8	0.19	0.32	61	70	72
	6 CVL	198	4,588	723	187	23.2	3.7	0.16	0.26	27	26	21
	5 CVE	138	2,143	118	56	15.5	0.9	0.06	0.47	12	4	7
February	6 CV	513	5,938	3,115	1,008	11.6	6.1	0.52	0.32	45	65	69
	6 CVL	198	3,074	1,136	234	15.5	5.7	0.37	0.21	24	24	16
	8 CVE	210	4,099	521	222	19.5	2.5	0.13	0.43	31	11	15
March	5 CV	430	5,642	1,415	543	13.1	3.3	0.25	0.38	66	79	89
	6 CVL	198	2,248	345	64	11.4	1.7	0.15	0.19	26	19	11
	2 CVE	56	713	27	1	12.7	0.5	0.04	0.04	8	2	0
April	6 CV	524	6,044	3,747	1,377	11.5	7.2	0.62	0.37	44	71	77
	7 CVL	231	3,937	1,276	284	17.0	5.5	0.32	0.22	28	24	16
	8 CVE	232	3,925	247	117	16.9	1.1	0.06	0.47	28	5	7
May	4 CV	338	2,220	815	323	6.6	2.4	0.37	0.40	64	90	94
	3 CVL	99	1,276	87	20	12.9	0.9	0.07	0.23	36	10	6
June	7 CV	617	9,474	5,492	1,730	15.4	8.9	0.58	0.32	45	63	71
	8 CVL	264	5,938	2,054	468	22.5	7.8	0.35	0.23	29	23	19
	11 CVE	311	5,520	1,220	237	17.7	3.9	0.22	0.19	26	14	10
July	8 CV	706	11,923	8,320	3,068	16.9	11.8	0.70	0.37	49	66	72
	7 CVL	231	4,519	1,559	537	19.6	6.7	0.34	0.34	19	13	13
	11 CVE	311	7,700	2,670	661	24.8	8.6	0.35	0.25	32	21	15
August	6 CV	533	4,322	1,036	355	8.1	1.9	0.24	0.34	75	88	90
	3 CVL	99	843	135	34	8.5	1.4	0.16	0.25	15	11	9
	2 CVE	57	609	9	3	10.7	0.2	0.01	0.33	10	1	1
September	8 CV	728	12,269	8,779	3,332	16.9	12.1	0.72	0.38	48	67	79
	8 CVL	256	5,273	1,729	382	20.6	6.8	0.33	0.22	21	13	9
	16 CVE	452	7,937	2,658	493	17.6	5.9	0.33	0.19	31	20	12

* Data not available.

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TABLE 12. CONTINUED.

MONTH	CAR- RIERS IN ACTION	COM- PLE- MENT	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	TONS OF BOMBS ON TARGETS	OPERATING RATIOS				PERCENT OF MONTH TOTAL		
						ACTION		ACTION	TONS	ACTION TONS		
						FLIGHTS PER PLANE	SORTIES PER PLANE	SORTIES PER FLIGHT	PER ACTION SORTIE	FL'TS	SOR- TIES	OF BOMBS
1944												
October	9 CV	805	12,290	7,276	2,590	15.3	9.0	0.59	0.36	49	66	77
	8 CVL	256	5,209	1,177	219	20.3	4.6	0.23	0.19	21	11	7
	18 CVE	506	7,412	2,495	530	14.6	4.9	0.34	0.21	30	23	16
November	10 CV	960	8,446	3,830	1,349	8.8	4.0	0.45	0.35	76	87	89
	6 CVL	190	2,641	567	168	13.9	3.0	0.21	0.30	24	13	11
December	7 CV	721	7,416	1,551	263	10.3	2.2	0.21	0.17	67	75	79
	6 CVL	190	2,133	309	67	11.2	1.6	0.14	0.22	20	15	20
	6 CVE	198	1,456	202	3	7.4	1.0	0.14	0.01	13	10	1
1945												
January	8 CV	775	12,768	5,784	1,581	16.5	7.5	0.45	0.27	50	67	69
	5 CVL	157	2,680	921	261	17.1	5.9	0.34	0.28	10	11	11
	18 CVE	574	10,299	1,932	466	17.9	3.4	0.19	0.24	40	22	20
February	11 CV	1,055	12,046	3,865	915	11.4	3.7	0.32	0.24	58	65	73
	5 CVL	165	2,577	487	110	15.6	3.0	0.19	0.23	12	8	9
	11 CVE	350	6,273	1,607	221	17.9	4.6	0.26	0.14	30	27	18
March	10 CV	981	15,004	7,280	2,010	15.3	7.4	0.49	0.28	53	60	64
	6 CVL	198	4,132	2,015	599	20.9	10.2	0.49	0.30	15	17	19
	15 CVE	474	9,176	2,837	553	19.4	6.0	0.31	0.19	32	23	17
April	10 CV	981	19,630	7,795	2,816	20.0	7.9	0.40	0.36	48	49	56
	6 CVL	198	5,120	2,277	796	25.9	11.5	0.44	0.35	12	14	16
	20 CVE	634	16,498	5,980	1,421	26.0	9.4	0.36	0.24	40	37	28
May	9 CV	878	14,263	4,623	1,817	16.2	5.3	0.32	0.39	47	51	52
	6 CVL	198	3,707	1,349	500	18.7	6.8	0.36	0.37	12	15	14
	20 CVE	630	12,227	3,081	1,208	19.4	4.9	0.25	0.39	41	34	34
June	8 CV	775	7,783	1,335	452	10.0	1.7	0.17	0.34	39	24	25
	4 CVL	132	1,608	339	163	12.2	2.6	0.21	0.48	8	6	9
	17 CVE	536	10,402	3,961	1,213	19.4	7.4	0.38	0.31	53	70	66
July	10 CV	981	17,852	6,885	2,281	18.2	7.6	0.39	0.33	74	81	77
	6 CVL	198	4,481	1,447	656	22.6	7.3	0.32	0.45	19	17	22
	4 CVE	122	1,756	136	32	14.4	1.1	0.08	0.24	7	2	1
August	11 CV	1,084	13,506	3,440	1,200	12.5	3.2	0.25	0.35	76	81	79
	7 CVL	231	3,290	747	327	14.2	3.2	0.23	0.44	19	18	21
	3 CVE	94	930	43	0	9.9	0.5	0.05	0.00	5	1	0

TABLE 13. CARRIER AIR OPERATIONS DATA AND OPERATING RATIOS,
By Type of Carrier and by Model of Aircraft,
for Selected Months of Major Operations (Pacific Only)
A. FAST CARRIER FORCE

MONTH	CAR- RIERS IN ACTION	PLANE TYPE AND COMPLE- MENT	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	TONS OF BOMBS ON TARGETS	OPERATING RATIOS				PERCENT OF MONTH TOTAL	
						Flights Per Plane	Action Sorties Per Plane	Action Sorties Per Flight	Tons Per Action Sortie	Comple- ment	Flights
1943 November	6 CV	216 F6F	*	957	0	*	4.4	*	0.00	32	*
		160 SBD	*	615	256	*	3.8	*	0.42	23	*
		32 SB2C	*	179	78	*	5.6	*	0.44	5	*
		105 TBF	*	535	433	*	5.1	*	0.81	15	*
	5 CVL	120 F6F	*	283	0	*	2.4	*	0.00	18	*
		45 TBF	*	201	160	*	4.5	*	0.80	7	*
1944 July	8 CV	304 F6F	5690	3640	292	18.7	12.0	0.64	0.08	33	35
		3 F4U	13	1	0	4.3	0.3	0.08	0.00	0	0
		40 SBD	252	154	70	6.3	3.9	0.61	0.45	4	2
		218 SB2C	3465	2698	1506	15.9	12.4	0.78	0.56	23	21
		141 TBF	2503	1827	1200	17.8	13.0	0.73	0.66	15	15
	7 CVL	168 F6F	3176	1074	192	18.9	6.4	0.34	0.18	18	19
		63 TBF	1343	485	345	21.3	7.7	0.36	0.71	7	8
	9 CV	374 F6F	7237	3721	255	19.4	9.9	0.51	0.07	35	41
		272 SB2C	3146	2196	1359	11.6	8.1	0.70	0.62	26	18
		159 TBM	1907	1359	976	20.0	8.5	0.71	0.72	15	11
		184 F6F	3913	921	22	21.3	5.0	0.24	0.02	17	22
		72 TBM	1296	256	197	18.0	3.6	0.20	0.77	7	8
	8 CV	551 F6F	9673	3870	435	17.6	7.0	0.40	0.11	59	62
		36 F4U	600	131	12	16.7	3.6	0.22	0.09	4	4
		75 SB2C	1001	703	381	13.3	9.4	0.70	0.54	8	6
		113 TBM	1494	1080	753	13.2	9.6	0.72	0.70	12	10
		112 F6F	2248	612	49	20.1	5.5	0.27	0.08	12	15
1945 January	5 CVL	45 TBM	432	309	212	9.6	6.9	0.72	0.69	5	3
	10 CV	390 F6F	9426	2779	292	24.2	7.1	0.29	0.11	33	38
		303 F4U	6017	1916	250	19.9	6.3	0.32	0.13	26	24
		135 SB2C	1929	1515	984	14.3	11.2	0.79	0.65	11	8
		153 TBM	2258	1585	1290	14.8	10.4	0.70	0.81	13	9
	6 CVL	144 F6F	4365	1644	259	30.3	11.4	0.38	0.16	12	18
		54 TBM	755	633	537	14.0	11.7	0.84	0.85	5	3
	July	412 F6F	7347	2554	387	17.8	6.2	0.35	0.15	35	33
		281 F4U	5374	1937	319	19.1	6.9	0.36	0.16	24	24
		135 SB2C	2362	1162	569	17.5	8.6	0.49	0.49	11	11
		153 TBM	2769	1232	1006	18.1	8.1	0.44	0.82	13	12
		144 F6F	3499	892	197	24.3	6.2	0.25	0.22	12	16
April	6 CVL	54 TBM	982	555	459	18.2	10.3	0.57	0.83	5	4

* Data not available.

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TABLE 13. Continued

B. ESCORT CARRIERS

MONTH	CVEs IN AC- TION	PLANE TYPE AND COMPLE- MENT	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	TONS OF BOMBS ON TARGETS	OPERATING RATIOS				PERCENT OF MONTH TOTAL	
						Flights Per Plane	Action Sorties Per Plane	Action Sorties Per Flight	Tons Per Action Sortie	Comple- ment	Flights
1944 February	8	36 F6F 60 FM 27 SBD 87 TBF	735 965 522 1877	41 84 108 288	0 8 33 181	20.4 16.1 19.3 21.6	1.1 1.4 4.0 3.3	0.06 0.09 0.21 0.15	0.00 0.10 0.31 0.63	17 29 13 41	18 23 13 46
July	11	60 F6F 128 FM 123 TBF	1713 2454 3533	1090 748 832	236 0 425	28.6 19.2 28.7	18.2 5.8 6.8	0.64 0.30 0.24	0.22 0.00 0.51	19 41 40	22 32 46
October	18	54 F6F 248 FM 204 TBF	893 3897 2622	330 1273 892	13 5 512	16.5 15.7 12.9	6.1 5.1 4.4	0.37 0.33 0.34	0.04 0.00 0.57	11 49 40	12 53 35
1945 January	18	364 FM 210 TBM	7137 3162	1165 767	4 462	19.6 15.1	3.2 3.7	0.16 0.24	0.00 0.60	63 37	69 31
April	20	84 F6F 328 FM 222 TBM	3117 8039 5342	1229 2473 2278	236 16 1169	37.1 24.5 24.1	14.6 7.5 10.3	0.39 0.31 0.43	0.19 0.01 0.51	13 52 35	19 49 32

NOTES TO TABLE 14

In this table all carrier combat activity is broken down into campaigns, raids and battles, and the longer campaigns into major periods and areas of activity.

Especial attention is invited to the known overstatement, in these data, of the number of enemy planes engaged (see Definitions), which will be obvious in some of the smaller operations herein.

Among the interesting items in this table are the figures showing the relatively small scale of operations, compared with results accomplished, in some of the operations, including Coral Sea, Midway, the Solomons actions, the North Africa landings, the Tarawa raid, the Rabaul raids, the first Truk strike and Marianas raid, and the Bonins strikes of June-July 1944 (particularly the second, on 24 June).

Also worthy of note is the tremendous destruction of enemy aircraft achieved in the Philippines in the operations of September-December 1944, against Japan on three days of February 1945, in the Okinawa campaign, and in the final assault on Japan.

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TABLE 14. AIR OPERATIONS AND RESULTS, FOR INDIVIDUAL CARRIER OPERATIONS AND PHASES THEREOF.

RAID, BATTLE, OR CAMPAIGN: Target Area, Type of Carrier	DATES OF ACTION	NUMBER OF CARRIERS IN ACTION			ACTION SORTIES	TONS OF BOMBS ON TARGETS	ENEMY AIR- CRAFT ENGAGED	ENEMY AIRCRAFT DESTROYED		OWN LOSSES ON ACTION SORTIES		
		CV	CYL	CVE				Air	Ground	To Enemy A/A	Opera- A/C	tional
<u>1942-43:</u>												
<u>EARLY RAIDS</u>	<u>2/1-4/19</u>	3	-	-	391	129	53	34	12	7	5	7
Marshall's Raids	2/1	2	-	-	165	59	21	15	10	4	4	6
Rabaul Raid	2/20	1	-	-	27	0	30	17	0	0	2	0
First Wake Raid	2/24	1	-	-	51	18	1	1	2	1	0	1
First Marcus Raid	3/4	1	-	-	38	11	0	0	0	1	0	0
Salamaua Raid	3/10	2	-	-	104	40	1	1	0	1	0	0
Tokyo Raid	4/19	1	-	-	6	1	0	0	0	0	0	0
<u>CORAL SEA BATTLE</u>	<u>5/4-5/8</u>	2	-	-	332	139	178	66	21	1	21	11
Tulagi Raid	5/4-5/5	1	-	-	107	59	6	5	1	0	1	3
Main Battle	5/7-5/8	2	-	-	225	80	172	61	20*	1	20	8
<u>BATTLE OF MIDWAY</u>	<u>6/4-6/6</u>	3	-	-	374	100	294	69	140*	20	41	16
<u>SOLOMONS CAMPAIGN</u>	<u>8/7-2/4</u>	4	-	-	1,162	285	610	200	51	7	43	25
Guadalcanal Landing	8/7-8/8	3	-	-	503	153	126	29	20	0	11	1
Eastern Solomons	8/24	3	-	-	178	28	200	59	10*	5	10	5
Tonolei Raid	10/5	1	-	-	69	12	6	4	4	0	0	0
Guadalcanal Support	10/12-10/16	1	-	-	89	19	6	5	12	0	0	1
Battle of Santa Cruz	10/26	2	-	-	129	29	216	81	5*	1	20	18
Guadalcanal Battle	11/13-11/14	1	-	-	96	21	28	7	0	1	1	0
Kolombangara Raid	1/24	1	-	-	58	23	0	0	0	0	0	0
Rennell I. Battle	1/30	1	-	-	16	0	22	11	0	0	0	0
Solomons Support	1/30-2/4	1	-	-	24	0	6	4	0	0	1	0
<u>NORTH AFRICA LANDING</u>	<u>11/8-11/11</u>	1	-	3	512	77	61	30	30*	14	1	7
<u>ATTU LANDING</u>	<u>5/11-5/20</u>	-	-	1	86	4	0	0	0	0	0	7
<u>SECOND MARCUS RAID</u>	<u>8/31</u>	2	1	-	290	116	0	0	7	3	0	1
<u>BAKER ISLAND LANDING</u>	<u>9/1-9/8</u>	-	2	-	12	0	3	3	0	0	0	0
<u>TARAWA RAID</u>	<u>9/18</u>	1	2	-	184	83	2	2	15	4	0	2
<u>NORWAY RAID</u>	<u>10/4</u>	1	-	-	51	16	2	2	0	3	0	1
<u>SECOND WAKE RAID</u>	<u>10/5-10/6</u>	3	3	-	882	319	97	41	27	10	1	13
<u>BOUGAINVILLE SUPPORT</u>	<u>11/1-11/11</u>	3	2	-	707	210	371	138	19	8	22	10
Buka-Bonis Strikes	11/1-11/2	1	1	-	251	88	1	1	19	4	0	7
First Rabaul Raid	11/5	1	1	-	97	25	118	28	0	1	8	0
Second Rabaul Raid	11/11	3	2	-	359	97	252	109	0	3	14	3
<u>GILBERT IS. CAMPAIGN</u>	<u>11/19-12/8</u>	6	5	8	2,703	915	195	96	56	12	7	17
Gilbert Is., CV-CVL	11/19-12/5	5	4	-	1,401	443	60	39	3	3	2	7
" " CVE	11/19-11/22	-	-	8	215	35	1	1	0	0	0	1
Southern Marshalls	11/19-11/26	2	1	-	460	193	21	13	19	4	1	7
Nauru Strike	11/19	1	1	-	210	81	10	2	2	0	1	1
Kwajalein Raid	12/4	4	1	-	287	115	102	40	27	2	3	1
Nauru Strike	12/8	1	1	-	130	48	1	1	5	3	0	0
<u>FIRST KAVIENG RAID</u>	<u>12/25/43</u>	1	1	-	103	35	4	3	0	1	0	0
<u>SECOND KAVIENG RAID</u>	<u>1/1/44</u>	1	1	-	88	38	60	14	0	0	3	0
<u>THIRD KAVIENG RAID</u>	<u>1/4/44</u>	1	1	-	90	35	27	11	0	0	1	0

* Estimated lost aboard enemy carriers, or because of sinking of enemy carriers.

Estimated.

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TABLE 14. Continued

RAID, BATTLE, OR CAMPAIGN Target Area, Type of Carrier	DATES OF ACTION	NUMBER OF CARRIERS IN ACTION			ACTION SORTIES	TONS OF BOMBS ON TARGETS	ENEMY AIR- CRAFT ENGAGED	ENEMY AIRCRAFT DESTROYED		OWN LOSSES ON ACTION SORTIES		
		CV	CVL	CVE				Air	Ground	To Enemy A/A	Opera- A/C	tional
<u>1944</u>												
<u>MARSHALLS CAMPAIGN</u>	<u>1/30- 2/23</u>	6	6	8	7,387	2,261	308	189	260	31	7	34
Marshall Is., CV-CVL	1/30- 2/23	6	6	-	4,948	1,382	43	27	106	15	1	20
" " CVE	2/1 - 2/21	-	-	8	639	278	0	0	0	0	0	5
First Truk Strike	2/16- 2/17	5	4	-	1,456	499	213	123	82	13	3	8
Marianas Raid	2/23	3	3	-	344	102	52	39	72	3	3	1
MILLE STRIKE	3/19	1	-	-	111	46	0	0	0	3	0	0
EMIRAU SUPPORT	3/20- 3/29	-	-	2	27	1	1	1	0	0	0	0
PALAU, YAP, WOLEAI	3/30- 4/1	5	6	-	2,172	712	203	111	46	20	3	15
<u>HOLLANDIA-AITAPE</u>	<u>4/21- 4/26</u>	5	7	8	2,541	830	40	30	103	5	0	20
Fast Carriers	4/21- 4/26	5	7	-	2,314	713	39	29	103	5	0	18
CVEs	4/22- 4/23	-	-	8	227	117	1	1	0	0	0	2
<u>SECOND TRUK STRIKE</u>	<u>4/30- 5/2</u>	5	7	-	2,283	815	127	60	85	25	5	3
SABANG RAID	4/19	1	-	-	62	19	3	3	20	2	0	0
SOERABAJA RAID	5/17	1	-	-	55	20	2	2	21	1	0	0
THIRD WAKE & MARCUS	5/20- 5/24	2	1	-	708	286	1	1	0	6	0	1
<u>MARIANAS CAMPAIGN</u>	<u>6/11- 8/8</u>	8	8	12	22,432	7,090	1,791	917	306	203	65	178
Marianas, CV-CVL	6/11- 6/30	7	8	-	6,982	2,045	1,263	595	115	82	37	105
" , CVE	6/11- 6/30	-	-	11	1,220	237	130	51	20	19	4	15
" , CV-CVL	7/1 - 8/8	8	8	-	7,455	2,726	14	14	0	28	1	27
" , CVE	7/1 - 8/1	-	-	11	2,679	664	0	0	10	9	0	6
First Bonins Strike	6/15- 6/16	3	4	-	478	152	67	41	80	14	2	8
Second Bonins Raid	6/24	2	2	-	86	1	141	110	0	0	5	0
Third Bonins Strike	7/3 - 7/4	4	3	-	873	309	157	92	27	13	13	5
Fourth Bonins Strike	8/4 - 8/5	4	2	-	872	307	11	7	7	15	1	3
Western Carolines	7/25- 7/28	6	2	-	1,787	649	8	7	47	23	2	9
SOUTHERN FRANCE	8/15- 8/29	-	-	2	536	81	8	8	0	13	0	0
FIFTH BONINS STRIKE	8/31- 9/2	2	1	-	533	199	11	11	43	7	0	4
FOURTH WAKE RAID	9/3	-	1	-	61	34	0	0	0	0	0	0
<u>PALAU-MOROTAI</u>	<u>9/6 -10/3</u>	8	8	16	12,653	3,980	756	372	527	65	13	43
W. Carolines, CV-CVL	9/6 - 9/18	8	8	-	3,889	1,369	0	0	5	19	1	7
W. Carolines, CVE	9/12-10/1	-	-	10	2,282	440	0	0	1	2	0	6
Philippines, CV-CVL	9/9 - 9/24	6	7	-	6,025	2,115	752	370	463	39	12	28
Halmahera-Morotai	9/15-10/3	2	1	6	423	56	4	2	30	5	0	2
Celebes, Borneo	9/15	-	2	-	34	0	0	0	28	0	0	0
<u>LEYTE CAMPAIGN</u>	<u>10/10-11/25</u>	10	8	18	15,327	4,853	2,806	1460	1160	248	85	162
Ryukyus Area	10/10-10/16	9	8	-	1,538	567	130	77	88	10	2	6
Formosa Area	10/12-10/16	9	8	-	2,808	963	674	361	278	44	23	9
Philippines, CV-CVL	10/11-10/30	9	8	-	4,100	1,282	1,039	539	179	74	42	66
" CVE	10/17-10/29	-	-	18	2,484	524	419	211	117	38	7	45
" CV-CVL	11/5 -11/25	10	6	-	4,299	1,471	544	272	498	81	11	36
Western Carolines	11/22	2	2	-	98	46	0	0	0	1	0	0
<u>MINDORO CAMPAIGN</u>	<u>12/13-12/17</u>	7	6	6	2,062	333	145	111	230	28	2	27
Fast Carriers, Luzon	12/14-12/16	7	6	-	1,852	330	84	66	208	28	0	27
CVEs, Visayas	12/13-12/17	-	-	6	210	3	61	45	22	0	2	0

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TABLE 14. Continued

RAID, BATTLE, OR CAMPAIGN Target Area, Type of Carrier	DATES OF ACTION	NUMBER OF CARRIERS IN ACTION			ACTION SORTIES	TONS OF BOMBS ON TARGETS	ENEMY AIR- CRAFT ENGAGED	ENEMY AIRCRAFT DESTROYED		OWN LOSSES ON ACTION SORTIES		
		CV	CVL	CVE				Air	Ground	To Enemy A/A	A/C	Opera- tional
<u>1945</u>												
<u>LINGAYEN CAMPAIGN</u>	1/3 -1/30	8	5	19	8,637	2,308	372	243	474	108	10	66
Philippines, CV-CVL	1/6 -1/7	8	5	-	1,426	288	41	25	93	9	1	26
" CVE	1/4 -1/30	-	-	19	1,932	466	151	91	10	10	2	13
Formosa	1/3 -1/21	8	5	-	2,894	834	120	93	243	36	3	15
Indo China	1/12	8	5	-	910	324	18	14	97	19	0	4
South China	1/15-1/16	8	5	-	799	235	42	20	3	26	4	6
Ryukyus	1/22	7	5	-	676	161	0	0	28	8	0	2
<u>IWO JIMA CAMPAIGN</u>	2/16-3/8	11	5	12	8,091	1,691	1,262	437	275	77	40	51
Japan	2/16-2/25	11	5	-	2,493	376	1,241	420	228	25	38	27
Bonins, CV-CVL	2/18-3/8	11	5	-	1,932	667	15	11	1	15	2	14
" CVE	2/16-3/8	-	-	12	2,746	441	2	2	9	25	0	5
Ryukyus	3/1	7	3	-	920	207	4	4	37	12	0	5
<u>OKINAWA CAMPAIGN</u>	3/18-6/22	14	8	28	40,157	12,888	2,756	1692	824	305	59	202
Ryukyus, CV-CVL	21-31 March	8	6	-	5,248	1,640	129	87	40#	48	2	36
" CVE	25-31 March	-	-	13	1,698	333	7	5	29#	1	0	9
Japan	18-29 March	10	6	-	3,054	744	580	252	263#	48	30	38
Ryukyus, CV-CVL	1-30 April	10	6	-	9,442	3,374	1,155	850	124#	59	16	45
" CVE	1-30 April	-	-	20	5,980	1,421	147	112	103#	39	2	14
Japan	7-17 April	7	6	-	630	238	130	87	77#	25	0	3
Ryukyus, CV-CVL	1-31 May	9	6	-	4,000	1,581	337	204	22#	28	3	25
" CVE	1-31 May	-	-	20	3,081	1,208	9	8	7#	16	0	9
Japan	13-24 May	5	4	-	1,777	656	146	66	93#	18	2	1
Ryukyus, CV-CVL	1-10 June	6	3	-	855	426	17	7	0	2	0	5
" CVE	1-22 June	-	-	17	3,961	1,213	5	4	13#	14	0	7
Japan	3-8 June	5	3	-	431	54	94	10	53	7	4	10
CV-CVL TOTAL	3/18-6/10	14	8	-	25,437	8,713	2,578	1563	672	235	57	163
CVE TOTAL	3/25-6/22	-	-	28	14,720	4,175	168	129	152	69	2	39
RYUKYUS TOTAL	3/21-6/22	13	8	28	34,265	11,196	1,796	1277	338	206	23	150
JAPAN TOTAL	3/18-6/8	13	8	-	5,892	1,692	950	415	486	98	36	52
<u>ASSAULT ON JAPAN</u>	7/10-8/15	10	6	1	12,153	4,382	207	121	1102	186	11	72
Hokkaido	7/14-8/10	-	-	-	2,349	982	2	1	79	32	0	16
Tokyo, N. Honshu	7/10-8/15	-	-	-	5,668	1,882	104	64	762	53	7	28
Central Honshu	7/24-8/10	-	-	-	2,665	899	75	36	233	67	3	13
Kyushu, Kure Area	7/24-7/28	-	-	-	1,471	619	26	20	28	34	1	15
<u>MINOR 1945 ACTIONS</u>	5/17-8/6	5	2	5	1,128	329	7	6	0	4	0	4
Maloelap Strike	5/17	1	-	-	195	80	0	0	0	0	0	1
Fifth Wake Strike	6/20	2	1	-	388	135	0	0	0	2	0	1
Belikpapan Landing	7/1 -7/3	-	-	1	82	29	0	0	0	1	0	0
Actions off Okinawa	7/6, 7/23	-	-	1	16	0	3	3	0	0	0	0
Sixth Wake Strike	7/18	1	-	-	167	31	0	0	0	0	0	0
Marianas Strikes	7/24, 7/26	-	-	1	38	3	0	0	0	0	0	0
Seventh Wake Strike	8/1	-	1	-	39	9	0	0	0	0	0	0
China Sea Strikes	8/4 -8/6	-	-	3	35	0	4	3	0	1	0	0
Eighth Wake Strike	8/6	1	-	-	168	42	0	0	0	0	0	2

Approximations based on proration of Force total for campaign.

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TABLE 15. MARINE CARRIER AIR OPERATIONS AND RESULTS, 1945
Monthly, By Model of Aircraft and Type of Carrier

TYPE CARRIER, TYPE PLANE, MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT DESTROYED IN COMBAT		TONS OF BOMBS ON TARGETS	
			ON ACTION SORTIES			ON OTHER FLIGHTS	ON SHIP	Bombers	Fighters		
			To Enemy A/A	Opera- A/C	tional						
<u>CV</u> <u>F4U</u>	January	600	131	1	1	7	4	1	9	0	12
	February	1780	498	8	6	5	21	0	5	24	52
	March	1849	897	14	7	3	7	11	3	41	53
	April	2025	702	11	2	6	6	2	31	87	84
	May	1000	399	6	0	0	2	23	5	7	73
	June	300	23	0	0	0	2	0	0	0	3
	TOTAL	7554	2650	40	16	21	42	37	53	159	277
<u>CVE</u> <u>F4U</u>	May	586	62	2	0	0	3	1	1	0	13
	June	604	288	2	0	0	0	0	0	0	63
	July	887	75	0	0	0	1	0	3	0	5
	August	159	18	0	0	0	1	0	2	0	0
	TOTAL	2236	443	4	0	0	5	1	6	0	81
<u>CVE</u> <u>F6F</u>	May	287	59	0	0	0	6	0	0	0	10
	June	157	77	1	0	0	1	0	0	0	15
	July	55	8	1	0	0	1	0	0	0	0
	August	14	2	0	0	0	0	0	0	0	0
	TOTAL	513	146	2	0	0	8	0	0	0	25
<u>CVE</u> <u>TBM</u>	May	473	181	3	0	0	0	0	0	0	106
	June	513	298	2	0	0	1	0	0	0	186
	July	399	17	0	0	0	0	0	0	0	12
	August	229	0	0	0	0	0	0	0	0	0
	TOTAL	1614	496	5	0	0	1	0	0	0	304
GRAND TOTAL		11917	3735	51	16	21	56	38	59	159	687

NOTES TO TABLE 15

This table shows the separate activity of Marine carrier aircraft, which has been included in all previous tables but not shown separately. A total of twelve 18-plane F4U squadrons operated from CVs for varying periods, and four CVEs fully complemented by Marine VF, VF(N) and VTB were in action during the last four months of the war.

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3. Land-Based Operations, General Data

TABLE 16. LOSSES, LOSS RATES, AND OPERATIONAL DATA,
LAND-BASED NAVAL AND MARINE AIRCRAFT, PACIFIC ONLY, 1944 - 1945 ONLY,
By Service (Navy-Marine) and Plane Model

SERVICE, PLANE MODEL	AIR- CRAFT ON HAND *	FLIGHTS SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES				OWN LOSS RATES				FLIGHTS	
				OPERATIONAL		ON GR'D	TOTAL, Inclu- ding Enemy Action	OPERATIONAL		GROUND Per Planes Per Month	TOTAL Per Planes Per Month	Per Plane Per Month	Per Action Sortie
				Ac- tion Sor- ties	On Other Fl'ts			Per 100 Action ties	Per 100 Other Fl'ts				
MARINE SQUADRONS	13873	346,342	102,324	189	523	90	1169	0.19	0.21	0.7	8.4	25.0	3.4
F4U, FG	7715	201,352	50,118	131	372	43	788	0.26	0.25	0.6	10.2	26.1	4.0
F6F	511	11,038	1,646	3	27	5	42	0.18	0.29	1.0	8.2	21.6	6.7
FM#	1	25	3	0	1	0	1	@	@	@	@	@	@
SBD	3115	69,526	35,341	33	51	25	173	0.09	0.15	0.8	5.6	22.3	1.7
SB2C, SEW	418	13,796	2,023	3	13	0	17	0.15	0.11	0.0	4.1	33.0	6.8
TBF, TBM	995	28,118	4,758	7	31	15	87	0.15	0.13	1.5	8.7	28.3	5.9
PBJ	1048	20,770	8,390	12	23	2	55	0.14	0.19	0.2	5.2	19.8	2.5
PBY#	3	61	8	0	0	0	0	@	@	@	@	@	@
PV	46	1,413	21	0	5	0	6	@	0.36	@	@	@	@
PB4Y	21	243	16	0	0	0	0	@	0.00	@	@	@	@
NAVY SQUADRONS	6751	88,219	14,414	44	186	120	521	0.31	0.25	1.8	7.7	13.1	6.1
F6F	362	7,707	1,868	12	13	4	41	0.64	0.22	1.1	11.3	21.3	4.1
F4U, FG	109	2,123	742	2	4	0	19	0.27	0.29	0.0	17.3	19.5	2.9
FM	18	242	25	0	1	0	1	@	0.46	@	@	@	@
SBD	396	7,230	2,981	1	16	0	29	0.03	0.38	0.0	7.3	18.3	2.4
SB2C, SEW	82	2,009	332	1	2	6	11	0.30	0.12	@	@	24.5	6.1
TBF, TBM	128	2,421	1,157	3	4	3	16	0.26	0.32	2.3	12.5	18.9	2.1
PB4Y	2244	26,987	3,215	13	68	70	224	0.40	0.29	3.1	10.0	12.0	8.4
PV	1406	16,896	2,439	9	23	18	79	0.37	0.16	1.3	5.6	12.0	6.9
PBM	730	7,672	506	1	33	9	59	0.20	0.46	1.2	8.1	10.5	15.2
PBY	1063	12,600	1,007	1	20	7	35	0.10	0.17	0.7	3.3	11.9	12.5
PB2Y	213	2,332	142	1	2	3	7	0.70	0.09	1.4	3.3	10.9	16.4
GRAND TOTAL	20624	434,561	118,217	234	709	212	1693	0.20	0.22	1.0	8.2	21.1	3.7

- * In terms of plane-months; sum of aircraft reported on hand each month by squadrons in action.
Where no suitable figure was reported for aircraft on hand, authorized complement was used. A monthly average strength in action can be obtained by dividing by 20.
Attached to Hedrons.
@ Ratio not calculated; less than 100 action sorties, flights, or planes on hand.

NOTE: 1481 action sorties by planes not identified as to branch of service are excluded from all figures in this table except the grand total. These are broken down by plane model as follows: 349 F4U, 28 F6F, 440 unidentified VF, 484 SBD, 137 TBF, 41 unidentified VPB. Also in the same category are 2 F4Us destroyed on ground, and 1 SBD lost operationally on an action sortie.

NOTES TO TABLE 16

This table presents detailed data on loss rates and flight activity for land-based aircraft in combat operations, for the years 1944-45 and in the Pacific only. The data are comparable with those for carriers given previously in Table 9.

Attention is invited to the low operational and overall loss rates for land-based planes, particularly for SBD, PBJ and PBY aircraft. Overall loss rates were influenced by the low losses to enemy action sustained by land-based aircraft, which made a large proportion of their attacks on lightly defended or undefended targets, with little airborne opposition in the period covered by this table. The higher loss rates for Navy planes of same types than for Marine planes of the same types are not especially significant; the Navy planes in these cases were frequently used in more demanding operations, and in any event the volume of Navy action in this period was relatively small.

(Cont. on next page)

It will be noted that land-based VF, VSB and VTB generally made far more flights per month than carrier planes; about 25 per VF, 22 per VSB, 27 per VTB, compared with carrier averages of about 17, 11, and 15 respectively. Land-based planes of these types also flew more action sorties per month; over 6 per VF, 10 per VSB, 5 per VTB, as against 5, 6, and 6 respectively.

Patrol bombers, other than the Marine PBJs, averaged 10 to 12 flights per month; only from 6 to 17 percent of these resulted in action. PBJs, used primarily as short-range formation bombers, averaged 20 flights per month, 40 percent of which resulted in action.

Marine F6Fs were almost entirely night fighters, and flew a higher ratio of patrol to action flights than the F4U day fighters. Marine TBMs were also largely used for patrol work, as were the Navy SB2Cs in inshore patrol squadrons.

NOTES TO TABLE 17 (The purpose of this table is primarily to provide a historical record. A number of interesting observations may be made from the tables;)

(a) Marine fighters carried the greatest burden of aerial combat activity of any of the land-based planes. Part A shows their defensive and offensive combat record through the Solomons-Rabaul campaign. In few months from August 1942 to February 1944 did their relatively small force fail to shoot down 50 or more Jap planes. In December 1944 a Marine fighter group went to the rescue at Leyte. In April-June 1945 at Okinawa Marine VF renewed their early performances by accounting for 479 Jap planes in 3 months, this time without the high losses that had marked their successes under the difficult conditions of Guadalcanal (when the combination of F4Fs, poor airstrips, and superior enemy forces had held them to a 5 or 6-to-1 combat superiority over the Japs instead of their 36-to-1 ratio of 1945).

(b) After the removal of the enemy air force from the Bismarcks area, the Marine VF took to bombing, and after the middle of 1944 averaged nearly a third of a ton of bombs on each of their low-level sorties against the Japs.

(c) The Marine dive and torpedo bomber force, building up from small beginnings to a substantial striking power, was the backbone of the anti-shipping and tactical striking force in the Solomons, contributed greatly to the reduction of the Jap bases in the Marshalls, and later contributed the bulk of its strength to give tactical air support in the reconquest of Luzon and the southern Philippines. During late 1942 and early 1943 its few planes were devoted mainly to stopping Jap naval and transport vessels from reinforcing Guadalcanal. Later it carried its anti-shipping strikes to Bougainville, and in early 1944 cleaned the last Jap ships out of Rabaul. Meanwhile as its force expanded it built up its attacks on nearby airfields (Munda and Vila), gave heavy direct support in the New Georgia and Bougainville campaigns, and made the most accurate and effective attacks in the campaign for destruction of the Jap base at Rabaul. In March and April 1944 it was a major factor in turning back the Jap counter attacks on Bougainville, doubling its previous volume of activity, then returned to neutralization of the entire Bismarck area. In late 1944 the Marine SBDs were largely withdrawn from the Bismarcks area for transfer to Luzon, where they began their biggest, though not their most important, job of the war.

(d) Navy fighters and single-engine bombers were used ashore largely to supplement the Marines in critical periods. Some of the shore-based naval squadrons were from sunk, damaged or non-available carriers; others were merely surplus carrier groups for which there was no current need afloat; a few in late 1943 and early 1944 were specially formed as shore-based support squadrons. After June 1944 the latter were decommissioned, and the surplus of carrier groups disappeared; thereafter the only Navy VF, VSB and VTB in shore-based action were from carrier groups conducting training exercises in forward areas, or Navy inshore patrol squadrons patrolling in the Marshalls.

Navy shore-based fighters provided the extra strength needed in the Solomons in late 1942, in the New Georgia and Bougainville campaigns, and against Rabaul. In these campaigns they accounted for 422 Jap planes (in some 2,500 action sorties flown). In addition, one squadron aided in the early neutralization of the Marshalls.

Navy shore-based bombers, while used more continuously than the fighters, were also employed to bolster our Marine forces for major encounters. Thus in September-November 1942 carrier bomber squadrons were used ashore in the critical struggles on Guadalcanal, then withdrawn when the emergency ended. From March to June 1943 (when the Marines had few VTB) Navy squadrons provided most of the weight of attack in the Solomons. In July reinforced Navy squadrons delivered a remarkable total of 1,238 tons to support the New Georgia campaign (against the Marine bombers' 395 tons), then withdrew again for rest. Thereafter Navy land-based bombing effort continued at

(Cont. on page 52)

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TABLE 17. MONTHLY OPERATIONS AND RESULTS, FOR LAND-BASED AIRCRAFT,
By Type of Aircraft and by Service (Navy-Marine), Pacific Only

A. MARINE FIGHTERS

MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT		TONS OF BOMBS ON TARGETS
			ON ACTION		Opera- tional	ON OTHER FL'TS	ON GROUND	DESTROYED IN COMBAT		
			To Enemy A/A	A/C				Bombers	Fighters	
1941-December	*	49	0	0	2	0	18	10	0	0
1942-February	*	#	0	1	0	0	0	#	#	#
March	*	4	0	0	0	0	0	1	0	0
June	*	27	0	15	0	0	0	8	7	0
August	*	57	0	7	0	1	2	21	31	0
September	*	177	1	12	0	6	0	55	22	0
October	*	401	1	19	3	4	6	51	100	0
November	*	168	1	16	6	4	0	22	44	0
December	*	40	0	4	0	4	0	0	17	0
1943-January	*	84	0	7	0	5	0	4	48	0
February	*	10	0	5	0	8	0	5	10	0
March	*	#	0	2	0	0	0	#	#	#
April	*	197	1	11	3	6	2	13	33	0
May	*	113	0	5	1	1	0	0	15	0
June	*	156	0	17	0	20	1	24	65	0
July	*	358	0	18	2	13	0	27	90	0
August	*	414	1	10	4	9	0	15	93	0
September	*	430	3	14	8	7	0	11	59	0
October	*	282	4	3	1	9	0	0	57	0
November	*	401	4	5	3	8	1	7	12	0
December	*	462	2	10	4	14	1	0	73	0
1944-January	3,679	951	2	20	6	14	2	0	249	0
February	4,554	1,160	2	13	6	7	0	7	73	0
March	6,593	819	7	0	0	14	1	0	15	51
April	5,956	1,169	13	1	3	11	1	2	0	149
May	8,334	1,594	9	0	5	8	2	0	0	278
June	7,314	1,332	10	0	3	11	2	0	1	165
July	8,029	2,901	10	0	6	6	0	0	0	745
August	11,056	4,331	8	0	4	11	0	0	0	1,420
September	11,145	3,607	8	0	8	10	1	0	0	1,091
October	15,013	4,747	12	0	5	9	0	0	1	1,558
November	14,638	5,148	16	0	9	7	3	0	0	1,402
December	15,533	2,958	12	3	8	25	5	10	44	1,056
1945-January	11,611	2,433	11	0	8	32	5	1	4	621
February	10,036	3,324	11	0	9	16	8	0	1	1,127
March	7,914	2,945	12	0	5	18	0	0	1	953
April	12,435	3,618	9	5	12	28	13	98	47	1,173
May	15,395	2,662	15	3	9	46	5	84	133	924
June	18,837	2,980	15	5	13	42	0	41	76	976
July	15,753	2,540	14	1	13	72	0	8	10	767
August	8,590	548	2	0	2	13	0	2	1	133
1941-2 Total	*	923	3	74	11	19	26	78	221	0
1943 Total	*	2,907	15	107	26	100	5	16	555	0
1944 Total	111,844	30,717	109	37	63	133	17	19	383	7,915
1945 Total	100,571	21,050	89	14	71	267	31	234	273	6,674
GRAND TOTAL	212,415	55,597	216	232	171	519	79	527	1,432	14,589
* No data available										

* No data available.

No action reported; losses reported may have been sustained in unreported actions during this month, or in previous months' action, or may be erroneous reports.

No action was reported during months not listed above.

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TABLE 17. Continued

B. MARINE DIVE AND TORPEDO BOMBERS

MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT DESTROYED IN COMBAT		TONS OF BOMBS ON TARGETS
			ON ACTION SORTIES		ON OTHER FL'TS	ON GROUND	Bombers	Fighters		
			To Enemy A/A	Opera- A/C tional						
1942-June	*	39	4	6	3	1	0	0	6	11
August	*	20	1	0	0	1	0	0	0	8
September	*	125	0	2	4	4	0	0	0	31
October	*	123	4	2	2	4	7	0	4	51
November	*	321	5	1	1	1	0	0	4	126
December	*	291	3	1	0	8	0	0	2	83
1943-January	*	310	2	4	1	5	0	0	2	97
February	*	374	8	9	0	9	0	0	6	167
March	*	162	0	0	1	6	0	0	1	81
April	*	122	11	1	2	10	0	0	0	61
May	*	69	1	0	2	1	0	0	0	47
June	*	102	1	1	5	5	0	0	0	57
July	*	808	4	1	1	3	0	0	2	395
August	*	655	1	0	2	1	0	0	0	373
September	*	788	7	0	1	1	2	0	2	460
October	*	774	2	0	3	6	1	0	0	435
November	*	1,331	2	1	1	6	2	0	0	874
December	*	1,527	3	0	4	7	0	0	0	1,000
1944-January	3,495	914	10	4	6	4	2	0	14	427
February	3,421	1,421	15	1	2	10	1	0	2	707
March	5,154	2,951	7	0	0	3	1	0	0	1,658
April	5,855	2,269	8	0	4	1	1	0	0	1,205
May	4,700	2,030	13	0	1	4	0	0	0	942
June	5,156	1,574	7	0	1	2	0	0	0	659
July	4,413	2,116	3	0	1	0	1	0	0	983
August	4,761	2,352	2	0	0	4	0	0	0	1,047
September	4,360	2,018	3	0	0	2	0	0	0	915
October	6,335	1,938	2	0	1	4	0	0	0	892
November	6,019	1,026	0	0	3	6	1	0	0	455
December	5,234	466	0	0	1	6	10	0	0	214
1945-January	4,084	654	1	0	0	2	0	0	0	293
February	5,788	4,128	4	2	3	2	2	0	0	1,767
March	7,494	4,508	5	0	9	1	1	0	0	2,127
April	7,803	3,402	5	0	2	6	9	0	0	1,602
May	8,567	3,623	3	0	1	15	9	0	1	1,929
June	9,327	2,731	1	0	4	11	1	1	0	1,422
July	6,307	1,699	3	0	3	11	1	0	0	919
August	3,167	302	0	0	1	1	0	0	0	155
1942 Total	*	919	17	12	10	19	7	0	16	310
1943 Total	*	7,022	42	17	23	60	5	0	13	4,047
1944 Total	58,903	21,075	70	5	20	46	17	0	16	10,104
1945 Total	52,537	21,047	22	2	23	49	23	1	1	10,214
GRAND TOTAL	111,440	50,063	151	36	76	174	52	1	46	24,675

* No data available.

No action was reported during months not listed above.

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TABLE 17. Continued

C. NAVY FIGHTERS

MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES				ON OTHER FL'TS	ON GROUND	ENEMY AIRCRAFT DESTROYED IN COMBAT		TONS OF BOMBS ON TARGETS
			ON ACTION SORTIES			Bombers			Fighters		
			To Enemy A/A	Opera- A/C tional							
1942-September	*	82	0	4	1	2	0	19	15	0	
October	*	77	0	15	1	2	16	6	7	0	
November	*	7	0	0	0	1	3	0	4	0	
1943-February	*	#	2	4	0	5	1	#	#	#	
March	*	8	0	0	0	0	0	0	0	0	
April	*	#	1	7	0	1	0	#	#	#	
May	*	3	0	0	0	2	0	0	0	0	
June	*	81	0	10	2	7	0	20	19	0	
July	*	167	0	16	3	8	0	8	49	0	
September	*	169	0	8	1	2	0	0	27	0	
October	*	174	0	4	0	1	0	0	7	0	
November	*	520	6	4	5	4	0	28	39	0	
December	*	266	0	3	0	2	1	1	21	0	
1944-January	1,804	412	0	15	6	5	1	2	94	0	
February	1,242	629	2	3	1	0	0	0	56	1	
March	2,077	494	3	0	3	4	1	0	0	19	
April	1,748	367	0	0	2	5	0	0	0	85	
May	1,015	358	0	0	0	2	0	0	0	101	
June	900	231	0	0	2	0	0	0	0	5	
July	0	23	0	0	0	0	0	0	0	0	
1945-March	886	76	1	0	0	1	2	0	0	20	
April	89	10	0	0	0	0	0	0	0	0	
May	1	1	0	0	0	0	0	0	0	0	
June	48	5	1	0	0	0	0	0	0	0	
August	262	29	0	0	0	1	0	0	0	0	
1942 Total	*	166	0	19	2	5	19	25	26	0	
1943 Total	*	1,388	9	56	11	32	2	57	162	0	
1944 Total	8,786	2,514	5	18	14	16	2	2	150	211	
1945 Total	1,286	121	2	0	0	2	2	0	0	20	
GRAND TOTAL	10,072	4,189	16	93	27	55	25	84	338	231	

D. FIGHTERS, SERVICE UNKNOWN

1944-January	*	238	0	0	0	0	0	1	0	0
February	*	110	0	0	0	0	0	0	2	0
March	*	420	0	0	0	0	2	0	0	0
April	*	59	0	0	0	0	0	0	0	14
Total	*	817	0	0	0	0	2	1	2	14

* No data available.

No action reported; losses reported may have been sustained in unreported actions during this month, or in previous months' action, or may be erroneous reports.

No action was reported during months not listed above.

TABLE 17. Continued

E. NAVY DIVE AND TORPEDO BOMBERS

MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT		TONS OF BOMBS ON TARGETS
			ON ACTION SORTIES			ON OTHER FL'TS	ON GROUND	DESTROYED IN COMBAT		
			To Enemy A/A	Opera- A/C	tional			Bombers	Fighters	
1942-June	*	6	0	5	0	0	0	0	0	4
August	*	11	0	0	0	0	0	0	0	4
September	*	122	1	0	0	4	0	0	0	42
October	*	237	1	6	5	3	17	0	9	104
November	*	110	2	2	0	12	1	0	3	58
December	*	#	0	2	0	7	0	#	#	#
1943-February	*	12	0	1	0	1	0	0	0	6
March	*	154	0	0	1	2	0	0	0	97
April	*	118	1	0	0	2	0	0	0	91
May	*	262	2	0	3	1	0	0	0	179
June	*	386	2	1	1	10	0	0	0	248
July	*	1,747	3	2	2	4	0	0	4	1,238
August	*	34	0	0	0	0	0	0	0	25
September	*	163	0	0	1	1	0	0	0	103
October	*	225	3	0	1	5	0	0	0	160
November	*	392	0	1	1	1	0	0	0	227
December	*	456	1	0	0	2	1	0	0	262
1944-January	1,508	405	3	0	0	6	0	0	1	161
February	977	537	3	0	1	4	0	0	0	236
March	2,437	1,115	5	0	1	3	1	0	0	533
April	2,458	1,051	3	0	2	5	0	0	0	555
May	1,423	976	2	0	0	0	0	0	0	523
November	225	1	0	0	0	0	0	0	0	0
December	249	1	0	0	0	0	0	0	0	0
1945-March	219	56	0	0	0	1	8	0	0	35
April	323	28	0	0	0	0	0	0	0	2
May	364	42	2	0	0	0	0	0	0	1
June	447	104	1	0	0	1	0	0	0	42
July	394	86	0	1	1	2	0	0	0	30
August	636	68	0	0	0	0	0	0	0	24
1942 Total	*	486	4	15	5	26	18	0	12	212
1943 Total	*	3,949	12	5	10	29	1	0	4	2,636
1944 Total	9,277	4,086	16	0	4	18	1	0	1	2,008
1945 Total	2,383	384	3	1	1	4	8	0	0	134
GRAND TOTAL	11,660	8,905	35	21	20	77	28	0	17	4,990

F. DIVE AND TORPEDO BOMBERS, SERVICE UNKNOWN

1944-January	*	23	0	0	0	0	0	0	0	1
February	*	25	0	0	0	0	0	0	0	8
March	*	419	0	0	1	0	0	0	0	56
April	*	139	0	0	0	0	0	0	0	69
May	*	15	0	0	0	0	0	0	0	2
Total	*	621	0	0	1	0	0	0	0	136

* No data available.

No action reported; losses reported may have been sustained in unreported actions during this month, or in previous months' actions, or may be erroneous reports.

No action was reported for months not listed above.

TABLE 17. Continued

G. NAVY PATROL BOMBERS

MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT		TONS OF BOMBS ON TARGETS
			ON ACTION SORTIES			ON OTHER FL'TS	ON GROUND	DESTROYED IN COMBAT		
			To Enemy		Opera- tional			Bombers	Fighters	
			A/A	A/C						
1941-December	*	21	0	8	0	0	18	0	2	5
1942-January	*	13	0	2	0	0	4	0	1	0
February	*	6	0	5	0	0	5	0	1	0
May	*	6	0	0	2	0	0	0	0	3
June	*	28	5	13	1	6	0	0	0	5
July	*	4	0	0	0	2	0	0	0	1
August	*	10	0	1	0	1	1	0	4	6
September	*	8	0	0	0	3	1	0	0	1
October	*	10	0	1	0	0	0	0	0	2
November	*	#	0	2	0	0	4	#	#	#
December	*	3	0	0	0	0	1	0	0	0
1943-January	*	2	0	0	0	0	0	0	0	0
February	*	34	0	3	0	0	0	0	0	75
March	*	37	1	0	2	1	0	0	0	33
April	*	9	0	0	0	0	0	0	0	7
May	*	7	0	0	0	4	0	0	0	0
June	*	50	0	0	0	1	0	0	0	39
July	*	63	0	1	0	5	0	1	5	41
August	*	30	2	1	0	1	0	1	0	29
September	*	88	0	0	2	4	3	2	5	36
October	*	143	0	0	4	4	1	4	1	94
November	*	176	1	0	0	6	0	2	9	79
December	*	164	2	2	0	7	3	1	8	114
1944-January	3,541	349	5	1	1	8	3	2	6	280
February	3,560	313	2	0	0	8	5	3	1	193
March @	3,280	486	2	0	2	4	1	4	0	450
April	2,657	353	4	0	0	2	0	9	3	249
May	2,856	506	2	1	1	11	0	9	8	383
June	2,942	302	3	0	2	9	4	12	8	155
July	2,366	226	2	1	1	2	0	2	2	108
August	3,220	403	1	1	2	5	3	1	3	237
September	2,279	237	2	2	0	4	1	6	3	103
October	2,543	263	6	3	0	5	1	9	9	154
November	3,199	267	2	3	1	4	16	2	8	147
December	2,729	347	5	2	0	6	8	9	27	193
1945-January	2,900	141	1	0	2	6	0	3	7	42
February	2,726	265	9	0	3	6	2	13	13	42
March	4,921	450	10	1	1	12	10	14	11	173
April	4,395	449	6	0	0	9	15	9	2	161
May	4,027	743	20	3	3	10	9	15	28	367
June	4,390	552	10	3	3	14	11	1	19	347
July	4,433	493	7	1	2	14	13	3	7	203
August	3,523	205	4	1	1	7	5	2	6	58
1941-2 Total	*	109	5	32	3	12	34	0	8	23
1943 Total	*	803	6	7	8	33	7	11	28	547
1944 Total	35,172	4,052	36	14	10	68	42	68	78	2,652
1945 Total	31,315	3,298	67	9	15	78	65	60	93	1,393
GRAND TOTAL	66,487	8,262	114	62	36	191	148	139	207	4,615

* No data available.

No action reported; losses reported may have been sustained in unreported actions, or in previous months' actions, or may be erroneous reports.

@ Including 33 sorties, and 41 tons of bombs, by VPB of unknown branch of service.

No action was reported in months not listed above.

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TABLE 17. Continued

H. MARINE PATROL BOMBERS

MONTH	FLIGHTS, SQUAD- RONS IN ACTION	ACTION SORTIES	OWN LOSSES					ENEMY AIRCRAFT		TONS OF BOMBS ON TARGETS
			ON ACTION SORTIES			ON OTHER FL'TS	ON GROUND	DESTROYED		
			To Enemy A/A	Opera- tional A/C	IN COMBAT			Bombers	Fighters	
1943, Total	*	32	0	2	0	3	2	2	1	3
1944-January	351	11	0	0	0	0	0	1	0	0
February	421	6	1	0	0	1	0	1	4	0
March	687	132	2	0	0	5	0	1	0	70
April	285	142	0	0	2	0	0	0	0	81
May	877	158	1	0	0	2	0	0	1	60
June	436	148	1	0	1	0	0	0	0	43
July	479	188	1	0	0	0	0	0	0	119
August	846	239	0	0	0	1	0	0	0	143
September	789	333	5	0	0	1	0	0	0	173
October	885	322	1	0	1	1	0	0	0	198
November	1,314	655	0	0	1	4	0	0	0	507
December	1,274	685	0	0	0	0	0	0	0	670
1945-January	1,782	516	0	0	0	1	0	0	0	560
February	1,867	845	2	0	2	1	0	0	0	817
March	1,429	698	0	0	3	0	0	0	0	731
April	1,967	1,020	1	0	0	5	0	0	0	1,190
May	2,091	1,023	4	0	0	1	0	0	0	1,278
June	1,804	526	0	0	2	1	0	0	0	489
July	1,874	628	0	0	0	2	1	0	0	724
August	1,029	160	0	0	0	2	1	0	0	149
1943-4 Total	8,644	3,051	12	2	5	18	2	5	6	2,067
1945 Total	13,843	5,416	7	0	7	13	2	0	0	5,938
GRAND TOTAL	22,487	8,467	19	2	12	31	4	5	6	8,005

*Data not available.

(Cont. from p. 46)

a reduced scale in the Bougainville and Rabaul campaigns, and in the Marshalls, until its cessation in May 1944.

(e) The story of Navy patrol bombers, particularly with respect to their anti-shipping campaign of 1945, is more fully told elsewhere in this report. Certain items of Table 17G require detailed comment here;

- (1) Patrol bomber losses to enemy aircraft in June 1942 are believed overstated, but to what extent is not known.
- (2) The high bomb tonnages reported for February and March 1943 result from initial use of the first PB4Y squadron for horizontal bombing in formations. They were later restored to their normal single-plane search function.
- (3) High tonnage in January 1944 results from extensive minelaying operations in the Marshalls.
- (4) High tonnages in March 1944 result from the use of VPB to meet the emergency created by the Jap counter attack on Bougainville, plus extensive use of PVs (during April and May also) for bombing strikes against the Marshalls and Nauru.
- (5) The lull in activity in early 1945 represented exhaustion of targets within range of present bases, followed by redistribution of the force to Luzon, Iwo, and Okinawa, from which extensive new target areas came within range.
- (6) The record of the patrol bombers against enemy aircraft in 1944 and 1945 is worthy of note. Though VPB generally operated singly, without escort, they were able to destroy 146 planes against 14 losses in combat in 1944, and 153 against 9 losses in 1945.

(f) Marine VPB activity is largely the story of the PBJ, which first appeared in combat in March 1944. These planes were used for day and night patrol, for night heckling strikes in the Solomons area, and for daylight formation attacks almost entirely in the Solomons. The PBJ constituted the bulk of the bombing force in that area during 1945, and the only significant Naval air strength remaining in the area. During late 1944 and 1945 other PBJ squadrons undertook long-range anti-shipping searches and similar specialized missions from Central Pacific bases.