

Report on the Study of Unmanned Aircraft Systems/Aerial Drones

Excerpt from the WCIRB Classification and Rating Committee Minutes
June 1, 2017

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Classification Study — Unmanned Aircraft Systems/Aerial Drones

3830, Airplane Mfg. – including foundry operations

3681(1), Instrument Mfg. – electronic – professional or scientific – N.O.C.

5128, Instrument – professional or scientific – installation, service or repair – away from shop – not office machines

7410, Aircraft Operation – agricultural – dusting, spraying and seeding – not members of the flying crew

7428(1), Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew – N.O.C.

8720(1), Inspection for Insurance, Safety or Valuation Purposes – N.O.C. – including Outside Salespersons

Objective

The objective of this study is to review the procedure for classifying commercial and industrial Unmanned Aircraft System (UAS)¹ operations, as well as their manufacture and repair. In the course of this review, the WCIRB evaluated the following:

1. Whether any existing classifications are directly applicable to the manufacture, operation and repair of UASs.
2. Whether UAS operations should be designated as a General Inclusion or General Exclusion.²
3. Whether the exposure for operating, manufacturing or repairing UASs varies depending on their size or weight.
4. How other jurisdictions and regulatory agencies approach UAS operations.
5. How the *California Workers' Compensation Uniform Statistical Reporting Plan—1995* (USRP) should be amended to clarify the classifications and procedures applicable to the manufacture, operation and repair of UASs.

Introduction and Background

With the recent advancements in UAS technology, in addition to the Small Unmanned Aircraft Systems regulations recently established by the Federal Aviation Administration (FAA), the WCIRB has received a large number of questions regarding the classification of commercial UAS operations. Staff found that UASs can be used in a variety of industries, including but not limited to agriculture, construction, real estate, law enforcement, security, journalism, cinematography, photography, oil and gas exploration and the military. The WCIRB believes that UAS operations will continue to grow in the future.

Classification History

The WCIRB currently does not have classifications or procedures that specifically address the manufacture, operation or repair of UASs.

Operational Analysis

The FAA has established a weight demarcation of 55 pounds for UASs that are used for business purposes.³ Small UASs and their payload must weigh less than 55 pounds at takeoff; large UASs weigh 55 pounds or more.

Small UASs are typically used for data acquisition and inspection purposes and utilize various sensors, cameras and similar instrument subsystems. Operators of small UASs typically utilize handheld

¹ UASs are commonly referred to as “drones” and are also sometimes referred to as Unmanned Aerial Vehicles (UAV). For ease of reference, this Study will use the term UAS. In addition, based on the weight demarcation for commercial UASs established by the Federal Aviation Administration, this Study will refer to UASs with a combined payload weighing less than 55 pounds at takeoff as “small UASs,” and those weighing 55 pounds or more as “large UASs.”

² Refer to the USRP, Part 3, *Standard Classification System*, Section III, *General Classification Procedures*, Rule 5, *General Inclusions*, and Rule 6, *General Exclusions*.

³ In accordance with Part 107, Small Unmanned Aircraft Systems, of the FAA Regulations, small UASs and their payload must weigh less than 55 pounds. See Definitions, 14 C.F.R. § 107.3 (2017).

controllers to pilot the UAS, which are similar to controls for professional and scientific electronic instruments. Small UAS flights are generally short in duration with practical limitations based on their weight restriction. Operators of small UASs may perform refueling, maintenance and repair of the UAS in connection with operations.

Small UAS frames are typically made out of lightweight composite materials, including but not limited to titanium, aluminum or carbon fiber reinforced plastic. These strong and lightweight materials allow the UAS to be easily maneuvered and reach high speeds, while also minimizing noise and absorbing vibration. UASs can have a variety of additional features and programmed flight modes, including but not limited to fail safes, obstacle avoidance, return home triggers and similar features. Most small UASs do not physically resemble manned aircraft.

Large UASs are less common than small UASs and are generally used for purposes beyond data acquisition and inspection. Large UASs are used by agricultural concerns not only to monitor and inspect crops, but they can also be equipped with crop duster sprayers or other tools and equipment. Agricultural UASs are an appealing alternative to manned aircraft because they can take off and land vertically so there is no need for a runway. Additionally, large UASs can be safer, more efficient and environmentally friendly, and operated at a lower cost to the farmer when compared with manned aircraft. Large UASs are also used for military and governmental purposes, including data collection, search and rescue operations and surveillance of large remote areas such as national borders. Because large UASs have a total combined weight of 55 pounds or more, they are better suited to extended flight times and tasks that require significant payloads when compared to small UASs. Large UASs are constructed using materials and designs that closely resemble those of fixed wing and helicopter manned aircraft. Operators of large UASs may perform refueling, maintenance and repair of the UAS in connection with operations.

The operation of a UAS typically involves transporting the UAS to the desired location, such as an orchard, construction site, real estate location, crime scene or special event. A handheld controller, much like a video game controller, is used to make the UAS ascend, descend, rotate or tilt in different directions. Some UASs can be controlled using a Smartphone application. In some scenarios, a backup pilot or assistant crew member is required to oversee the flying of the UAS in case there are any equipment malfunctions. In other cases, one operator may be maintained to pilot the UAS and another operator may be maintained to control the cameras or sensors on the UAS to gather the desired data. This is especially true in cinematography, where it can be challenging to simultaneously manipulate the camera and fly the UAS in a steady fashion. UASs may use preprogrammed flight paths if repeated flights in a particular area will be performed, such as routine inspections of structures or fields. A crew may be maintained to change batteries or refuel the UAS, as necessary. In some cases, a field operating crew may launch the UAS while other employees at remote locations operate cameras or sensors on the UAS to acquire data.

One industry that has been an early adopter of small UAS technology is the fee-based inspection industry, which is classified as 8720(1), *Inspection for Insurance, Safety or Valuation Purposes*. These employers perform inspections for clients in the agricultural, construction, insurance and other industries for safety, insurance, valuation and other purposes. Examples include operating small UASs at agricultural locations to obtain data for the client regarding the health and maturity of crops, and at construction sites to obtain data for the client regarding the status of construction and adherence to engineering specifications.

Small UASs can also be used in connection with the operations of a variety of other industries, including construction, agriculture, photography, law enforcement, real estate and oil and gas exploration. Utilizing UASs to perform photography, broadcast journalism and television and film production appears to be, for many employers, an evolution of how they perform key operations within these industries. For example, many of these employers have begun using UASs to produce photographic or cinematographic work products that were previously produced with other types of photographic equipment. Similarly, law enforcement, private investigators, fire safety and municipalities have begun to utilize UASs to perform surveillance, crime scene investigation, crowd monitoring and similar essential functions of their operations. Engineering consulting firms also utilize UASs to gather integral data for their services, but in

a more efficient and technologically advanced way when compared with older equipment and technologies.

Based on the fact that many industries are using small UASs to perform functions that are integral to their basic operations, designating small UAS operations as a General Inclusion in most instances will establish a clear classification procedure that would not complicate employers' recordkeeping or require payroll division for UAS operations that may be integrated into their overall business operations. For example, if a photography business begins operating a small UAS for aerial photography, as a General Inclusion, Classification 4361(1), *Photographers*, will apply to the UAS operations.

The WCIRB has been advised that employers that do not require a full-time UAS operator on staff may retain part-time UAS operators as needed through specialty temporary staffing agencies. UAS operators who are provided to clients through temporary staffing arrangements are classified as though the operators are employees of the client.⁴ Classifying UAS operations as a General Inclusion will mean that all UAS operators will be classified the same—as part of the employer's (or client's) basic business operations.

However, classifying small UAS operations as a General Inclusion will not provide a clear classification procedure for employers that utilize the construction and erection classifications listed in Appendix I, *Construction and Erection Classifications*. The Special Industry Classification Procedures for Construction or Erection Work direct that division of payroll shall be made for each separate and distinct type of construction or erection operation that is specifically described by a classification, provided separate records of payroll are maintained. As a result, many construction or erection employers that keep proper payroll records are able to utilize multiple construction or erection classifications. If small UAS operations are classified as a General Inclusion for such employers, a small UAS operator could be subject to assignment to multiple construction or erection classifications with no corresponding change in the job duties performed by the UAS operator. To avoid this situation, a Special Industry Classification Procedure for the classification of small UASs operations for construction and erection classifications would be necessary.

Large UAS operations are less common than small UAS operations and are expected to remain less common for the foreseeable future because they have more stringent operator licensing requirements and higher operating expenses when compared to small UAS operations. Large UAS operations can be a cost-effective alternative to conventional aircraft operation for select industries and operations, such as agricultural crop spraying operations. The conventional aircraft operations that large UAS operations can potentially replace are currently designated as General Exclusions with regard to aircraft flying crew members. For consistency in classification procedures, members of the UAS operating crew should also be designated as General Exclusions.

Regulations and Other Jurisdictions

The FAA has adopted Part 107 of the FAA Regulations for small commercial UASs. As summarized by the FAA on its website, these regulations require that small UAS operators pass an exam to obtain a Remote Pilot Certificate and operate UASs within certain height, speed and location restrictions. Additionally, the UAS must be flown within Visual Line-of-Sight (VLOS)⁵ and may not be flown directly over anyone who is not directly participating in the operation. Prior to the adoption of these regulations, only a pilot holding an Airman Certificate who had applied for a Section 333 Exemption or obtained an airworthiness certificate or *Certificate of Waiver or Authorization* from the FAA could operate a UAS for business purposes, limiting the ability of most businesses to employ UAS operators. Under Part 107, the UAS is permitted to carry cargo; however, the payload and cargo must weigh less than 55 pounds in total. The operation of UASs with a total combined weight of 55 pounds or more at takeoff remains subject to

⁴ The classification of temporary staffing workers provided to a client is determined as though the workers are employees of the client. USRP, Part 3, Section IV, Rule 8, *Labor Contractors*.

⁵ The June 21, 2016 Summary of the Small Unmanned Aircraft Rule (Part 107) found on the FAA's website provides the following VLOS Operational Limitation: "At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses."

the Section 333 Exemption requirements; however, in certain limited cases a large UAS can be operated subject to a *Certificate of Waiver or Authorization* issued by the FAA. As this is a new and evolving technology, the FAA will likely update the regulations regarding UAS operations.

The National Council on Compensation Insurance (NCCI) has begun analyzing classification issues related to UAS operations. Currently, the NCCI does not have a classification that specifically addresses UAS operation or manufacturing. The WCIRB has been collaborating with the NCCI and exchanging ideas to seek alignment on these issues.

Although the NCCI has not finalized its proposals, the WCIRB and NCCI are in agreement that (1) large UAS operations should be designated as a General Exclusion and assigned to applicable aircraft ground crew classifications, (2) large UAS manufacturing and fee-based repair operations most closely resemble aircraft manufacturing operations and should be classified as such, (3) small UAS operations are likely to be integrated as a normal operation in many industries and, therefore, should be designated and classified as a General Inclusion to the classification applicable to the employers' operations and (4) small UAS manufacturing and fee-based repair operations should be classified as instrument manufacturing or instrument repair operations.

Further, the WCIRB and NCCI are in agreement that employers conducting fee-based inspections using small UASs, an increasingly common service, should be classified as 8720(1), *Inspection for Insurance, Safety or Valuation Purposes*. The WCIRB, however, is proposing a new alternate wording, 8720(4), *Unmanned Aircraft System Operation*, for other fee-based drone operations.

The WCIRB and NCCI also agree that large and small UAS operating crew members working remotely from an office location with no exposure outside of the clerical office should be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule.

Where the WCIRB and NCCI differ is with regard to small UAS operations performed in connection with an employer's construction or erection operations and the potential for allowing employees that are classified as outside salespersons to perform small UAS operations. As discussed later in this Study, the WCIRB is proposing amendments to the Special Industry Classification Procedures for Construction or Erection Work to resolve the issue of how to classify UAS operators employed by construction and erection firms that frequently use multiple construction classifications, none of which are necessarily reflective of the UAS operations. Amending the Special Industry Classification Procedures will establish a consistent classification assignment procedure for small UAS operators who do not otherwise supervise or perform construction operations and who would otherwise be subject to multiple classifications that vary significantly in rate, when the UAS operations themselves do not vary significantly. The NCCI believes that in many cases small UAS operations in the construction industry may be performed by salespersons or estimators and that the performance of small UAS operations by these employees should not disqualify them from assignment to Classification 8742, *Salespersons – Outside*. However, it is the WCIRB's position that UAS operations are outside the USRP's definition of outside sales, a Standard Exception classification. Therefore, the WCIRB is proposing that newly established Classification 8720(4), *Unmanned Aircraft System Operation*, and not a Standard Exception classification, apply to such operations within the construction or erection industry.

Outreach

WCIRB staff attended the second annual Drone World Expo in San Jose in November 2016 in order to gain insight into the industry. Staff spoke with a variety of exhibitors and attended workshops and conference sessions covering topics including UAS usage for agriculture, law enforcement, construction, oil and gas exploration, utilities, newsgathering, security and surveillance, crop spraying and inspecting, as well as other applications.

At the Expo, staff were advised that it is anticipated that commercial UAS use will continue to grow with the adoption of the new FAA Regulations that allow individuals with Remote Pilot Certificates to operate small UASs for business purposes. However, the FAA maintains fly zone restrictions and other protocols that significantly restrict how and where small UASs are operated. According to presenters at the Expo,

aerial staffing agencies providing UAS operators to businesses on an as-needed basis are likely to become a popular and efficient way to employ UAS operators, as it is not cost effective for many commercial concerns to hire a highly specialized UAS operator full-time.

At the Expo, it was noted that UASs can be used in a variety of industries, including agriculture, entertainment, insurance, mining, security, telecommunications and construction. The use of small UASs within each industry can vary slightly; however, their primary function is to gather data through sensors, photography, videography or Global Positioning Systems (GPS). For example, small UASs can be used by construction companies and engineers to evaluate and measure construction sites and ensure that construction meets dimensional specifications. Agricultural employers use small UASs to assess the health and status of their crops and irrigation through heat or moisture sensors and other imaging systems. Several fee-based inspection service companies are using small UASs as inspection tools to collect data that is then compiled into inspection reports for their clients. The clients come from a variety of industries, and this appears to be an area where UAS operations are rapidly expanding. WCIRB staff also saw exhibits demonstrating that some UASs use operating systems that enable certain functions to be monitored or controlled from remote office locations.

Findings

Based on its review of the above matter, the WCIRB determined:

1. The size of the UAS affects the operator's exposure. Therefore, the FAA's established 55 pound weight limitation should be the line of demarcation between small and large UASs for classification purposes.
2. The exposure for operating small UASs is generally consistent even though UASs can be used in connection with a variety of different industries, including construction, agriculture, real estate, oil and gas exploration, broadcast journalism, photography, television and film production, engineering, law enforcement, fire safety and municipalities. While most employers will not have UAS operations, many of those that have small UAS operations will integrate those operations into their basic business operations. These characteristics are consistent with establishing small UAS operations as a General Inclusion.
3. Employers that specialize in small UAS operations on a fee basis are generally providing inspection or data acquisition services to their clients. These operations are consistent with Classification 8720(1), *Inspection for Insurance, Safety or Valuation Purposes*.⁶
4. With the exception of the *Construction or Erection* Industry, designating small UAS operations as a General Inclusion will ensure that most employers with small UAS operations are classified based on their primary business operations without the burden of maintaining payroll records for a separate classification. Construction and erection employers can have operations assigned to multiple classifications and, as such, classifying construction and erection industry small UAS operations should be addressed by a Special Industry Classification Procedure directing how small UAS operations should be separately classified.
5. Small UASs are typically equipped with sensors, cameras, GPS and various devices for data collection or inspection purposes, similar to professional or scientific instruments.
6. The operation of large UASs is more involved than the operation of small UASs and requires a higher level of training and certification. Large UASs, including those used by agricultural concerns for crop spraying, exceed the scope of what is considered an instrument for classification purposes. Large UASs are more closely related to aircraft in their design and may be used to perform tasks that are otherwise performed by manned aircraft. However, UAS operators stay on the ground and, therefore, do not have the same exposure as pilots who are onboard an aircraft in flight.
7. Operators of large and small UASs may perform refueling, maintenance and repair of the UAS in connection with operations. Maintenance and ordinary repair of equipment when performed by employees of the employer is a General Inclusion.
8. Large UAS manufacturing and fee-based repair operations most closely resemble aircraft manufacturing and repair operations and should be classified as such.

⁶ Classification 8720 applies to a variety of inspection related operations. The phraseology for each alternate wording of Classification 8720 is provided in Appendix I of this report.

9. Typically, a UAS is operated outside, flown within VLOS and maneuvered by ground crew members using handheld controls. However, in some cases, small and large commercial UASs can be partially operated or monitored remotely from a clerical office setting.

Recommendations

The WCIRB recommends:

1. Designating small UAS operations, other than those used in the *Construction and Erection* Industry Group classifications, as a General Inclusion.
2. Amending the Special Industry Classification Procedures for Construction or Erection Work to designate that when an employer retains one or more employees in connection with its construction or erection operations as members of a crew that operates UASs with a total combined weight of less than 55 pounds, such members of the UAS operating crew shall be classified as 8720(4), *Unmanned Aircraft System Operation*, provided they are engaged exclusively in such operations, or are engaged in such work for any portion of their time and devote the balance of their time to clerical office duties or outside sales. Employees who are members of a UAS operating crew and also perform or supervise construction or erection operations shall be classified based on the construction or erection operations they supervise or perform.
3. Establishing Classification 8720(4), *Unmanned Aircraft System Operation*, as an alternate wording to existing Classification 8720 for the operation of small UASs on a fee basis, or in connection with the employer's construction or erection operations. Establishing this alternate wording will allow staff to monitor these emerging operations to assess whether the proposed alternate wording generates enough data to develop a statistically credible advisory pure premium rate in the future.
4. Designating large UAS operations as a General Exclusion.
5. Amending Classification 7428(1), *Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew*, to include the operation of large UASs for other than agricultural operations, as their operating crew members have exposure similar to that of aircraft ground crew.
6. Amending Classification 7410, *Aircraft Operation – agriculture – dusting, spraying and seeding – not members of the flying crew*, to include the operation of large UASs for agricultural operations, including but not limited to dusting, spraying and seeding, as their operating crew members have exposure similar to that of aircraft ground crew.
7. Amending Classification 3681(1), *Instrument Mfg. – electronic*, to apply to the manufacture and fee-based shop repair of small UASs. Additionally, the WCIRB recommends amending Classification 5128, *Instrument – professional or scientific – installation, service or repair – away from shop*, to state that it applies to the fee-based repair of small UASs away from shop.
8. Establishing Classification 3830(2), *Unmanned Aircraft System Mfg.*, as an alternate wording to Classification 3830, *Airplane Mfg. – including foundry operations*, for the manufacture of large UASs and the repair of large UASs by the manufacturer. Classification 3830 has been used for a variety of aircraft and aerospace manufacturing operations, including operations that closely resemble large UAS manufacturing operations. Establishing this alternate wording will allow the WCIRB to monitor these emerging operations to assess whether the proposed alternate wording generates enough data to develop a statistically credible advisory pure premium rate in the future.
9. Developing footnotes within UAS operation and manufacturing classifications directing how large and small UAS repair operations shall be classified. The repair of large UASs on a fee basis, and repair work performed by the manufacturer away from shop shall be classified as 7428(3), *Aircraft Remanufacture, Conversion, Modification and Repair Companies*. Shop repair by the manufacturer shall be classified as 3830(2), *Unmanned Aircraft System Mfg.*
10. Developing footnotes within UAS operation classes directing that employees who operate or monitor UASs from remote office locations with no exposure to other operations may qualify as *Clerical Office Employees*, subject to Section III, Rule 4, *Standard Exceptions*.⁷

⁷ Section III, Rule 4a, *Clerical Office Employees*, currently states the following: "Clerical Office Employees are defined as those employees whose duties are confined to keeping the books, records or cash of the employer; conducting correspondence; dispatching; recording weights; or who are engaged wholly in general office work or office drafting, having no regular duty of any other nature in the service of the employer. The entire payroll of any employee who is engaged in operations performed by clerical

Recommendation

Amend Part 3, Section III, *General Classification Procedures*, Rule 5, *General Inclusions*, to add the operation of small Unmanned Aircraft Systems (aerial drones).

PROPOSED

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5. General Inclusions

The operations listed below are included in all classifications other than Standard Exception classifications. Except as provided in Section VII, *Standard Classifications*, general inclusions shall not be separately classified, all other provisions contained herein notwithstanding. Any operation described by a general inclusion shall nevertheless be subject to division of payroll if conducted as a separate and distinct enterprise and having no relation to the operations described by any other classification.

- Aircraft travel by employees, other than members of the flying crew, including employees whose payroll is assigned to the Standard Exception classifications.
- Commissaries.
- Manufacturing of containers, such as bags, barrels, bottles, boxes, cans, cartons or packing cases.
- Plant dispensaries.
- Maintenance or ordinary repair of the employer's buildings or equipment when performed by employees of the employer.
- Printing and lithography.
- Stamping, welding, drilling and blasting.
- Research laboratories.
- Drivers and their helpers.
- Supervisors whose work is necessary, incidental or appurtenant to any operations of the business.
- Unmanned Aircraft System (aerial drone) operation – aircraft system and payload total combined weight of less than 55 pounds – all members of the operating crew. Operations performed in support of the employer's Construction or Erection operations shall be classified in accordance with Part 3, Section IV, Rule 2, *Construction or Erection Work*. Operating crew members working remotely from an office location with no exposure outside of the clerical office shall be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule.

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Recommendation

Amend Part 3, Section III, *General Classification Procedures*, Rule 6, *General Exclusions*, to add the operation of large Unmanned Aircraft Systems (aerial drones).

PROPOSED

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6. General Exclusions

Subject to division of payroll rules, the following operations are excluded from all classifications, including Standard Exceptions, unless specifically included in the language of the classification. Operations described by general exclusions shall require division of payroll, notwithstanding that the classification wording may include the term *all* as in such phrases as *all employees*, *all operations*, etc.

- Aircraft operation – all members of the flying crew.
- Maintenance or repair work if performed by contractors, and all new construction or alteration work whether done by the employer's employees or by contractors.
- Foundry operations.
- Asbestos abatement.
- Day care services if provided by the employer primarily for the use of its employees' dependents.
- Unmanned Aircraft System (aerial drone) operation – aircraft system and payload total combined weight of 55 pounds or heavier – all members of the operating crew. Operating crew members working remotely from an office location with no exposure outside of the clerical office shall be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule.

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Recommendation

Amend Part 3, Section IV, *Special Industry Classification Procedures*, Rule 2, *Construction or Erection Work*, to add the operation of large Unmanned Aircraft Systems (aerial drones).

PROPOSED

2. Construction or Erection Work

This rule applies to the construction and erection classifications listed in Appendix I, *Construction and Erection Classifications*. Division of payroll shall be made for each separate and distinct type of construction or erection operation that is specifically described by a classification, provided separate records of payroll are maintained and provided the use of any such classification in connection with a separate job or location is not restricted by classification phraseology or footnotes. When the operations at a job or location are classified on a divided payroll basis, the remuneration of any one employee may be divided between two or more classifications provided the employer has maintained complete and accurate records supported by original time cards or time book entries which show separately, both by individual employee and in summary by operations performed, the remuneration earned by such employee. Operations for which separate records of payroll are not maintained shall be assigned to the highest rated classification applicable to the job or location if payrolls are kept separately by job within the policy period; otherwise,

the highest rated classification shall be assigned based on the entire policy period. Operations that normally prevail in connection with a classification shall not be subject to division of payroll, but shall be assigned to such classification, whether or not separate records of payroll are kept.

When an employer retains one or more employees as members of a crew that operates Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of less than 55 pounds in connection with its construction or erection operations, such members of the Unmanned Aircraft System operating crew shall be classified as 8720(4), *Unmanned Aircraft System Operation*, provided they are engaged exclusively in such operations, or are engaged in such work for any portion of their time and devote the balance of their time to clerical office duties or outside sales. Employees who are members of an Unmanned Aircraft System operating crew and also perform or supervise construction or erection operations shall be classified based on the construction or erection operations they supervise or perform. Operating crew members working remotely from an office location with no exposure outside of the clerical office shall be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule.

The operating crew of Unmanned Aircraft Systems with an aircraft system and payload total combined weight of 55 pounds or heavier shall be classified in accordance with Part 3, Section III, Rule 6, *General Exclusions*.

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Recommendation

Amend Classification 3830, *Airplane Mfg.*, to create an alternate wording, clarify its intended application and provide direction as to how related operations should be classified.

PROPOSED

AIRPLANE/AIRCRAFT OR SPACECRAFT MFG. – including foundry operations

3830(1)

This classification applies to the manufacture of aircraft, including but not limited to fixed wing airplanes and helicopters. This classification also applies to the manufacture of aerospace products, including but not limited to missiles, rockets and other spacecraft. This classification also applies to the manufacture of light sport aircraft and hang gliders.

This classification includes foundry operations performed in connection with the aircraft or spacecraft manufacturing operations.

All members of the flying crew for aircraft operations, including but not limited to test flight operations performed by the manufacturer shall be classified in accordance with Part 3, Section III, Rule 6, *General Exclusions*.

The manufacture of Unmanned Aircraft Systems (aerial drones) with a total combined weight of 55 pounds or heavier shall be classified as 3830(2), *Unmanned Aircraft System Mfg.*

The manufacture of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds shall be classified as 3681(1), *Instrument Mfg. – electronic*.

The manufacture of communication satellites shall be classified as 3681(3), *Telecommunications Equipment Mfg.*

Aircraft engine manufacturing or rebuilding not in connection with aircraft manufacturing by the same employer shall be classified as 3805(1), *Aircraft Engine Mfg. or Rebuilding*.

The manufacture or repair of machined aircraft components performed by employers that are approved by the Federal Aviation Administration, when such operations are not performed directly on the aircraft or in connection with components that are removed from and later reinstalled on the aircraft, shall be classified as 3831, *Machine Shops – aircraft components*.

The repair and rebuilding of aircraft components and parts, when such operations are performed directly on the aircraft or in connection with components that are removed from and later reinstalled on the aircraft by the employer, shall be classified as 7428(3), *Aircraft Remanufacture, Conversion, Modification and Repair Companies*.

Aircraft operation, or demonstration or flight testing shall be separately classified.

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Recommendation

Establish Classification 3830(2), *Unmanned Aircraft System Mfg.*, to provide direction as to how the manufacture of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier should be classified and how related operations should be classified.

PROPOSED

UNMANNED AIRCRAFT SYSTEM MFG. – aircraft system and payload total combined weight of 55 pounds or heavier **3830(2)**

This classification applies to the manufacture of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of 55 pounds or heavier. This classification includes the shop repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier when performed by the manufacturer.

The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier, including but not limited to test flight operations performed by the manufacturer shall be classified in accordance with Part 3, Section III, Rule 6, *General Exclusions*. The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier used for other than agricultural operations shall be separately classified as 7428(1), *Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew*. The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier used for agricultural operations, including but not limited to dusting, spraying and seeding, shall be separately classified as 7410, *Aircraft Operation – agricultural – dusting, spraying and seeding – not members of the flying crew*.

The manufacture and fee-based shop repair of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds shall be classified as 3681(1), *Instrument Mfg. – electronic*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds, including but not limited to test flights performed by the manufacturer shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

The repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier on a fee basis, and repair work performed by the manufacturer away from shop shall be separately classified as 7428(3), *Aircraft Remanufacture, Conversion, Modification and Repair Companies*.

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Recommendation

Amend Classification 3681(1), *Instrument Mfg. – electronic*, which is part of the *Electronics Industry* Group, to include the manufacture and fee-based shop repair of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds and provide direction as to how related operations should be classified.

PROPOSED

ELECTRONICS INDUSTRY

INSTRUMENT MFG. – electronic – professional or scientific – N.O.C.

3681(1)

This classification applies to the manufacture and shop repair of electronic instruments that are not specifically described by another classification, including but not limited to electronic altimeters, air speed indicators and telemetry instruments, electronic centrifuges, cell sequencers, bio-sensor equipment, mass spectrometers, electronic scales, programmable electronic control systems, electronic point of sale (POS) systems, calculators, electron and laser microscopes, electron accelerators and fraction collectors, electronic toxic gas or vapor detection systems, radiation monitoring equipment, ohm meters, frequency synthesizers and printed circuit board test equipment. This classification also applies to the manufacture of electronic or electronically controlled manufacturing equipment for the semiconductor industry, including but not limited to vapor ovens, wafer inspection stations, wafer probe systems, wet processing equipment, photo mask inspection equipment, diffusion etching machines, wafer cleaning equipment, wafer dicing saws and plasma etching machines.

This classification also applies to the manufacture and fee-based shop repair of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of less than 55 pounds.

The manufacture of electronic medical equipment used for diagnostic or treatment purposes shall be classified as 3572, *Medical Instrument Mfg.*

The manufacture of non-electronic instruments shall be classified as 3682, *Instrument Mfg. – non-electronic*.

The manufacture of industrial robotic systems shall be classified as 3560(2), *Machinery Mfg. – industrial*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds, including but not limited to test flight operations performed by the manufacturer shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

The installation or repair of instruments, or the repair of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds, away from shop shall be separately classified as 5128, *Instrument Installation, Service or Repair*.

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Recommendation

Amend Classification 5128, *Instrument*, to include the repair of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds away from shop and provide direction as to how related operations should be classified.

PROPOSED

**INSTRUMENT INSTALLATION, SERVICE OR REPAIR – medical, professional or scientific –
installation, service or repair – away from shop – not office machines**

5128

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This classification also applies to the fee-based repair away from the shop of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of less than 55 pounds.

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The manufacture and fee-based shop repair of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds shall be separately classified as 3681(1), *Instrument Mfg. – electronic*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds, including but not limited to test flight operations performed in connection with repair or by the manufacturer shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

The shop repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier by the manufacturer shall be classified as 3830(2), *Unmanned Aircraft System Mfg*.

The repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier on a fee basis, and repair work performed by the manufacturer away from shop shall be classified as 7428(3), *Aircraft Remanufacture, Conversion, Modification and Repair Companies*.

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* indicates changes to this classification that are being proposed in the separate Draft Classification Study —
Installation, Service and Repair of Building Security Systems, Audio/ Video Systems, Office Machines, Computer
Systems, Telephone Systems and Instruments

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Recommendation

Amend Classification 7410, *Aircraft Operation – agricultural – dusting, spraying and seeding – not members of the flying crew*, which is part of the *Aircraft Operation* Industry Group, to include the General Exclusion operation of Unmanned Aircraft Systems (aerial drones) with a total combined weight of 55 pounds or heavier and provide direction as to how related operations should be classified.

PROPOSED

AIRCRAFT OPERATION

AIRCRAFT OPERATION – agricultural – dusting, spraying and seeding – not members of the flying crew 7410

This classification applies to the ground operations of employers engaged in the aerial application of materials, including but not limited to pesticides, insecticides, fungicides, fertilizers, herbicides and seeds onto farmlands. This classification also includes the ground operations of employers engaged in the aerial application of insecticides for mosquito control purposes. Ground operations include but are not limited to mixing and loading of materials onto the aircraft, directing pilots during application of materials and aircraft fueling, service and repair.

This classification also applies to the operating crew of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of 55 pounds or heavier used for agricultural operations, including but not limited to dusting, spraying and seeding, in accordance with the General Exclusions rule. See Part 3, Section III, Rule 6, *General Exclusions*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier used for other than agricultural operations shall be separately classified as 7428(1), *Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew*, in accordance with the General Exclusions rule. See Part 3, Section III, Rule 6, *General Exclusions*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

The shop repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier by the manufacturer shall be classified as 3830(2), *Unmanned Aircraft System Mfg.*

The repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier on a fee basis, and repair work performed by the manufacturer away from shop shall be classified as 7428(3), *Aircraft Remanufacture, Conversion, Modification and Repair Companies*.

Unmanned Aircraft Systems operating crew members working remotely from an office location with no exposure outside of the clerical office shall be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule. See Section III, *General Classification Procedures*, Rule 4, *Standard Exceptions*.

Also refer to companion Classification 7409, *Aircraft Operation – agricultural – dusting, spraying and seeding – members of flying crew*.

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Recommendation

Amend Classification 7428(1), *Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew*, which is part of the *Aircraft Operation* Industry Group, to include the General Exclusion operation of Unmanned Aircraft Systems (aerial drones) with a total combined weight of 55 pounds or heavier, and provide direction as to how related operations should be classified.

PROPOSED

AIRCRAFT OPERATION

AIRCRAFT OPERATION – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew – N.O.C. 7428(1)

This classification applies to the ground operations of employers engaged in aircraft operations not more specifically described by another *Aircraft Operation* Industry Group classification, including but not limited to air ambulance services; air freight services (nonscheduled); aerial fire-fighting; aerial exhibitions; aerial patrol; aerial advertising, skywriting, sightseeing and survey work; aerial log lifting and transport; and aerial news reporting. Ground operations include but are not limited to aircraft fueling, service and repair.

This classification also applies to the operating crew of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of 55 pounds or heavier used for other than agricultural operations, in accordance with the General Exclusions rule. Refer to Part 3, Section III, Rule 6, *General Exclusions*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier used for agricultural operations, including but not limited to dusting, spraying and seeding, shall be separately classified as 7410, *Aircraft Operation – agricultural – dusting, spraying and seeding – not members of the flying crew*, in accordance with the General Exclusions rule. Refer to Part 3, Section III, Rule 6, *General Exclusions*.

The operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

The shop repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier by the manufacturer shall be classified as 3830(2), *Unmanned Aircraft System Mfg.*

The repair of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier on a fee basis, and repair work performed by the manufacturer away from shop shall be classified as 7428(3), *Aircraft Remanufacture, Conversion, Modification and Repair Companies*.

Unmanned Aircraft Systems operating crew members working remotely from an office location with no exposure outside of the clerical office shall be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule. See Section III, *General Classification Procedures*, Rule 4, *Standard Exceptions*.

Ticket sellers or information clerks shall be separately classified as 8810(4), *Clerical Office Employees*, classroom instructors shall be separately classified as 8868, *Colleges or Schools – private – not automobile schools – professors, teachers, or academic professional employees*, and ground photographic laboratory employees shall be separately classified as 4361(1), *Photographers—~~all employees~~*.

Also refer to companion Classification 7424(1), *Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – members of the flying crew*.

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Recommendation

Amend Classification 8720(1), *Inspection for Insurance, Safety or Valuation Purposes*, to provide direction as to how related operations should be classified.

PROPOSED

INSPECTION FOR INSURANCE, SAFETY OR VALUATION PURPOSES – N.O.C. – including 8720(1) Outside Salespersons

This classification applies to employers that perform inspections for insurance, safety or valuation purposes on a fee basis, including but not limited to boiler inspections, electric meter inspection and testing, backflow valve inspection and testing, energy efficiency inspections, fire protection and safety inspections, log scaling and agricultural products inspection.

This classification also applies to insurance claims investigations performed on a fee basis that involve surveillance of persons without their knowledge.

This classification also applies to monitoring the flow of fluids on oil leases or along pipelines on a fee basis.

When performed in connection with an employer's own operations, other than construction or erection, the operating crew of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of less than 55 pounds shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

Insurance claims investigations performed on a fee basis that do not require surveillance of persons without their knowledge shall be classified as 8742(4), *Salespersons – Outside*, or 8810(4), *Clerical Office Employees*, ~~in accordance with~~ subject to the rules for Standard Exceptions rule. See Section III, *General Classification Procedures*, Rule 4, *Standard Exceptions*. Insurance claims investigations performed by insurance companies shall be classified as 8822, *Insurance Companies*.

Property appraisal on a fee basis shall be classified as 8742(4), *Salespersons – Outside*.

The weighing, grading, inspecting and sampling of merchandise at docks, railway stations or warehouses on a fee basis shall be classified as 8720(3), *Weighers, Samplers or Inspectors of Merchandise on Docks or at Railway Stations or Warehouses*.

The fee inspection of boats, ships and marine vessels for safety and to determine seaworthiness and the fee inspection and surveying of cargo that may have been damaged in marine transit shall be classified as 7248, *Marine Appraisers or Surveyors*.

The provision of legal support services on a fee basis, including but not limited to process serving of summons, subpoenas and complaints; filing court documents; or reproducing documents shall be classified as 8821, ~~Attorney~~ Law Firm Support Services.

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Recommendation

Establish Classification 8720(4), *Unmanned Aircraft System Operation*, to provide direction as to how to classify the fee-based operations of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds, and how to classify such operations when performed in support of an employer's own construction or erection operations.

PROPOSED

UNMANNED AIRCRAFT SYSTEM OPERATION – aircraft system and payload total combined weight of less than 55 pounds – including Outside Salespersons **8720(4)**

This classification applies to the operating crew of Unmanned Aircraft Systems (aerial drones) with an aircraft system and payload total combined weight of less than 55 pounds that are operated on a fee basis. This classification includes shop and field repair of Unmanned Aircraft Systems in connection with such operations.

This classification also applies to the operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds that are operated in support of the employer's construction or erection operations, provided the operating crew members are engaged exclusively in such operations, or are engaged in such work for any portion of their time and devote the balance of their time to clerical office duties or outside sales. Employees who are members of an Unmanned Aircraft System operating crew and also perform or supervise construction or erection operations shall be classified based on the construction or erection operations they supervise or perform. See Section IV, *Special Industry Classification Procedures*, Rule 2, *Construction or Erection Work*.

When performed in connection with an employer's own operations, other than construction or erection, the operating crew of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds shall be classified in accordance with Part 3, Section III, Rule 5, *General Inclusions*.

Operation of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier shall be classified in accordance with Part 3, Section III, Rule 6, *General Exclusions*. The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier used for other than agricultural operations shall be separately classified as 7428(1), *Aircraft Operation – other than agricultural, scheduled or supplemental air carriers – not members of the flying crew*. The operating crew of Unmanned Aircraft Systems with a total combined weight of 55 pounds or heavier used for agricultural operations, including but not limited to dusting, spraying and seeding, shall be separately classified as 7410, *Aircraft Operation – agricultural – dusting, spraying and seeding – not members of the flying crew*.

Unmanned Aircraft Systems operating crew members working remotely from an office location with no exposure outside of the clerical office shall be classified as 8810, *Clerical Office Employees*, subject to the Standard Exceptions rule. See Section III, *General Classification Procedures*, Rule 4, *Standard Exceptions*.

The fee-based repair of Unmanned Aircraft Systems with a total combined weight of less than 55 pounds away from shop shall be separately classified as 5128, *Instrument Installation, Service or Repair*.

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Recommendation

Amend Section VIII, *Abbreviated Classifications – Numeric Listing*, for consistency.

PROPOSED

Section VIII – Abbreviated Classifications – Numeric Listing

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- 3830(1) ~~Airplane~~Aircraft/Spacecraft Mfg
- 3830(2) Unmanned Aircraft System Mfg
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- 8720(4) Unmanned Aircraft System Operation
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Appendix I

INSPECTION FOR INSURANCE, SAFETY OR VALUATION PURPOSES – N.O.C. – including Outside Salespersons 8720(1)

This classification applies to employers that perform inspections for insurance, safety or valuation purposes on a fee basis, including but not limited to boiler inspections, electric meter inspection and testing, backflow valve inspection and testing, energy efficiency inspections, fire protection and safety inspections, log scaling and agricultural products inspection.

This classification also applies to insurance claims investigations performed on a fee basis that involve surveillance of persons without their knowledge.

This classification also applies to monitoring the flow of fluids on oil leases or along pipelines on a fee basis.

Insurance claims investigations performed on a fee basis that do not require surveillance of persons without their knowledge shall be classified as 8742(1), *Salespersons – Outside*, or 8810(1), *Clerical Office Employees*, in accordance with the rules for Standard Exceptions. Insurance claims investigations performed by insurance companies shall be classified as 8822, *Insurance Companies*.

Property appraisal on a fee basis shall be classified as 8742(1), *Salespersons – Outside*.

The weighing, grading, inspecting and sampling of merchandise at docks, railway stations or warehouses on a fee basis shall be classified as 8720(3), *Weighers, Samplers or Inspectors of Merchandise on Docks or at Railway Stations or Warehouses*.

The fee inspection of boats, ships and marine vessels for safety and to determine seaworthiness and the fee inspection and surveying of cargo that may have been damaged in marine transit shall be classified as 7248, *Marine Appraisers or Surveyors*.

The provision of legal support services on a fee basis, including but not limited to process serving of summons, subpoenas and complaints; filing court documents; or reproducing documents shall be classified as 8821, *Attorney Support Services*.

ELEVATOR INSPECTING – including Outside Salespersons – no service inspections, oiling, adjusting or repairing 8720(2)

This classification applies to the inspection of elevators, including crane elevators on a fee basis for certification by the State.

Elevator service inspection, oiling and adjusting shall be classified as 8729, *Elevator Service Inspections, Oiling and Adjusting*.

Elevator erection or repair shall be classified as 5160, *Elevator Erection or Repair*.

office employees and also is exposed (1) to any operative hazard of the business or (2) to any outside selling or collecting work, shall be assigned to the highest rated classification of work to which the employee is so exposed. Supervisors and clerks, such as time, stock, or tally clerks, whose work is necessary, incidental, or appurtenant to any operations of the business other than clerical office, shall not be considered clerical office employees. The clerical office employee classification shall be applied only to the payroll of persons herein described who work exclusively in areas that are separated from all other work places of the employer by buildings, floors, partitions, railings, or counters and within which no work is performed other than clerical office or drafting duties as defined in this section."

WEIGHERS, SAMPLERS OR INSPECTORS OF MERCHANDISE ON DOCKS OR AT RAILWAY STATIONS OR WAREHOUSES – including mending or repacking of damaged containers – including Outside Salespersons **8720(3)**

This classification applies to the weighing, grading, inspecting and sampling of a variety of merchandise, including but not limited to fruits, vegetables, grains, equipment parts and machinery at docks, railway stations or warehouses on a fee basis.

This classification also applies to operation of public scales.

The operation of warehouses shall be separately classified.

The inspection and surveying of marine vessels to analyze cargo that may have been damaged in marine transit shall be classified as 7248, *Marine Appraisers or Surveyors*.