

RAF REAPER MALE RPAS CAPABILITY/LESSONS

“RPAS IN CIVIL USE”



The slides in this presentation are

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SO1 ISTAR Land HQ 2Gp

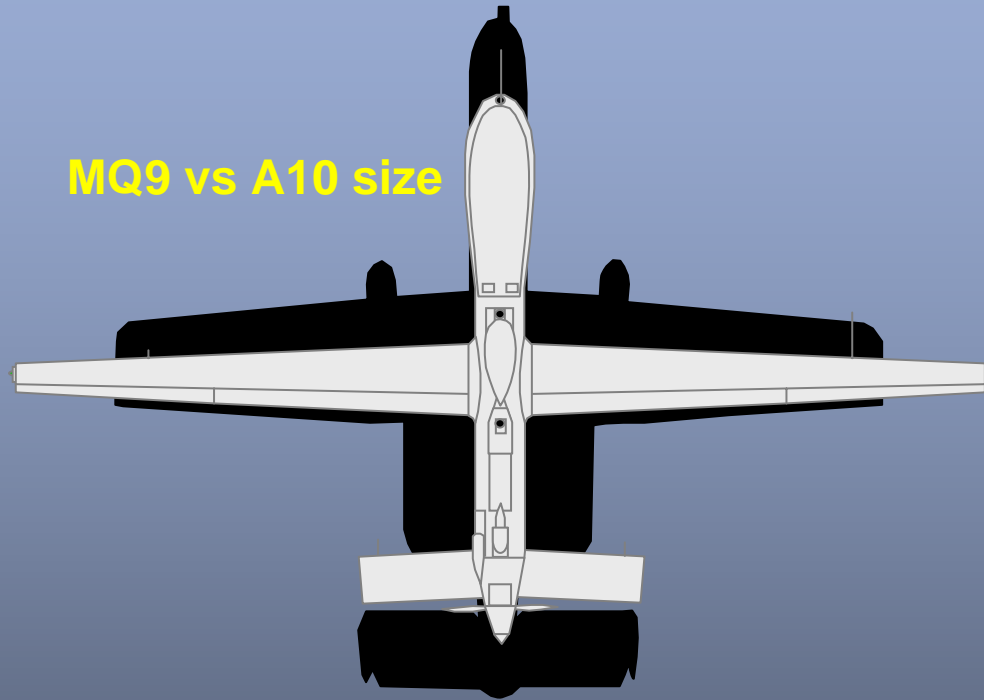


Scope

- REAPER – armed ISR capability
- UK REAPER Roadmap to 2015+
- Lessons Identified on Operations
- Civil Use as background
- Questions/Discussion

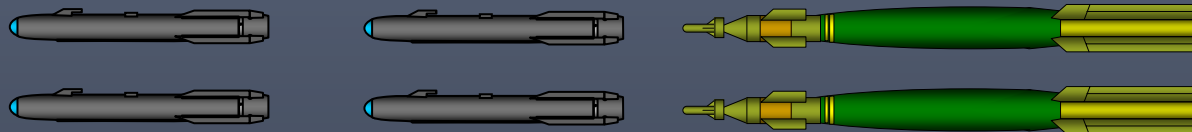
RAF MQ-9 REAPER

MQ9 vs A10 size

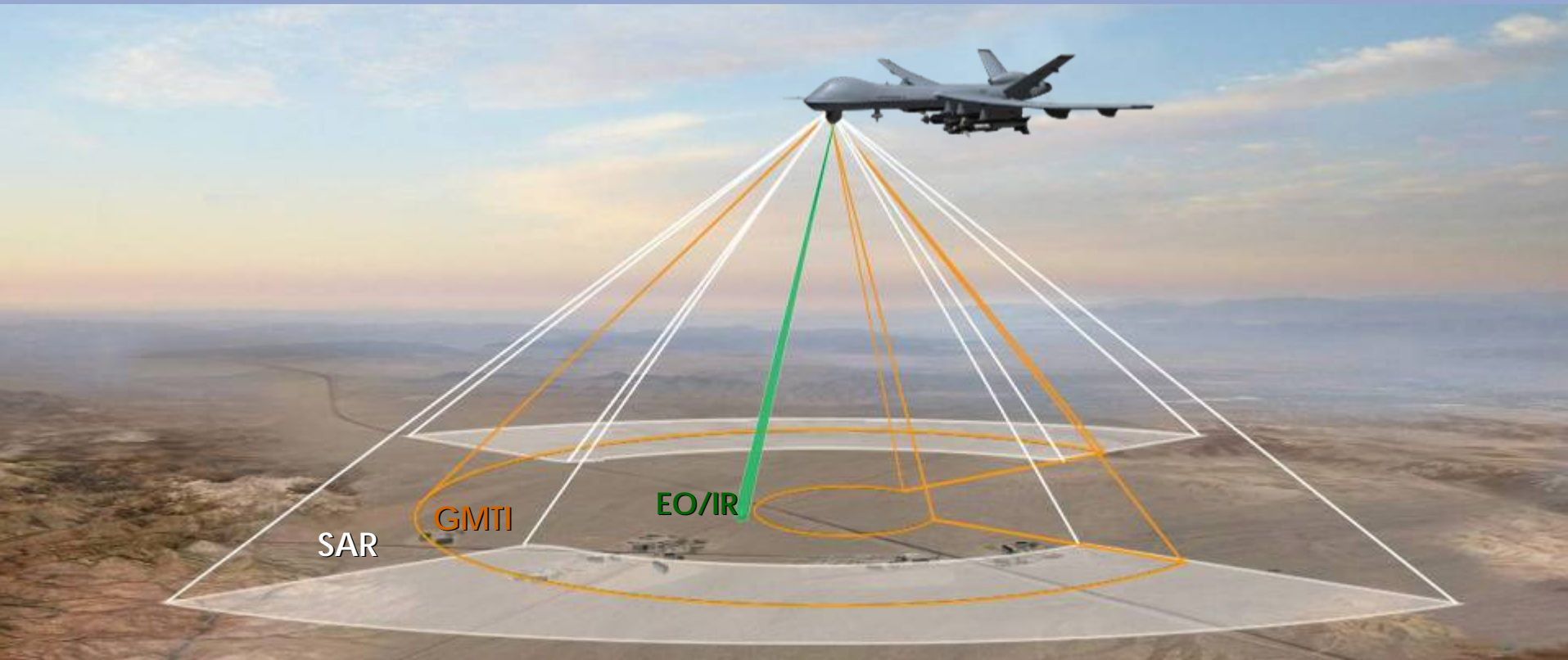


- **Dimensions**
 - Wingspan 66'
 - Length 36'
 - Max gross weight 10,500 lbs
- **Max speed 250 KTAS**
- **Endurance**
 - 20 hrs clean
 - 12+ hrs fully combat loaded
- **Operating altitude**
 - 30K+ with weapons
 - 50K+ clean

Normal Weapons Load: 4xAGM-114 HELLFIRE & 2x GBU-12 500lb LGB



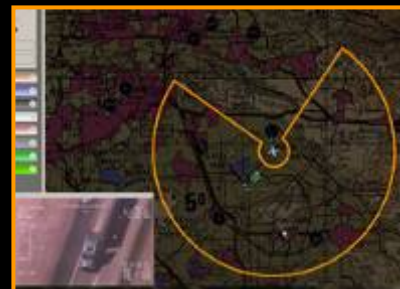
REAPER Sensor Capability



All weather SAR imagery and object detection



GMTI and EO/IR cross-cueing



EO/IR



UK REAPER MALE RPAS ROADMAP

2007

MQ-9 Reaper
6 ac
(1ac lost)



2012

2013

**Additional
Reaper
Capability**
Additional 5 ac
39 Sqn & XIII Sqn
RAF Waddington MCE

2015

**Planned
Reaper
OSD**

2018

**SCAVENGE
MALE RPAS
PASE – 2018**



Lessons Identified – The Complimentary Force Mix



Now
↔



Future
↔



Lessons Identified - Personnel

- Performing persistent ISR requires significant manpower resources, but:
 - RPAS offer the most efficient way to deliver persistence from an aircraft
- Over the horizon BLOS operations reduces in theatre footprint and associated logistic, life support and FP requirements
- Overseas basing: return of personnel
 - Increased trg burden vs cost of relocation to UK
- Human Factors
 - Fatigue and Psychological Stressors

Lessons Identified - Procurement

- Jan 04: Creation of 1115 Flt RAF under CJPTF
- Aug 06: FMV UOR
- Dec 06: UK individuals transfer Reaper Training
- Oct 07 : 1st RAF REAPER to Afghanistan
- Oct 07 : RAF REAPER ISD achieved
- May 08: Weapons 1st fitted and used
- Aug 09: IOC (16/7 – 11 crews – UK MGCS)
- Mar 10: FOC (24/7 - 15crews, 3ac 2 MGCS)
- Sep 10: FOC+ (36/7 – 21crews 4ac 3 MGCS)
- Mid 2012: ARC (up to 3x 24/7 orbits – 44 crews)

Lessons Identified - Operations

- 25000+hrs ISR : 190+ weapons released
 - Fatigue life of aircraft: F3 OSD ~5000hrs/25 yrs; UK Reaper ~9500hrs/2.5 yrs
- Interoperability – US/Coalition
- Sharing of TTPs promotes rapid capability development and and best practise
- > 95% airframe and sensor reliability; better than traditional traditional ISR or combat aircraft

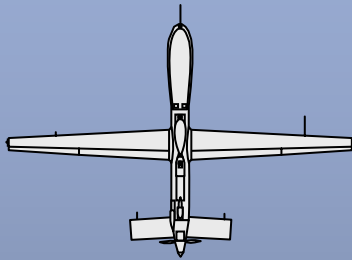
Lessons Identified - Operations

- **Joint Air-Land Integration**
 - MCE is 4,000 miles away from Brigade training
 - Ability to bring FAC/JTACs to GCS to see live ops
- **Multi Sensors**
 - Requirement to use sensors concurrently
- **CAS in complex urban environments**
 - Low Yield Weapons
 - Use of Hellfire is nearly 3:1 when compared to GBU-12
 - Even lower yield weapons may have enabled kinetic options against non-prosecutable targets
 - Ability for Reaper to persist over target to ensure minimal risk of civilian casualties and take advice if required

Lessons Identified - Safety



Lessons Identified - Safety



2005 1.25/10,000fg hrs

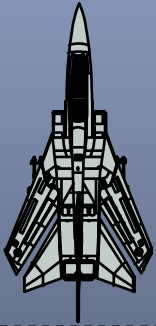
2006 0.33/10,000fg hrs

2007 0.6/10,000fg hrs

2008 0.57/10,000fg hrs

USAF PREDATOR A ~0.9/10,000fg hrs (over ~800,000 hrs)

UK/US REAPER ~1.1/10,000fg hrs (over ~120,000 hrs)



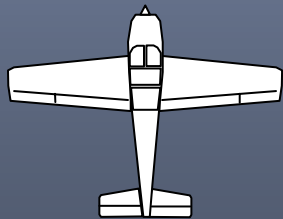
SHAR 1.88/10,000fg hrs (>1979)

Jag 1.02/10,000fg hrs (>1973)

GR7/9 0.97/10,000fg hrs (>1988)

GR1/4 0.59/10,000fg hrs (>1980)

F3 0.28/10,000fg hrs (>1985)



1995 2.44/10,000fg hrs

1996 2.24/10,000fg hrs

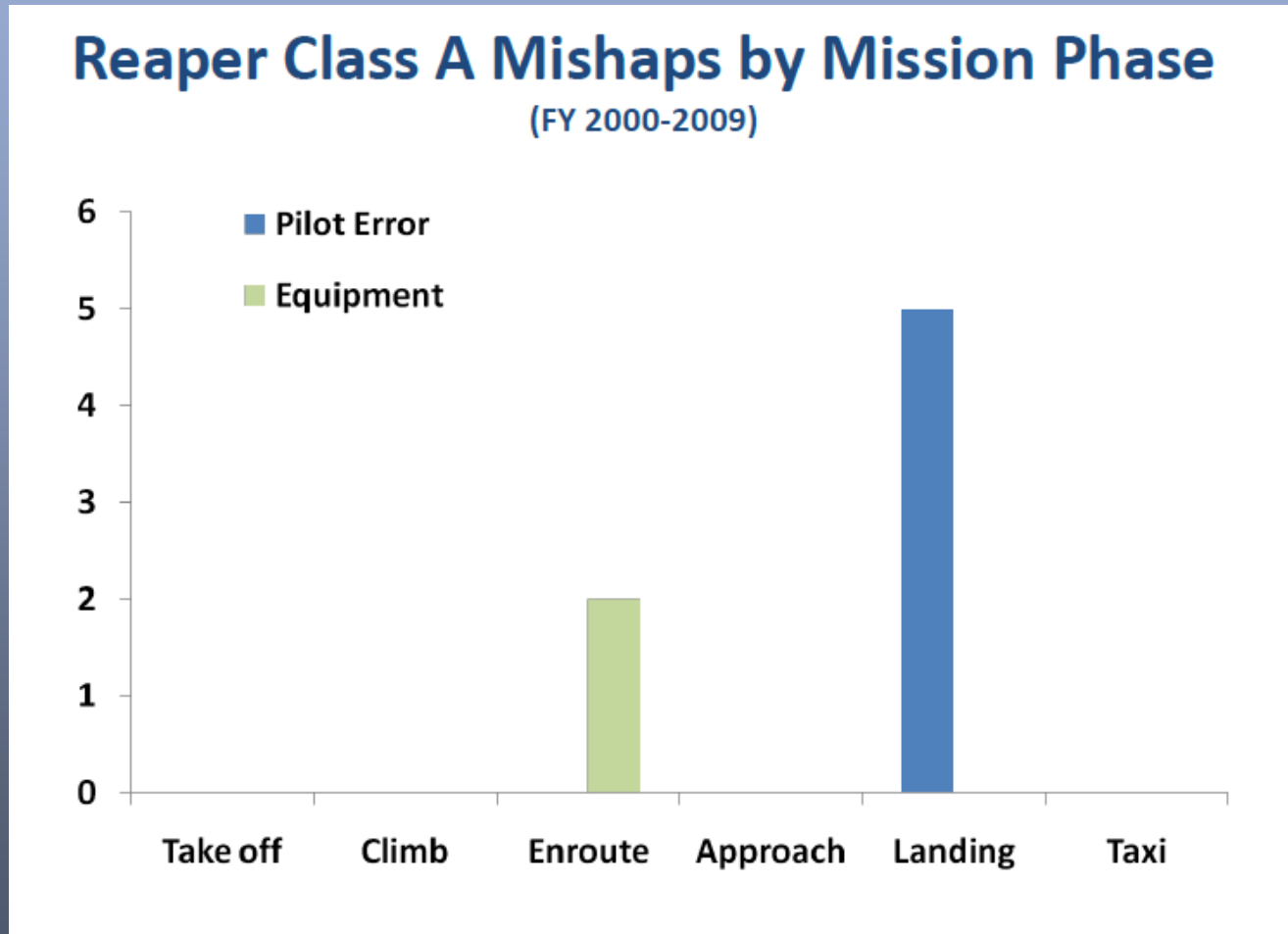
1997 2.28/10,000fg hrs

1998 2.12/10,000fg hrs

1999 2.08/10,000fg hrs

Lessons Identified - Safety

- The USAF's experience accords with ours...



Lessons Identified - Training

- RPAS crews need to be equally skilled and professional as conventional aircrew; but can be trained differently
 - Early trials suggest pilot training costs could be reduced by 80%
- **Sensor Operator**
 - Currently both Officers and SNCO's
 - WSO/WSOp or IA?

Maritime Surveillance



EO Imagery

IR Imagery

Surface Search Radar Imagery

B-Scan	
Expanded View of Track	
TV: 10000000	91
SECOUND: 91AR	64
MODE:	91
RANGE:	64
HOOK DATA	
AT: 10000000	
BT: 10000000	
BT: 10000000	
RANGE: 00.4 NM	
BEARING: 110.7°	
TTG: 00:10:10	



QUESTIONS?