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U.S. PATENTS - The Star SAFIRE® 380-HD Series Systems are protected by the following patents: U.S. Patent No. 7,264,220; U.S. Patent No. 7,471,451; U.S. Patent No. 7,561,784; and U.S. Patent No. 7,671,311. Other U.S. and International Patents Pending.

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DOCUMENTATION SYSTEM INFORMATION

Revision Number: 0.1.1

Processor Backend: docbook5

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WARNING - ITAR Controlled Technical Data

APPLICABILITY

This document applies to the following product configurations:

Product configuration 0 baseline.

Product configuration 1 serial number beginning 000000100.

Product configuration 3 serial number beginning 100000001.

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1

Ascii1000D - Description

1.1. Description



1.1.1. System definitions

Bold, *underline*, **highlight**, subscript, superscript, other text styles available.

Special characters invoked by character substitution such as ©, ®, →, and more.

Keyboard sequences are supported by the kbd macro, for example `CTRL+ALT+DEL`.

The footnote macro produces notes in the bottom of the page¹

NOTE

The KBD macro is only active when the EXPERIMENTAL document attribute is declared. Otherwise, it appears as monospaced verbatim text.

1.1.2. Index test

The Lady of the Lake, her arm clad in the purest shimmering samite, held aloft Excalibur from the bosom of the water, signifying by divine providence that I, Arthur, was to carry Excalibur . That is why I am your king. Shut up! Will you shut up?! Burn her anyway! I'm not a witch. Look, my liege! We found them.

Unordered List

- Item
- Item
- Item

Ordered list

1. Item

¹Text of the footnote

2. Item
 - 2.1. Item
 - 2.2. Item
 - 2.2.1. Item
3. Item

1.1.3. System 2 Definitions

Demo for change process

1.2. Description part two

Descriptive data modules are relatively unconstrained.

This content is specific to CONFIG1.

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2

Ascii1000D - Inspect

2.1. Prerequisites

2.1.1. Support equipment

NA

2.1.2. Supplies

NA

2.1.3. Spares

NA

2.2. Procedure

WARNING

Material may cause burning to death

1.

WARNING

High voltage kills! ZAP

Turn on the system if the temperature is under 80°

2. Use the source switch to ensure that the electrical system is not AC (Alternating Current) during maintenance.
3. Ensure electrical safety procedures are followed.
4. If the system is CONFIG1, check yellow warning light
5. Confirm green light
6. Reserve spare units in accordance with OEM (Original Equipment Manufacturer) published storage procedures.

2.3. Closing Requirements

NA

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3

Ascii1000D - Remove

3.1. Prerequisites

3.1.1. Support equipment

NA

3.1.2. Supplies

NA

3.1.3. Spares

NA

3.2. Procedure

1.

WARNING

Do not remove the wrong part

Remove the part.

1.1.

CAUTION

Skydrol is a surface irritant and inhalation hazard

Drain fluids from part.

1.2. Perform other cleaning operations.

2. Reserve the removed part for bench testing according to OEM (Original Equipment Manufacturer) storage procedures.

3.3. Closing Requirements

NA

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4

Ascii1000D - Install:DMC

4.1. Prerequisites

4.1.1. Support equipment

NA

4.1.2. Supplies

NA

4.1.3. Spares

PNR	NOMEN	QTY
999-999999-99	SparePart	1
999-888888-991	SpareConfig1	1

4.2. Procedure

1. Install the part
2. For CONFIG1, perform the following steps
 - 2.1. Remove the yellow light]

4.3. Closing Requirements

Perform inspection	Chapter 2, Ascii1000D - Inspect [3]
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5

Frame fork - Install

5.1. Preliminary requirements

Table 5.1. Required conditions

Action/Condition	Data module/Technical publication
The bicycle is safely held on a work stand	

Support equipment

Table 5.2. Support equipment

Name/Alternate name	Part number	MFC	Quantity	Remark
Work stand	Stand-001	Stand	1	

Spares

Table 5.3. Spares

Name/Alternate name	Part number	MFC	Quantity	Remark
Frame fork	St-001-02	KZ555	1	
Upper bearing cup	St-001-03	KZ555	1	
Brake cable hangar	BR-LVRS-002	KT444	1	
Dust seal	St-001-04	KZ555	1	
Conical expansion washer	St-001-05	KZ555	1	

5.2. Procedure

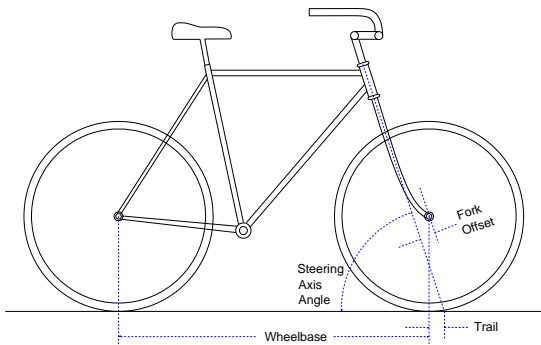


Figure 5.1. Test SVG image

1. Install the Frame Fork on the frame.
2. Install the Upper bearing cup.
3. Install the components that follow on the steering tube:
 - Brake cable hangar
 - Dust seal
 - Conical expansion washer
4. Install the stem

5.3. Requirements after job completion

NA

6

System Control/Symbology

Successful operating missions require operators to have a solid understanding of the system operating modes; how to select and control these operating modes; and how to select and interpret the display screen symbology. This chapter provides System Control Unit (SCU) and display screen symbology for the Star SAFIRE® 380-HD system.

6.1. Operational Limitations

This section provides operation recommendations including airspeed, if applicable, and crash damage.

6.1.1. Airspeed

Teledyne FLIR recommends a maximum airspeed for system operations.

CAUTION

Flights exceeding a maximum airspeed of 415 Knots could damage the TFU.

6.1.2. Crash Damage

In the event of a crash, systems are known to exhibit broken windows with cracked or large shards of glass fragments inside the TFU and on the ground at the crash site. Proper handling of Teledyne FLIR equipment (LRUs) are covered in this section.

First Responders

First Responders include Rescue Crew, Aircrew, and Aircraft Maintenance Crew. This section provides hazards and equipment requirements.

WARNING

While there are no specialized identified Personal Protective Equipment (PPE), Teledyne FLIR strongly recommends use of thick or heavy leather gloves while handling of TFUs with broken windows or fractured housing material.

WARNING

Use extreme care when handling shards of broken or cracked glass fragments.

Requirements are as follows:

- Environmental Hazards: None
- Chemical Hazards: None
- Ozone Depleting Chemicals: None
- Personal Protective Equipment (PPE): Protective gloves (for broken glass)

6.2. Operational Techniques

Test change.

Understanding the concepts of infrared (IR) imaging, good crew coordination, learning and practicing the various system modes of operation, and sharing information and techniques with other operators and departments will ensure successful missions.

6.2.1. Crew Operation

Good communication between the aircraft pilot, ground personnel, or another ground station results in safer, more successful missions. One operating challenge is to correctly determine the direction and tracking of a moving target and then follow it. The system needs to be constantly adjusted for platform movement, target movement, and Line-of-Sight (LOS). Crew coordination is key to success.

6.2.2. Successful Operating Ideas

In order to maximize successful mission completion, operators should become familiar with the system. Here are some tips and suggestions to increase mission success. The following operating suggestions are provided to aid operators:

CAUTION

For non-maritime model TFUs, do not install, operate, or store the TFU in the ball up configuration when exposed to the elements. Water intrusion may occur in the skillet during heavy inclement weather.

CAUTION

Do not store the TFU for long periods with the lenses facing the sun. Long term exposure to the sun will damage the system optics.

NOTE

The following target approaches can cause erratic gimbal behavior and should be avoided during operation:

1. ball-down systems, -90° elevation (nadir)
2. ball- up systems , $+90^\circ$ elevation (zenith).

NOTE

If the IR sensor approaches over-heating (in extreme high temperature environments such as in the desert), the system will shut the IR sensor down. This is similar to the hibernate mode. If this occurs, all other sensors will be available. Once the system cools down, the IR sensor will again be available for use.

- Develop a solid understanding of thermal imaging as opposed to visible light, and the impact of environmental factors on the images.
- Build video libraries for review, instruction, and reference. Share tactics, techniques, and procedures with other operators and departments.
- Learn to adjust the system according to the existing or changing environmental conditions. Proper Grayscale, Scene Temperature, and Gain / Level adjustment enhances the display for even minor target temperature variations.
- Practice finding and tracking various thermal cues, which can be 'hot,' 'cold,' or somewhere in between, depending on the situation. When using an Infrared (IR) sensor, the operator must keep in mind the visual cues he/she is used to seeing with his/her eyes will be presented differently. The operator needs to understand how to interpret the scene in order to provide useful narration or direction to others during a mission.
- Search in wider fields of view and identify in narrower fields of view.

6.3. Modes of Operation

Various turret control modes and image optimization settings are available to help operators successfully complete mission objectives. The most commonly used functions are shown in the table below.

Table 6.1. Modes of Operation

Turret Control Mode	Image Optimization
Cage (CAGE) & Stow (STOW)	Polarity (POL)
Inertial Point (IP)	Focus - Auto & Manual
Heading Hold (HH)	Gain and Level /Exposure (Auto, Manual, Histogram)
Rate Aid (RA)	Non-Uniformity Correction (NUC)
Geopoint (GEOPOINT); Image Aid Geopoint(GEOPOINT-IA)	Field-of-View Change
Tracking	Scene Temperature

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